

## V. — REPRODUCTION

### Development and genetic value of a method for evaluating "in vivo" the testicles of young boars

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The testicles of 226 young Large White boars, sons of 16 sires, were measured at a slaughter weight of 40,85 and 108 kg in order to develop a method for a simple and economic evaluation of the weight of these organs in living animals.

The repeatability of the different measures was very high and above 0.89. The evaluations of heritability were high: they ranged between  $0.58 \pm 0.28$  and  $0.69 \pm 0.30$  for the three measures of the total testicle width obtained with a slide-stick, between  $0.55 \pm 0.27$  and  $0.67 \pm 0.30$  for the testicle surface by a planimetric measurement on a photo.

Estimations of the heritability of the organ weight at slaughter were  $0.73 \pm 0.30$  for the testicle weight;  $0.35 \pm 0.25$  for the epididymis weight and  $0.77 \pm 0.31$  for the weight of both, respectively.

The best two explicative variables of the testicle weight are the total width measured before slaughter and the testicle surface calculated by projection in real size: a linear combination of these two variables explains 68 and 70 p. 100 of the weight variance of testicles and of testicles + epididymis, respectively.

In conclusion, these results show that it is relatively easy to modify by selection the testicle size of young boars. However, further studies are still necessary for establishing the consequences of this choice on the semen production potential in the adult animal, on growth, body composition, frequency of appearance of sexual odours as well as on the prolificacy of sows.

### Prolonged preservation of fresh boar semen

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Two experiments were achieved with the aim of improving the preservation length of boar semen at the liquid state by comparing it to that obtained after dilution with the BL<sub>1</sub> extender. The ejaculates were split into two fractions diluted at  $3.10^9$  total spz/dose of 100 ml ready for use with either the BL<sub>1</sub> extender with or without catalase (270 units/ml) or Guelph's extender and the BL<sub>1</sub> extender, respectively. The diluted semen was stored at 15 °C. The catalase added to the BL<sub>1</sub> extender did not improve either the number of motile spermatozoa or the farrowing rate when the semen was preserved until four days after collection. Though Guelph's extend-

er did not improve the spermatozoa survival, it allowed to preserve the fertilizing ability one more day than with the BL<sub>1</sub> extender. It could be used till the third day after collection since, in this case, the gestation rate was still 77 p. 100.

## Effects of feeding maize contaminated by fusarium to sows

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An experiment involving 38 Large White gilts was undertaken in order to determine more accurately the effects of consumption of maize contaminated by *Fusarium roseum*, on reproduction. Females entered the experiment on puberty, were sired at the second oestrus and slaughtered after 80 days of pregnancy. They were divided into 3 groups receiving different feeds before and after mating: control feed without mycotoxins, or a contaminated one containing 3.61 mg zearalenone/kg.

Ingestion of the contaminated feed by mature non pregnant gilts (2nd group) led to pseudo-pregnancy in more than half (7/13) of the animals: the non return to oestrus for 45 days following puberty was confirmed by the absence of Corpora albicantia, maintaining of corpora lutea and uterus hypertrophy. These signs were also evident in 2 females of the 3rd group which were not mated and which received the contaminated diet after service. The oestrogenic properties of zearalenone already demonstrated in immature animals was thus confirmed in mature gilts.

In comparison with the control group (1st group), intake of maize contaminated by *Fusarium roseum* after service (3rd group) did not affect corpora lutea weight, litter size (8,9), embryonic mortality (32 p. 100) or the number of abnormal foetuses after 80 days of pregnancy. However the weight of uterine horns, placenta and foetuses decreased by 25, 37 and 26 p. 100 respectively.

Intake of zearalenone in breeding gilts principally led to a prolonged period of anoestrus and a decrease in the development of the concepta. This may explain some of the reproductive disorders reported after mouldy maize consumption by sows: lower fertility rate, abnormal oestrus returns, increase in the mortality of embryos and newborn piglets.

## Easy establishment of weaning batches for gilts owing to the use of a progestagen (RU 2267)

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Three hundred and thirty one 6 to 8 month old gilts were treated with a component possessing a progestational activity RU 2267. After the end of the treatment (18 days, per os, 20 mg/d/gilt) half of the batch was systematically inseminated on days 6 and 7 (in heat or not); the