

Genetic Aspects of in-Situ Conservation

Univ.Prof. Dr. Johann Sölkner
Department für Nachhaltige Agrarsysteme
Universität für Bodenkultur Wien
johann.soelkner@boku.ac.at

Conservation of animal genetic resources is carried out to preserve as many genetic variants of a livestock species as possible for potential future use. Austria has chosen the in-situ conservation strategy, keeping many populations of endangered breeds of horse, cattle, sheep, goat and pig alive as opposed to the ex-situ strategy of keeping embryos, sperm or tissue. This is done at the cost of financially supporting farmers per animal kept to compensate for the lower profit of lower-yielding animals.

What are the genetic benefits of such a strategy?

Keeping small stocks of diverse types of breeds is definitely the best strategy of conserving genetic diversity. While there is genetic drift and loss of genetic variation within those breeds, the between breed and overall diversity is definitely conserved as long as the populations are not getting so small that inbreeding depression endangers the future of a breed. The experience of the Austrian program is that inbreeding depression is less harmful than conventionally assumed. Even the Austrian strain of the Turopolje pig breed that was constituted from an import of 6 animals in 1994 seems to be thriving and doing well. A project was finding animals from populations in Croatia that fit very closely to the Austrian strain, yet import is currently not possible due to veterinary regulations. In general, the strategy of importing animals from related breeds is not suggested so as to not erode between breed diversity.