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QUALITY CONTROL AND REQUIREMENTS OF FOOD OF ANIMAL ORIGIN

**EFFECT OF BREEDING TECHNOLOGIES AND FEEDING ON CARCASSES AND
MEAT QUALITY OF ITALIAN DUCK STRAINS**

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Introduction

The Authors evaluated the performances of some ducks bred in Italy over a period of three years. During the first and second year two different breeding techniques (whole period inside a poultry house; first period in poultry house then, from 29 days to the slaughtering age, in pens in open air) were used to test the effect on meat quality of local strains of muscovy, common and hybrid ducks. In the third year a diet with sorghum grain (medium-high tannin content) was employed to evaluate the effect on some characteristics of muscovy and common ducks.

Material and methods

For the trial 478 Muscovy ducks (MD) (178 males and 300 females) and 478 Common ducks (CD) (178 males and 300 females) were used during the first year and 240 mule ducks (mulards) during the second year. A sample of each species, bred under the two breeding systems, was slaughtered (11 weeks Md-males, 9 weeks MD females, 8 weeks both sexes of CD and 10 weeks mulards). During the third year 135 muscovy duck males and 225 common duck females were used for a preliminary test and bred in open air pens from 29 days to slaughtering age; three different diets were used to feed the birds (A= maize; B=maize + sorghum; C= sorghum) from one day old to slaughtering age. For diets with sorghum the same aminoacid supplementation than that for maize diet was used.

Results

Results showed that the system which included the open air period did not determine a reduction of growth speed, on the contrary males and mulards growth improved. No statistical differences were observed between slaughtered strains in relation to the systems of breeding. Mulards showed carcass traits more similar to Md-males (ready to cook carcass incidence was 63%, 65% and 58% in mulards, MD -males and in both genders of CD, respectively). Breast muscles rate was higher in mulards than Md-males, Md-females and both genders of CD (23% vs 20%, 17% and 17-18%). Abdominal fat incidence decreased with age and at traditional slaughtering ages was very low: mulards 0.8%, Md-females 2.7%, Md-males 1.5%, CD 1.3-2.2%. Dry matter of breast muscle was higher in mulards than in MD and CD. Shear force was lower in mulards than in all other species.

The values of muscle/bone ratio (determined on leg after cooking in water at 80C for 2h30') showed a decrease of muscle development in ducks fed with sorghum diets. An increase of humidity and free-water of breast muscles (dry matter: 22.1%, 21.7% and 20.3% and free-water ratio: 41.9%, 37.7 and 26.5 for diet A, B and C, respectively; $p < .01$) and cooking loss of legs (24.6%, 25.9% and 28.6% for diet A, B, and C, respectively; $p < .05$) were observed in muscovy ducks fed with sorghum diets.

Using the open air breeding system seems to improve growth. The hybrids, obtained from Italian ducks not subjected to specific genetic programs and bred under the open air system showed good carcass and meat quality. The sorghum with medium-high content of tannin, employed in total substitution of maize, reduced duck growth and produced meat with a high water content in the case of the muscovy duck.

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