

Session: S.01 : Local breeds: what future? 1. Selection

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Corresponding author: *Assistant professor Anamaria Ekert Kabalin, PhD;
University of Zagreb, Faculty of Veterinary Medicine
Department of Animal Husbandry
Heinzlova 55, 10000 Zagreb, Croatia
e-mail: akabalin@vef.hr

Future of Dalmatian Turkey - traditional local form of poultry in Croatia

A. Ekert Kabalin¹, S. Menčik¹, I. Štoković¹, Š. Horvath, A. Grgas², T. Balenović¹, V. Sušić¹, I. Karadjole¹, M. Ostović³, Ž. Pavičić³, D. Marković⁴, D. Marguš⁵

¹Department of Animal Husbandry, Faculty of Veterinary Medicine University of Zagreb, Croatia

²Croatian Agricultural Extension Institute

³Department of Animal Hygiene, Environment and Ethology, Faculty of Veterinary Medicine University of Zagreb, Croatia

⁴State Institute for Nature Protection, Zagreb, Croatia

⁵The Krka National Park, Šibenik, Croatia

Abstract:

Since 1994 Croatia has been involved into FAO project for preservation of rare animal breeds. Today, in the National Register of Autochthonous Breeds of Croatia are included only two breeds of poultry: Hen Hrvatica and Zagorje Turkey. But process of identification and characterisation of autochthonous breeds and local forms is still continuing. A local, archaic form of turkey traditionally has been reared on the area of Dalmatian hinterland. During history its spreading on wild territory or islands was mostly limited by mountains. This local form has quite specific phenotypic characteristics that mostly maintained during hundred of years, as a result of extensive production system in small flocks where turkeys are keeping and feeding outdoor the most part of the year. At the beginning of 2009 project for identification of majority of flocks as well as their morphological and physiological characterisation has beginning. For that reason we try to establish average phenotypic traits of breeding animals in parental flocks on few family farms. That include: determination of feather colour, body mass and average body and head measures (body length and width, length of sternum, length of drumstick and shank, depth of chest, distance from sternum to pubic bone, head width and length and beak length). Those will present the first steps toward preservation of this local form for further generations.

Key words: Dalmatian turkey, autochthonous form, preservation, phenotypic characteristics

Introduction:

Since 1994 Croatia has been included into FAO project („Project Identification Mission in CEE Countries“) for preservation of rare animal breeds on the area of Central and East Europe. Today, in the National Register of Autochthonous Breeds of Croatia are included only two breeds of poultry: Hen Hrvatica and Zagorje Turkey (Ministry of Agriculture, Fisheries and Rural Development, 2007, 2006, 2003, 1998). They are components of Croatian heritage and in that way included into historical and cultural development of certain regions, but also in production of autochthonous products. As the process of identification of autochthonous breeds isn't finished, this research presents the first steps toward characterisation of possible autochthonous breed.

Dalmatian turkey is a local, archaic form which has been traditionally reared on the area of Dalmatian hinterland. During history its spreading on wild territory or islands was mostly limited by mountains. This local form has quite specific phenotypic characteristics and it's very suitable for extensive production system in small flocks where turkeys are keeping and feeding outdoor the most part of the year (Figure 1). Since everyday increase in turkey's hybrids in this area decrease number of Dalmatian turkey, we find necessary to determine their average population size and morphological characteristics. At the beginning of 2009, a project “Dalmatian turkey – phenotypic parameters and ecological characteristics of the area” has been started. The Ministry of Agriculture, Fisheries and Rural Development of Republic of Croatia, as well as the State Institute for Nature Protection and the National Park Krka decided to give financial support for this project.

