Creation of a germplasm bank of 'Gochu Astur-Celta' pig: sperm characterization

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The Gochu Astur-Celta pig is an endangered autochthonous breed from the north of Spain and its semen has never been described before. For the conservation of its genetic biodiversity and long-term survival, sperm parameters must be studied to establish a germplasm bank. Semen was collected by the gloved-hand technique from six boars (aged 13-24 months), twice a week (N=109). Sperm-rich ejaculate fractions were evaluated for volume (V), concentration (C), morphological abnormalities of sperm head (HA), midpiece (MA), tail (TA) and cytoplasmic droplets (CD), functional integrity of sperm membranes (hypoosmotic swelling test) and acrosome integrity rate (NAR). For freezing, semen was extended (1:1, v/v) with BTS, cooled to 17 °C, centrifuged and pellets were re-extended with lactose-egg yolk (LEY, 20%, v:v egg yolk) extender. Ejaculates were cooled to 4 °C, and resuspended with LEY-Glycerol-Orvus ES Paste (9% glycerol, 1.5% Equex STM) extender to a final concentration of 1000 x 10^6 cells/mL, before packaging into 0.5 ml straws and freezing for storage in liquid nitrogen. Total motility rate (TM) were assessed after collection, at 4 °C and after thawing. Data are expressed as means ± standard error. Fresh semen characteristics were: V = 82.5±4.0 ml; C = 560.7 x 10^6±22.4 spz/ml and TM = 85.0%±1.0. Percentage of HA was 1.2%±0.1; MA 0.6%±0.1; TA 2.8%±0.3; CD 2.8%±0.4; NAR 98.9±0.2 and membrane integrity 89.1%±0.6. After refrigeration, the % of TM was 71.4±1.2, and the post-thawing survival rate was 32.8±1.4. However complementary studies are needed to ensure that banks are correctly created, our results indicate the possibility of collecting sperm that survive freezing/thawing procedures with satisfactory quality to use it as fresh and for its cryopreservation. Work performed in collaboration with ACGA. Supported by FEDER.

Use of an endangered dual purpose cattle for a quality beef production scheme

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The old German dual purpose Black and White cattle (DSN) which is well known as the ancestry of the Holstein population is not competitive in milk production and therefore endangered. As an alternative concept of *in situ* conservation 30 cows were chosen for a cross breeding beef production scheme with Limousin (Lim) and Angus (Ang). All cows in the programme should produce one female offspring for remount. Afterwards they raise a Lim x DSN or Ang x DSN calf in a low input system. Cows and calves, young steers and heifers are grazing in spring, summer and fall. During the winter period they are kept indoors in a loose housing system on straw bedding, and fed in two intensity groups (one group grass silage only, the other group grass and corn silage and concentrates). At 20 month of age animals are slaughtered and carcasses graded. A rib sample (9th to 11th rib) is taken and analysed for intramuscular fat content and other quality criteria. 91 animals have been evaluated as yet. Castrated males (525.2 kg) and females (474.4 kg) differ in live weight by appr. 50 kg at the end of the trial, the grass fed group (both sexes) weighing 492.5 kg compared to 507.2 kg. Fat coverage of the carcass is higher in heifers than steers, intramuscular fat content, determined in the M. long. dorsi, is also significantly influenced by feeding intensity and sex (0.5% in each case). These differences do not effect cooking loss and tenderness. There is a tendency for better tenderness in Ang x DSN compared to Lim x DSN, but quality was all in all above average. A comparison with pure DSN offspring will follow. Several marketing schemes for products from local breeds do exist already, and could also support beef from DSN cattle.

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