SELECTION FOR LITTER SIZE IN PIGS

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In pig production, producers and researchers worldwide have neglected selection for reproductive performance and concentrated on parameters offering more immediate economical benefits. Bichard (1983) indicated that the theoretical maximum annual rate of progress in pig herds selected solely for litter size is about 0.25 piglet per litter per year. This rate has been reached in several experiments with mice but not with pigs. Greater initial increases in litter size may be achieved by screening large populations for prolific sows (Legault and Gruand 1975). These French results indicate an increase of about one pig per litter in daughters of prolific sows.

In order to establish the "Prolific Nucleus Herd" at Muresk Agricultural College intensive piggeries in Western Australia have been screened for breeding stock originating from litters with sixteen or more pigs. Approximately 100 boars and 200 gilts have been used. Data on the number of piglets born per litter and other reproductive parameters have so far been recorded for 345 litters in the selected line and 260 litters in controls (Table 1).

TABLE 1 Litter size in selected and control population (Mean ± S.E.)

	1st Litter				2nd Litter			
	Total		Live		Total		Live	
First Generation	10.05	0.39	9.21	0.41	11.35	0.46	10.29	0.48
Control	9.67	0.29	8.80	0.35	10.44	0.34	9.86	0.44
Second Generation	10.39	0.46	9.72	0.41	11.52	0.52	10.91	0.38
Control	9.93	0.36	9.21	0.40	10.24	0.47	9.96	0.31
Third Generation	11.47	0.51	10.82	0.48	12.91	0.56	11.46	0.51
Control	10.14	0.60	9.06	0.56	10.86	0.68	10.28	0.59

Consistent increases in litter size in the selected line confirmed the previouslv reported trend (Tomes and Newman 1982). However it is to be noted that the large increase recorded in the third generation coincided with the introduction of standardisation of litter size at birth in the selected line. We have also recorded a reduction in weaning to mating interval of 1.4 days and a small increase in the conception rate after the first service (89% vs 86% in controls). A low positive correlation (r=0.31) was established between the scrotal area of individual boars and subsequent litter size in sows to which they were mated.

Results of this study indicate that the selection for reproductive performance may offer a relatively inexpensive method of increasing the reproductive performance of sow breeding herds.

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