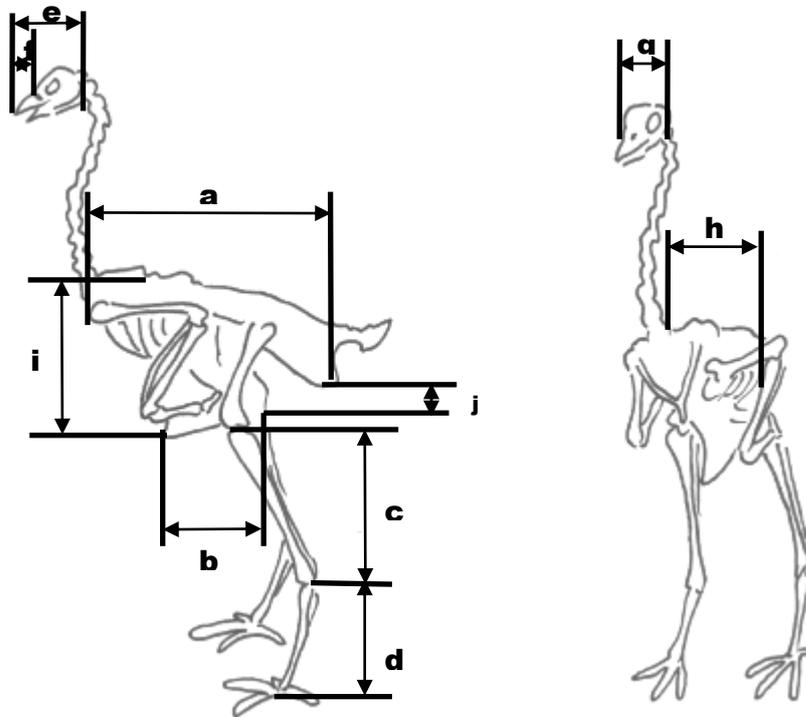


Figure 1: Dalmatian Turkeys in their natural surrounding

Research material and methods:

From the beginning of the 2009, breeding data (including keeping, feeding, reproductive season, loses, production and marketing) were collected on 26 family farms. Morphological measurements of adult, reproductive animals (kept for breeding in next season) were performed.

Determined morphological characteristics were plumage colour, body mass and average body measures. Morphological measurements are presented on the Scheme 1 (described by Kodinetz, 1940). Head and body measures were taken by calliper (0.2 mm accuracy) and pelvimeter (0.3 cm accuracy), while the hanging scale was used for body mass measure with accuracy of 0.01 kg. Basic statistical analysis of the collected data was performed with the Statistica 8.1 software (StatSoft, 2008).



^a body length; ^b length of sternum; ^c length of drumstick; ^d length of shank; ^e head length; ^f beak length; ^g head width; ^h body width; ⁱ depth of chest; ^j distance between sternum and pubic bone

Scheme 1: Turkey body measures (author: Štoković, I., 2008.)

Results and findings:

Breeding characteristics (keeping and feeding):

- size of flocks on farms differs from 3 to 20 breeding animals, which means from 20 to 300 fattening animals during year
- few first days young turkeys are fed with eggs, followed by commercial or home prepared concentrates (from whey, nettle, clover or rice), and after that they also feed on open as adult animals (from the end of the May)
- animals graze the most part of the year, and other feeding include: corn groats, other cereals, by-products of kitchen-garden or orchard (olives, onion, and cabbage)

Phenotypic characteristics:

- turkeys' plumage colour: black, bronze, grey or white-palm, rarely mottled black
- average body measures of turkey-cocks and turkey-hens from 10 flocks are presented on Table 1

Table 1: Average body measures of turkey-cocks and turkey-hens.

| | Males (n=11) | | | Females (n=29) | | |
|---------------------------------------|--------------|---|------|----------------|---|------|
| | Mean | ± | SE | Mean | ± | SE |
| body weigh, kg | 7,05 | ± | 0,36 | 4,48 | ± | 0,17 |
| body length, cm | 28,23 | ± | 0,87 | 23,94 | ± | 0,32 |
| body width, cm | 9,07 | ± | 0,52 | 7,50 | ± | 0,24 |
| breast depth, cm | 19,71 | ± | 0,71 | 15,01 | ± | 0,18 |
| sternum length, cm | 16,50 | ± | 0,47 | 12,22 | ± | 0,29 |
| head length, cm | 11,34 | ± | 0,13 | 9,68 | ± | 0,07 |
| beak length, cm | 5,78 | ± | 0,15 | 4,62 | ± | 0,07 |
| head width, cm | 4,34 | ± | 0,07 | 3,70 | ± | 0,03 |
| length of drumstick, cm | 22,18 | ± | 0,50 | 17,88 | ± | 0,20 |
| shank length, cm | 15,84 | ± | 0,37 | 12,26 | ± | 0,12 |
| distance between sternum-os pubis, cm | 5,89* | ± | 0,14 | 6,51* | ± | 0,26 |

statistically significant difference between female and male turkeys was found for all parameters except those labelled with *

Laying performances:

- the main laying season is in late winter and early spring (from February till April), but some breeders also use second laying season during summer (July)
- turkey-hen lays up to 20 eggs
- the main hatching season is from the end of March to the beginning of May

Product distribution:

- production on these family farms is mostly oriented to their own needs, or for further family, but also for sale (on market or at home), and they supply restaurants during tourist season as well

Further research and results will include:

- morphological measurements of young turkeys during 7-8 months (growth rate)
- carcass dissection (protein, fat, water and dry matter share)
- analysis of serum biochemical parameters

We hope that results of this project will contribute to the bright future for Dalmatian turkey and their breeders. Also, we would like to start cooperation with scientists from other institutions with aim to determine genetic distances between turkey breeds reared in Croatia and neighbour countries.