The preservation of genetic variability in populations with controlled mating

Summary

The paper presents two examples of population, where preserving the genetic variability plays very important role. One of those population is European bison – endangered species which passed serious bottleneck. The second is Japanese quail herd bred as closed population for many generation. Based on those examples the practical aspects of breeding strategy were discussed. As a results of breeding strategy the level of inbreeding was presented as well as the rate of its increasing. The European bison population is divided into two genetic lines and the level of inbreeding is equal to 54% within Lowland line and is lower (ca 30%) within Lowland-Caucasian line. Such high level is a consequence of small numbers of founders. The mating system used in two Japanese quail lines allowed to keep the rate of inbreeding below 1% per generation.

KEY WORDS: genetic variability, inbreeding, closed population