



**THE EFFICIENCY OF TROPICAL RELEVANT MAJOR GENES
IN A DUAL PURPOSE LAYER STRAIN IN THE SUBTROPICAL
COASTAL REGION OF SOUTH-EAST AFRICA**

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SUMMARY

Biological and economic efficiencies of major genes for feather reduction (naked neck and frizzle) and body size reduction (dwarf) in a dual purpose layer strain were evaluated in the subtropical coastal region of South-East Africa (Maputo, Mozambique). The experimental material consisted of eight different genetic groups, two diets (14.4 and 16.2 % crude protein) and two climatic seasons. Birds were caged individually in an open-side shelter with natural light. Traits measured were: temperature and relative humidity, body weight, age at first egg, egg weight, egg production, egg quality, feed intake and mortality. The following were calculated: temperature-humidity index (THI), growth rate, persistence, egg mass, feed efficiency, feed conversion, biological efficiency ($EM/BW^{0.75}$) and productivity ($EN/BW^{0.75}$).

The main results show that: (1) none of the feather-reduced genes significantly improved egg production or the efficiency of feed utilization, although the naked neck (*Na*) excelled in terms of the number and mass of eggs produced per metabolic body weight; (2) the dwarf gene (*dw*) was associated with delayed sexual maturity, production of fewer and lighter eggs, higher persistence, better feed conversion and higher survivability; (3) climatic seasonal effects were observed in all traits analysed, with elevated temperatures restraining body weight gain, the number and weight of the eggs produced, and voluntary feed intake; (4) the lower dietary protein content resulted in decreased egg weight.

It was concluded that the normal feathered dwarf is the most suitable genetic group for peri-urban and rural production systems in this region.

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LIST OF ABBREVIATIONS

BW ^{0.75}	Metabolic body weight
<i>dw</i>	Dwarf gene
EM	Egg mass
<i>F</i>	Frizzle gene
FAO	Food and Agriculture Organisation
FC	Feed conversion (kg:dz eggs)
FE	Feed efficiency (kg:kg EM)
FI	Feed intake
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
<i>Na</i>	Naked neck gene
ND	Newcastle disease
HP	High protein diet
LP	Low protein diet
SM	Sexual maturity
RH	Relative humidity
THI	Temperature-humidity index