

## PRODUCTION TRAITS AND CAUSES OF CULLING ESTABLISHED IN SOWS OF MATERNAL PIG BREEDS

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### Introduction

Long term activity of excellent individuals in breeding process is very important element which influences profitability of breeding (Fülöp et al., 1994). Risk of culling is one of criteria of longevity (Wolfová, 1997). Risk of culling describes probability with which is sow culled in a given time in comparison with population average. Risk increases with sow age; there is rising probability of young gilts replacement in herd instead of sows after fourth litter. Reproductive failure, locomotion problems and low milkiness (production of milk) are main reasons for sow culling from breeding. Late return to oestrus and low pregnancy rate are the most frequent reasons for culling in primiparous sows (Dourmad et al., 1994).

### Materials and methods

Production and reproduction traits of gilts were monitored in the experiment for 6 years (from 2000 to 2006) in Czech Large White breed (156 gilts) and Czech Landrace (36 gilts). Data were collected in performance test according to valid methodology. Proportion of lean meat and backfat thickness was measured with SONOMARK apparatus. Weight of animals was taken too. As reproduction traits were monitored number of total, alive born and weaned piglets, age at first conception and age at first farrowing. Removal reasons of individual animals from breeding were recorded.

### Results and discussion

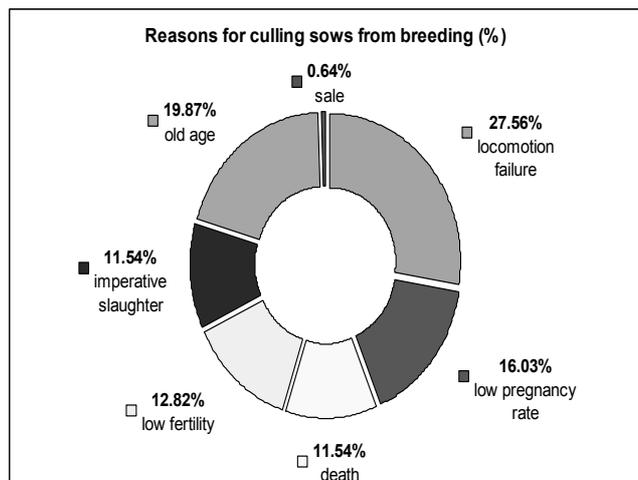
Gilts of Czech Large White (CLW) breed achieved average daily weight gain from the birth  $625.33 \pm 53.68$  g and gilts of Czech Landrace (CL)  $636.30 \pm 64.91$  g in performance test. Čechová et al. (2004) show that higher growth ability of gilts during rearing doesn't have negative influence on their next fertility. But higher average daily weight gains negatively influence longevity of sows. Also Jorgensen and Sorensen (1998) show that high intensity of gilt rearing results in more weakness limbs problems and decrease of sow longevity. We recorded backfat thickness at the level  $8.5 \pm 1.63$  mm in CLW and  $8.07 \pm 1.43$  mm in CL. Proportion of lean meat was  $61.06 \pm 1.69\%$  (CLW) and  $60.98 \pm 1.62\%$  (CL).

Gilts of CLW breed were first inseminated at the age  $269.97 \pm 38.33$  days and their weigh was  $149.35 \pm 18.51$  kg; gilts of CL breed were first inseminated at the age  $246.10 \pm 33.76$  days and at weight  $144.44 \pm 15.70$  kg. The first mating age is recommended about 220 - 230 days in second or third oestrus at weight 130 and 140 kg.

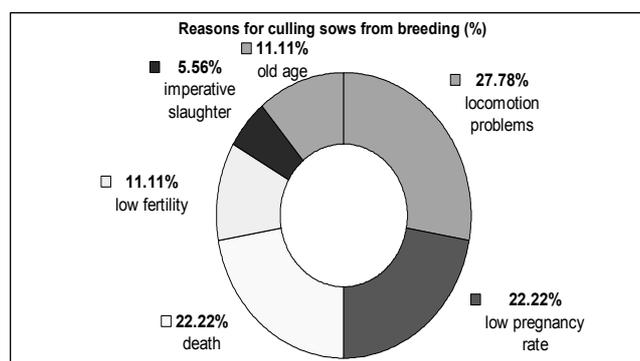
If gilts are mated untimely (before this time and weight) reproduction results are always insufficient (Výmola, 2006). Schukken et al. (1994) advise average age at first insemination 200 and 220 days because of achieving adequate economic level of breeding. Gilts should be not serviced at the first oestrus because of risk of low pregnancy rate and low number of piglets. Service at third oestrus is troublefree from standpoint of number of born piglets. Service at the age among 7.5 and 8.5 months and at weight among 130 and 140 kg is optimal (Čeřovský et al., 1998).

Culling animals from monitored group of gilts CLW was the most frequent by reason of locomotion problems (27.56%), by reason of low pregnancy rate (16.03%) and low fertility (12.82%) (Graph 1). 10.25% of animals were culled after first litter for locomotion problems and 5.76% of animals by reason of low pregnancy rate. Most animals from breed CL was culled after first litter (13.88%) and after second litter (25%). In general monitoring were locomotion problems (27.78%) and subsequently low pregnancy rate (22.22%) the most frequent reasons for culling (Graph 2). Boyle et al. (1998) show rate of culling by reason of locomotion problems and low performance generally about 11%, after first litter it is 32%. Fukawa and Kusahara (2001) consider weakness of limbs how one of most serious problems in pigs performance. According to Wolfová (1997) failure in limb formation and locomotive apparatus leads to considerable economic wastes. Losses of sows in consequence of weak limbs are estimated about 10 and 20%; in our both monitored groups of animals this percentage was exceeded in their study. As the most common reason of culling determine Dial Marsh and Lucia (2000) reproductive failure, subsequently culling by reason of un-optimal litter size. Koketsu et al. (1999) found out that sows were culled mostly at parity 7 and 8 (14.1 and 13.9%). Reasons of culling in their experiment were old age (39.2%), reproductive failure (24.5%), locomotive failure (8.7%), not recorded (7.7%) and others (19.9%).

**Graph 1: Reasons for culling sows of breed Czech Large White at graphical illustration**



**Graph 2: Reasons for culling sows of breed Czech Landrace at graphical illustration**



## Conclusion

Main reason of culling of sows were locomotive failure - in Czech Large White breed were culled 27.56% of sows and at Czech Landrace 27.78% of sows. Because of low heritability of limbs quality is necessary to provide suitable conditions for gilts - to enable movement of animals in pen on suitable floor and at favourable conditions (moisture, temperature, air flow). Next suitable proceeding is to support growth and evolution of kinetic apparatus of gilts in rearing period with addition of vitamins and minerals and feeding of animal with feeding doses according their age.

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