The Booroola (FecB) gene in Czech Merinolandschaf population

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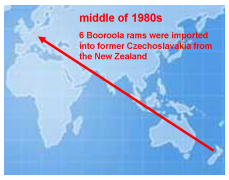
Introduction

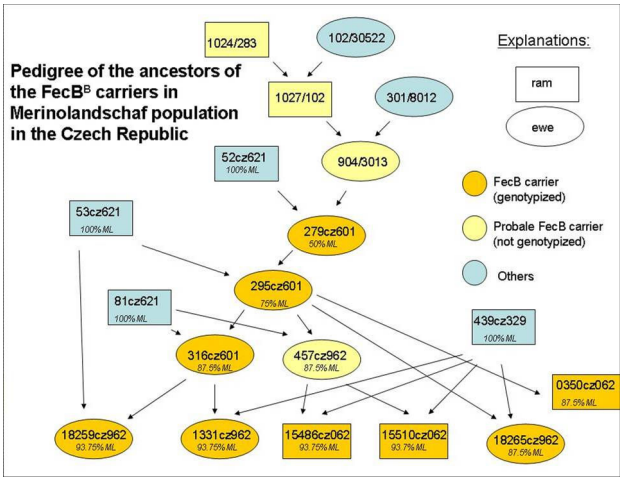
At the middle of 1980s totally 6 rams were imported into former Czechoslovakia from New Zealand. Two rams were located in ram insemination station in Jevíčko, and their semen doses were used for insemination of Czech Merino ewes. Nevertheless the crossbreds with Booroola were not too favoured, due to small body size, lower wool production and worse lamb viability.

At the beginning of the 1990s wool prices fell down very rapidly and due this fact the Merino population in the Czech Republic was overcossed by imported Merinolandschaf rams during the last decade of 20-th century.

Animals from 5th generation of overcrossing are considered as purebred Merinolandschaf.

Totally 2110 Merinolandschaf ewes were included into performance recording scheme in the Czech Republic in the year 2007 with average litter size 1.53. Nevertheless there are ewes with much higher prolificacy (even 10 lambs in 2 lambings). The aim of this work was to verify possibility of presence of Booroola high fertility allele in those animals.



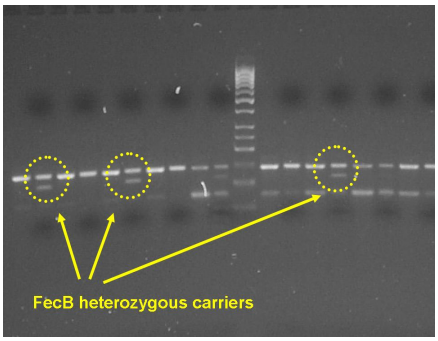


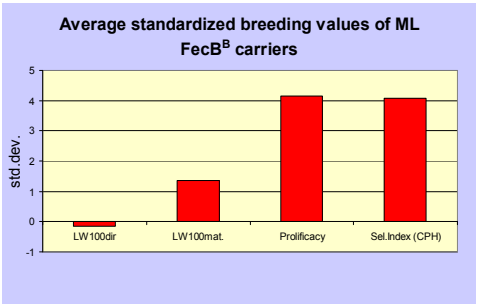
Material and Methods

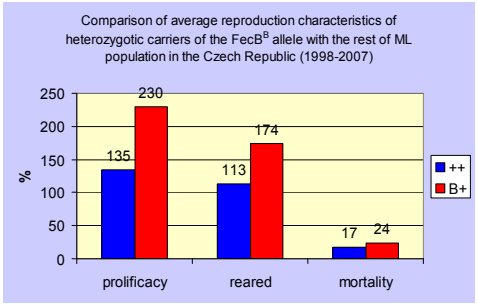
The blood samples of the 53 animals with outstanding breeding values for prolificacy were collected and polymorphism in the bone morphogenetic protein receptor-1B gene (BMPR-1B) was studied using the PCR-RFLP method. Totally 14 heterozygous carriers of the FecB^B allelle were found.

Pedigrees of high prolificacy gene carriers were analysed.

Average reproduction characteristics and brededing values of FecB^B carriers were compared with the rest of population.







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Results and Conclusions

The presence of Booroola high prolificacy majorgene in the population of Merinolandschaf sheep in the Czech Republic was confirmed by the BMPR-1R genotypization. Totally 14 heterozygous carriers of the FecB^B allele have been found until now.

FecB^B carriers are closely related to each other. According to the pedigree analysis probably only one animal transfered the majorgene into ML population.

Average of breeding values of the carriers for prolificacy was +34% what was +4,2 s.d. above the population mean. Mean litter size in the FecB$^{B/-}$ ewes was 2.3 lambs/lambing.

Further investigations aimed at the study of FecB^B allele effects on production and reproduction traits in the ML population as well as at the study of economic efectiveness of the jump increasing of litter size in the population are advisable.

Supported by the Ministry of Agriculture CR – project no.QH 71280