Improving the productive performance of local chickens for African smallholder farming systems

J.K. Hagan, University of Cape Coast, Ghana

Summary

Local chicken production for the provision of meat, eggs, income, employment and other socio-cultural values cannot be overemphasized. However, in Ghana and in Africa at large, local birds are poor producers of eggs and meat, late maturing and small sized.

Using naked-neck and frizzle birds to improve the performance of local chickens is one of the surest ways of increasing profits and conserving the existing genetic diversity.

A breed improvement strategy was carried out to incorporate heat-tolerant genes into introduced exotic chickens to make them more productive. The base populations used were offspring of a cross involving local chicken male lines heterozygous for the naked neck (Na) and frizzle (f) genes and exotic female lines homozygous recessive for the two genes.

The F1 crossbreed naked-neck and frizzle lines generated from the initial cross were backcrossed with the highly productive exotic parent lines, generation after generation. At the end of the fifth generation, three different phenotypic groups were segregated. These were combined crossbred naked-neck and frizzle, crossbred naked-neck only and crossbred frizzle only.

The outcome of the breeding programme was improved chicken breeds which were highly productive and adaptable to the hot and humid environments. The innovation succeeded in improving the egg production and meat yield of local chickens for smallholder farming systems in rural Ghana. Results obtained from farm trials showed about 100% increase in egg production for the layers and early maturing and increased meat yield for the cockerels.

Benefits of the innovation

- Increased egg production (from 50-80 to 100-120 per bird).
- Increased meat production from the cockerels.
- Early maturing cockerels (reduced from 20 weeks to 14 weeks).
- Faster age of first egg (from 150-160 days to 126-130 days) for the layers.
- Increased egg size (from 35-45g to 50-55g).
- Higher disease resistance.
- Heat-tolerant chickens adapted to warm and humid environments.
- Preservation of local chicken genetic resources for sustained food security.

REFERENCES

