

## CONSERVATION OF LOCAL CHICKEN BREEDS IN CHOSEN EUROPEAN COUNTRIES

A. Spalona<sup>1</sup>, H. Ranvig<sup>2</sup>, K. Cywa-Benko<sup>3</sup>, J. Benkova<sup>4</sup>, J. Baumgartner<sup>4</sup>,  
A. Zanon<sup>5</sup>, A. Sabbioni<sup>5</sup>, I. Szalay<sup>6</sup>, T. Szwaczkowski<sup>7</sup>

<sup>1</sup> Agricultural University of Warsaw, Poland;

<sup>2</sup> Royal Veterinary and Agricultural University of Copenhagen, Denmark;

<sup>3</sup> National Institute of Animal Production, Cracow, Poland;

<sup>4</sup> Research Institute for Animal Production, Nitra, Slovak Republic;

<sup>5</sup> University of Parma, Italy;

<sup>6</sup> Institute for Small Animal Research, Godollo;

<sup>7</sup> August Cieszkowski Agricultural University of Poznan, Poland

Local chicken breeds are a vital reservoir of gene resources. Because of small population sizes they can survive only if there is someone who takes responsibility for their preservation. This study analyses conservation of 41 locally adapted chicken breeds and strains in Poland (8 breeds and strains), Denmark (1 breed), Hungary (8 breeds and varieties), Italy (20 breeds and strains) and Slovakia (4 breeds and strains). Sources of information were mainly materials shared by institutions dealing with this topic in their home countries. Emphasis was put on comparison of diverse morphological and reproductive traits in hens. Effective population sizes and hypothetical inbreeding levels within genetic groups studied, were also evaluated. Various countries implement different methods of conservation of their genetic resources. In Italy, there is a huge activity of hobbyists in cooperation with research institutions, as opposed to a lack of conservation projects in Denmark. In Poland, Hungary and Slovakia there *in-situ* genetic reserve stocks were analysed. Genetic variety of the studied breeds was found in diversified and unique morphological traits. Adaptation to the local environment, which is reflected in the performance of birds, was expressed in low to moderate production, high fertility and hatchability rates as well as resistance to many diseases and poor management. In conserved stocks with small sex ratios, an increasing number of males will allow to diminish population sizes of some of breeds without changing the effective population size, or the inbreeding rate. The latter was assessed as not high, ranging between 0.02-0.71 per cent per generation. The obtained results are an incentive to significant improvement in the accessibility of genetic resources through research and development. They also confirm the validity of international efforts to conserve locally adapted breeds.

**Key words:** effective population size, genetic resources, inbreeding level, chicken