

Regarding the production of embryos, only the weight at the first collection tended ($P=0.07$) to have an effect on the total number of collected structures: 10.1 ± 6.5 for heifers that weighted more than 420 kg v. 7.3 ± 4.0 for those that weighted less than 340 kg. No effect on the percentage of grade 1 or 2 embryos could be observed. In conclusion, this study conducted in production conditions confirmed the observations made in experimental trials and refined the recommendations and practices of the two centers to reduce the age at first embryo flushing.

132 BLASTOCYST PRODUCTION FROM BOVINE OVARIAN CORTEX FRAGMENTS XENOGRAFTED UNDER THE BACK SKIN OF MICE

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Chemo- or radiotherapy negatively affects the fertility of female patients undergoing oncological treatments. Ovaries are sensitive to such treatments, resulting in an increasing number of premature ovarian failures. Graft techniques are a promising alternative to preserve the fertility of such patients. So far, 35 birthed from human ovarian cortex autografts were reported in the literature; however, in this approach there is a risk of neoplastic recurrence. The aim of the present study was to evaluate the feasibility of ectopic ovarian cortex xenograft (using the bovine model) under the back skin of immunodeficient mice. Female SCID mice (~60 days, $n=38$) were anesthetized with ketamine/xilazine and were placed on ventral decubitus. Ovarian cortex fragments from 8 cows (1.5 mm^2 ; $n=152$) were grafted through incisions made in the dorsal region (4 grafts per mouse). Ten days after ovarian fragments xenograft, the recipients were killed and the xenografts were harvested. The mice and grafts were weighed before and after the transplant. From the xenografts recovered, 88 were either routinely processed for histology ($n=26$), to evaluate the progression of folliculogenesis, or sliced ($n=62$) to recover the cumulus-oocyte complexes, which were morphologically classified and used for *in vitro* embryo production, using standard procedures (*in vitro* maturation, fertilization, and embryo culture). The remaining grafts recovered (64) were stored in liquid nitrogen for future studies. Differences between means were compared using Student's *t*-test. There was no difference between the body weight of recipient mice before and after xenograft (20.5 ± 0.4 v. 21 ± 0.8 g, respectively; $P>0.05$). On the other hand, the grafts increased weight (11.6 ± 3.4 v. 14.8 ± 5.2 mg before and after transplant; $P<0.01$). Histological analysis of the slices showed primordial, primary, multilaminar, antral, and atretic follicles, indicating the progression of folliculogenesis and neo-angiogenesis in the grafts. Twenty-four viable cumulus-oocyte complexes were recovered from ovarian xenografts, from which 2 blastocysts were produced *in vitro* 8 days later (8.3% blastocyst rate). In summary, this study showed that ovarian xenografts were (i) healthily maintained under the back skin of immunodeficient mice, (ii) responsive to murine gonadotrophins, and (iii) able to produce viable cumulus-oocyte complexes that, (iv) by *in vitro* fertilization, can originate blastocysts. In general, our findings show the feasibility of the ovary xenograft as an alternative technique to fertility preservation in oncogenic patients, avoiding the risk of neoplastic re-incidence.

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133 ANTRAL FOLLICLE COUNT, VULVA WIDTH, AND FERTILITY TRAITS IN BOS TAURUS INDICUS CATTLE (TABAPUÁ)

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The intense selection of characteristics related to animal production may affect negatively the reproductive efficiency of beef cattle. Thus, the search for characteristics that indicate fertility is readily justifiable in the selection of bovine females. The aim was to evaluate possible associations between the antral follicle counts (AFC), external genitalia measurements, and reproduction efficiency in Tabapuá (a Zebu breed from Brazil) females. The AFC was evaluated in Nulliparous heifers ($n=162$) and cows ($n=429$) by directly counting all follicles ≥ 3 mm in diameter with ultrasound. From the frequency distribution of the AFC, animals were divided into groups of high (>50 follicles), average (28–50 follicles), and low (<28 follicles), according to Burns *et al.* (2005). The vulva width was determined by measuring the distance between the lateral borders of the vulva with a digital caliper placed at a 90-degree angle from the half point of the rima vulvae. Two official reproductive efficiency indexes, adopted by the Brazilian Zebu Breeders Association (ABCZ), were used: age at first calving and calving interval. All statistical analyses were performed using SAS (SAS Institute Inc., Cary, NC, USA). An initial complete model was submitted to logistic regression and all body measurements, such as weight, rump height, and width at pins and hooks, were later excluded because they had no relationships with AFC. The AFC class and parity effects of vulva width were submitted to the PROC GENMOD procedure and the reproductive efficiency indexes were regressed onto age, vulva width and the AFC using the PROC REG procedure. Vulva width was greater ($P=0.05$) in the high-AFC class cows (8.81 ± 0.12 cm) in comparison to those of the low (8.38 ± 0.13 cm) and average (8.42 ± 0.11 cm) classes, and was not influenced ($P=0.08$) by parity (8.37 ± 0.11 and 8.77 ± 0.14 cm for heifers and cows, respectively). Vulva width was larger in cows with lower calving intervals ($r^2=-0.21$ $P=0.0008$), but was not correlated with age at first calving ($P=0.78$). Antral follicle counts were similar ($P=0.71$) between heifers (38.6 ± 23.96) and cows (38.9 ± 28.00). Calving intervals were shorter in females with higher AFC ($r^2=-0.17$ $P=0.0064$). Age was slightly related to a decrease in the AFC ($r^2=-0.066$ $P<0.0001$). Vulva width and antral follicle count were correlated and were indicators of reproductive efficiency in females of the Tabapuá breed under the present experimental conditions. To our knowledge, this is the first report where vulva width, a fairly simple to detectable phenotype, was correlated with fertility.

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