Achieving Litter Uniformity in Sows

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The selection of "improved" commercial dam-line females has largely been driven by selection for litter size with little appreciation of the other possible consequences. Patterns of prenatal loss may be affected by: 1) the high genetic potential for lean growth performance, and 2) variation in litter birth weights. The pork producer is under increasing pressure to deliver uniform carcasses to the packer, following a tightly controlled time schedule. Decreased variation in birth weight and optimized lean growth, achieved by adjusting the pattern of prenatal loss, would have enormous economic benefits to the industry.

Work recently completed at the University of Alberta, showed that embryo survival rates can be as high as 100% at day 28 of gestation. Consequently, losses beyond day 28 appear to be very considerable, and particularly in higher parity sows, may be as high as 50%. Based on this information, a program has been initiated to determine the patterns of pre-natal loss in commercial genotypes, and relationships to fetal development *in utero,* and neonatal growth and development of piglets. This may lead to the development of improved management strategies for the breeding herd.

A collaborative study was undertaken in Iowa, USA. 270 mixed parity sows were slaughtered at days 30, 40 or 50 of gestation. Ovulation rates, and embryonic and placental development, are being analyzed in these animals. Data will provide critical and very extensive information on the time at which embryo losses occur during early pregnancy. Preliminary results show:

Oocytes ovulated per sow, n=149	Total embryo survival (%)		
	d30	d40	d50
26.7	68[a]	57[b]	49[c]

[a,b,c] indicates a significant difference within row P≤ 0.02

Implication: The pattern of uterine crowding during early gestation has the potential to affect early development of the offspring and consequently the growth potential of finishing pigs. This research is supported by the Alberta Pork Producers and the AARI.