

Perspectives of family poultry.

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1. Introduction

This document is written to pass on some data and experiences and to formulate some observations about the perspectives of family poultry, in particular scavenging chickens.

The comparative advantages of scavenging chickens, being lower costs of housing and reduced costs of feeding, are mentioned many times. Nevertheless, improvements are often sought by changing the system to one of confinement. It is the author's opinion that it is possible to improve the performance of the system while maintaining the comparative advantages.

In the development of this hypothesis, this article will discuss:

- the introduction of commercial strains to the scavenging system
- better fine-tuning of the feed intake apart from scavenging
- some other management interventions.

2. The introduction of commercial strains.

Many fears and doubts are still expressed when commercial strains are introduced to the free-range system. These birds, however, perform very well, and practice has already overtaken the extension, because in many countries hybrid layers are kept on free range.

The common practice is for pullets of about 8 – 10 weeks old to be sold /distributed to the chicken-rearing families. This has replaced the distribution of cocks, an activity executed during the seventies.

The author has actively (Mozambique, Zambia) and passively (Nicaragua and Bhutan) been involved in this distribution. Hybrid layers can do well on free range. Productions of 150 eggs per hen per year with only maize supplementation, to 180 eggs per hen per year with supplementation of concentrates, have been achieved in Zambia (de Vries, 1992). These productions were achieved with quantities of maize and concentrate of around 70 grams per hen per day. Calcium (Ca) was supplied in the form of oyster shells. However, there were signs, later diagnosed by the author, that the production suffered from nutritional stress.

Sustainability, or, in other words, replacement of the hybrids, needs special attention.

Women in Nicaragua were hatching eggs of hybrids using local hens. According to them, these pullets produced well. However, the author knows of no confirmatory data. It is necessary to systematically compare how the off-spring of local cocks and hybrid layers produce. The author considers that the factor of broodiness could be the most important one to influence the production of the off-spring.

Reproduction at the homestead could be raised to a further extent, if improved cocks were also supplied.

Alternatively, it could be quite possible that a constant supply of pullets about 8 weeks old, already vaccinated against fowl pox and Newcastle, could be the most recommendable strategy. Central raising has the advantage of decreasing costs in raising bigger numbers, vaccinating them, and decreasing mortality among the chicks, a parameter that is reported to be very high in family poultry.

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Some experts consider that this way of supplying pullets is not sustainable, but pullets are actually readily available in the relevant market places.

In order to judge what is best, data needs to be collected about the off-spring of hybrid layers, to reach a conclusion as to whether it is preferable to reproduce hybrid layers in the back yard or to regularly purchase replacement pullets.

Another topic needing investigation is the productive life span of hybrid layers in the field.

3. Feeding

The basis of the whole system is free-range, where the chickens use 50 % of their daily time to scavenge for insects and weeds. In addition, they are supplemented with grains and by-products from the farm. It has been stated that improving this feeding system has no value, because the genetic capability of local hens does not respond well to this improvement.

However, when commercial strains are introduced, it could and should be quite possible, that with a small addition in supplements, a relatively strong response in performance can be achieved.

It is necessary that more data be collected about the quantity and quality of food that chickens find when they scavenge around, and the interaction with the feeds supplied, so that determined food supplements can be suggested.

In the process of getting more data for a broader view on feed requirements and feeding habits of free range chickens, the following set of data were collected at Muy Muy, Nicaragua, in the course of 1995 / 1996.

a.) Maize consumption

The feeding system in Muy Muy was fully based on the supply of a maize supplement to the chickens. In November 1995, a monitoring exercise with 18 families was executed. On two consecutive days per family, how much maize each family gave to their chickens was registered. The overall quantity was corrected for the young stock and the cocks that were around. Weighting factors were: small pullet 0.3, big pullet 0.6 and cocks 0.8. The calculation revealed that every family supplied, on average, 92 grams of maize per adult hen per day. This is a substantial amount, but November is immediately after the harvest.

b.) Feed consumption of 10 layers at a feed bar.

The question arose as to what layers would eat if they could have free access to different feeds. Students of a secondary agricultural school designed a feed bar, and registered feed selection and consumption by improved layers on free range. This was done with one family, which had about 10 hybrid layers. (Her local chickens were temporarily passed over to a family member. Rice bran, maize, meat scraps and limestone were supplied ad libitum. On average, over a period of 2 months, the layers consumed the following quantities per day:

Table 1: Feed consumption of 10 hybrid layers on free range

Feed consumption per chicken per day (grams)	Protein		
	% (estim)	grams	
Maize	87	9	7.8
Meat scraps	14	45	6.3
Rice bran	18	13	2.3
Limestone	5.5	-	
Total	124.5	13	16.4

The production of the hybrids during those months more than 80 %.

