



## **Breeding of guinea fowls as a viable option for increased poultry production in Africa**



### **Introduction**

Domestic guinea fowls (*Numida meleagris*), sometimes called 'Pintades', are poultry originating from Africa. Guinea fowls are integral part of the lives of the rural communities and are reared for varied functions, including dowry, gifts and sacrifices (Naazie *et al.*, 2002). There are hardly any cultural barriers against the consumption of guinea fowls (Koney 2004). The contribution of guinea fowls to the livelihood of the rural farmers is enormous. Compared to village chickens, guinea fowl's advantages are: low production cost, premium quality meat, greater capacity to scavenge for insects and grains, more heat tolerant, ability to protect itself against predators and better resistance to common poultry parasites and diseases (Microlivestock 1991; Kusina *et al.*, 2012). The meat of the bird is a delicacy, with demand being higher than supply, hence is a source of ready cash for investment. The wide acceptability of guinea fowls and guinea fowl products indicates that there is a potential market and that there are potentials for smallholder farmers to improve guinea fowls production in order to increase household protein supply and increase incomes.

### **Breeds of guinea fowls**

There are several breeds of guinea fowl, but the most common are *Numida meleagris*, the common guinea fowl, which is a domestic strain of guinea that has acclimatized throughout the world and *Numida ptilorhyncha*, common in Madagascar and Reunion, both in the domestic and the wild state. *Numida meleagris* is well adapted to the realities of life on the African continent. The common guinea is a bird that weighs about 2 kg when mature. The male is comparatively not as heavy as the female. The difference in size does not make it possible to differentiate between the two sexes. The female guinea fowl



Domestic Guinea fowls reared in a semi-free production system in Mali

builds a nest out of twigs and leaves on the ground, often somewhere where it is more sheltered. Guinea fowls have dark-grey feathers with small white spots. Their heads are naked with a bony ridge (helmet) on top. The short tail feathers usually slope downwards. The guinea fowl chicks, known as keets, remain with the mother until they are big enough to fend for themselves.

### **Production systems**

The guinea fowls are natively found inhabiting a variety of habitats across the African continent. Guinea fowl species are found in semi-open habitats such as savanna or semi deserts, while some, such as the black guinea fowl, mainly inhabit forests. The guinea fowl is ground-nesting and spends much of its time scratching around on the ground in search for something to eat. Being native also to temperate zones, they appear to have an inherent adaptability to both heat and cold. However, in cool climates, regardless of day length, they will not begin egg production until temperatures exceed 15°C (Microlivestock 1991).



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Three methods identified for rearing guinea fowls are the free range system, semi-intensive system and intensive system. The free range guinea fowl constitutes an important resource for resource-poor farmers and represents the predominant rearing method common in Africa. The semi-free rearing is where guinea fowls may be reared in houses with perches communicating with more or less spacious enclosure surrounded by a wire fence. In the intensive rearing system, guinea fowls do not have access to an outdoor enclosure. They are kept in confinement using the methods for raising battery chickens. In this system, breeding stock are housed in cages and artificially inseminated. It gives the best egg production and fertility but requires housing, equipment, and skilled labor.

### **Management of breeding stock**



*One day old keets (Zabako breed) from Niger*

In their wild state, guinea fowls mate in pairs. This tendency prevails also among domesticated ones if males and females in the flock are equal in number. The guinea fowl is an omnivorous bird and therefore has a diet that consists of both plants and other animals. Guinea fowls primarily feed on worms and insects on the ground, along with seeds and small mammals and reptiles. Free-range birds mostly feed around their nests. The birds have a relatively low need for water. In the semi-intensive or intensive systems farmers often supplement the natural diet with whole grains (maize, millet, sorghum), agro-industrial by-products (rice bran, maize bran, etc.). Normally, they lay their first egg at about 18 weeks of age. Unlike many wild birds, which produce a single clutch a year, guinea hens can lay continuously until adverse weather sets in. Free-range “domestic” guinea hens can lay up to 60 eggs a season. When well-managed, under intensive management system, they can lay close to 200. The eggs weigh approximately 40 g. Shells are stronger than those of chickens and are usually brown, but can be white or tinted.

### **Conservation and breeding programmes for guinea fowls**

Extensive work has been carried out in Africa on village chickens, being the predominant poultry species, to the neglect of other poultry species like guinea fowls. Consequently, there is limited information on production and more particularly on their genetic structure. Information on guinea fowls genetic characteristics is necessary to encourage smallholder farmers to conserve the guinea fowls and to improve their current production levels.

Presently, genetic analysis of guinea fowl includes some works done focus on the evaluation of semen characteristics of the guinea fowl *Numida meleagris meleagris* in Nigeria (Nwakalor *et al.*, 1998), reviewing causes and remedies in the declining populations of helmeted guinea fowl in the Midlands of KwaZulu-Natal, South Africa (Ratcliffe and Crowe, 2001), on the genetic diversity of helmeted guinea fowl (*Numina meleagris*) based on microsatellite analysis in Ghana (Kayang *et al.*, 2010), investigating the genetic diversity of egg-type helmeted guinea fowls varieties based on band frequencies in Nigeria (Oke *et al.*, 2014), characterizing the local helmeted Guinea fowls in selected regions based on primary phenotypic traits in Kenya (Panyako *et al.*, 2016). In light of the numerous values of the guinea fowl, there is the need to develop conservation/genetic improvement programs that will serve as a tool for the sustainable management of this valuable species.

## Conclusion

Guinea fowls have become an important domesticated poultry throughout Africa. Wild populations of helmeted guinea fowls can be still found in certain regions of Africa, but the population as a result of hunting and habitat fragmentation are certainly dwindling. The lack of improved/selected populations could represent in the future the main constraints that will hamper guinea fowls production in Africa.

The increased interest in consumption and domestication of guinea fowl necessitates deliberate efforts to promote development of guinea fowl. This can be achieved by establishing breeding programmes that are already common to other livestock species.

## References

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