It was not possible to repeat this experiment. Researchers are challenged to see if they can get the same results elsewhere.

The outcome of this experiment gives some guidance. It gives the impression that if the layers have the possibility to increase their protein intake, they surely do. The same goes for calcium intake. However, when chickens have the possibility of consuming feed ad lib in the free-range system, this appears to eliminate any cost savings on food. The economic advantage of no cost feeding is lost, and the aim is just the other way around. The comparative advantage of free range is the feed cost reduction. The question arises, in this dilemma, if it could be economical to supply layers with some kernels of soybean meal or just peas? This recommendation is further validated because analysis of crop contents seem to indicate a level of protein that is too low, a conclusion also reached by Huque (1999).

c.) Calcium (Ca) consumption

It is expected that free range layers need to be supplemented with a Calcium source to achieve a higher egg production level.

In Nicaragua, a few times Calcium was supplied to farmers, and they were advised to supplement their layers. Farmers argued, however, that they did not see any effect.

A survey by two students in Nicaragua showed differences between 2 groups, each of 3 families, with hybrid layers on free range, one group with the supplementation of limestone, and the other without. More eggs were produced in the group with limestone. The survey, however, suffered from organisational difficulties.

Huque (1999) found that the Ca content of the feed of scavenging laying hens in Bangladesh was close to the requirements, supporting the observations of the farmers in Nicaragua. If there really is no need to supply a calcium supplement, this would relieve farmers using hybrid layers in the scavenging system of a big burden. It would be good if the results from Bangladesh could be confirmed in other places.

4. Other management interventions.

a) Decrease mortality of young chicks

The loss of young chicks is high all around the world. High mortality rates are reported, and the author also found a 50% decrease in number amongst chicks up to 6 weeks of age. It seems that the families generally accept this. It is normal for those chicks to die or get lost. Some projects recommend methods to protect the young chicks. The movable pen is the most adaptable one. But in practice, it is rarely seen that young chicks are seriously protected. What can be the reason that the families do not consider the loss of chicks as an economic loss? Is it because they would not have enough feed anyway? Is it because they only need a few replacements? Is it because the investment in time and money is not expected to be repaid? A socio economic survey could enlighten the extension service.

b. Optimise hatching results.

Hatching is another factor with different outcomes. It cannot be true that the women do not know how to hatch the eggs, but significant differences are found. The author found differences in hatching rates of 40 % between women. Probably care and prioritisation are relevant factors here.

c. Care

What is care? When families supplied the same amount of feed to the same hybrid layers in Zambia, the author found differences between families, the reasons for which could never be traced.

Is there a factor in animal production that is called love, already accounting for extra production? Can it be said: "if you want more eggs, you have to talk to the chickens!!"

d. Diseases and losses.

The free-range system has an advantage above confined with regard to diseases. With more freedom the chickens suffer less from diseases. But loss to predators is a price for the free-range condition. In local situations it has to be judged if this price is worth it.

Another advantage in dealing with mixed flocks is the natural vaccination process, by which some viruses are passed from the adult chickens to the young chicks. The threat, however, is Newcastle. Many initiatives to vaccinate flocks of chickens at the villages have failed. In this case, the central raising of pullets has an advantage.

5. Conclusion

The improvement of chicken production on free range is possible. Commercial strains can do well on free range, and increase egg production. Furthermore, extension efforts could be directed to hatching techniques and ways to protect chicks.

Research could be directed towards a better understanding of the nutritional behaviour of the free-range chickens, and to techniques of supplementation to increase production.

Furthermore, research could answer questions such as:

1. What is the potential of hybrid layers kept under free range, with maximum concentrate supply.
2. What is the response of free-range layers to feed restriction (keeping in mind the back yard conditions or the scavenging feed resource base) ?
3. Is the supplementation of Ca necessary?
4. Which type of supplement could be economical, when maize (or other grains) is used from the home farm?
5. Is there general advice which could be given about the number of chickens certain backyards could support?
6. What is the production of layers produced and raised in backyards (cross and purebred)?
7. How long can hybrid layers on free range produce well?
8. What are the socio-economic reasons for not protecting the young chicks?
9. Does care add to production. Is it holistic (love for chickens), or better management?

Literature:

Huque, Q.M.E; 1999; Nutritional status of family poultry in Bangladesh. Free communication 14. First INFDP/FAO Electronic Conference on Family Poultry.