

Rapid appraisal of good practice: managing poultry for better growth and results

The Resilient Livelihoods for the Poor program, implemented with DFAT support, includes asset transfer and livelihoods support for poultry production. The program conducted enterprise analysis, prepared posters describing chicken and duck maintenance cycles and caring for poultry (what to do) and employs people to mentor families receiving and managing assets.

This rapid appraisal of good agricultural practices reviews more than 10 years of experience in Laos, Vietnam and Bangladesh to identify good practice management of poultry for better growth and results.

Challenges

In Laos, except for some commercial chicken farms, farmers tend to raise local breeds of chickens and ducks using a free-range scavenging system. The birds provide meat and eggs for direct consumption by the household and also for sale.¹ The productivity of these production systems depends on the scavenging feed resource base and the health of the birds² - both of which represent common property challenges for a village community. The number of productive chickens and ducks that can be supported by the scavenging feed resource base is limited, and active management is required to ensure birds stay alive and healthy long enough to produce quality eggs and meat. Chickens and ducks are susceptible to diseases and parasites, especially Newcastle Disease, with more than half dying before three months of age.³ The cost of these diseases can be as high as three-times the net income of each production cycle.⁴ Diseases and parasites are rapidly spread through the movement of birds in and out of homes and villages, particularly at times of the year when funds are needed and birds are sold such as at rice seeding time.² Chickens and ducks are also at risk from predators such as birds of prey, rats, snakes and dogs. This risk cannot be eliminated altogether but steps can be taken to reduce it through housing at night in an appropriate chicken coup, cutting tall grass near poultry runs so that predators can't hide and not leaving water and food out at night.²

Possible Solutions

Better growth and results from poultry production depend on the quality of feeding and animal health management. Most poultry diseases can be vaccinated against or managed. Development of heat-stable vaccines, especially for Newcastle Disease and Fowl Cholera, eliminates the need for cold chains and allows vaccination programs to be managed at the village level.² The Resilient Livelihoods for the Poor program poster describing chicken and duck maintenance cycles includes a vaccination guide. An alternative strategy, is to buy day-old chicks or ducklings and grow them for meat production during those months when the risk of Newcastle Disease and other highly infectious diseases is lower (typically October to May).

Assuming animal health is well managed, with good quality clean housing, poultry growth and results depend good feeding practices and access to clean water. Chickens and ducks can survive for a few days without food but may die in less than a day without water. Scavenging poultry usually manage to find enough water to survive but young birds, ducks and laying hens will perform much better when provided with clean and shaded water.²

¹ Phommacack, O., (2014) A survey of commercial small-scale poultry production systems and nutritional characterisation of local feed ingredients in Laos (a thesis presented in partial fulfilment of the requirements for the degree of masters of Agri-Science at Massey University).

² Ahlers, C. Alders, R. et. al. (2009) Improving village chicken production: a manual for fieldworkers and trainers, ACIAR, Canberra.

³ Stur, W., Gray, D., Bastin, G., (2002) *Review of the livestock sector in the Lao People's Democratic Republic*. Report prepared for the ADB, ILRI, Metro Manila Philippines.

⁴ Tran, C. C., & Yanagida, J. F. (2015). Computational Economic Analysis of Duck Production at the Farm Household Level in the Context of Highly Pathogenic Avian Influenza Subtype H5N1 in the Red River Delta, Vietnam. *Asian Journal of Agricultural Extension, Economics & Sociology*, 6(4), 172–184.

The quality and quantity of the scavenging feed resource base is usually the main factor limiting chicken and duck production. The feed resource base typically includes grass and other green feed, seeds and fruits, insects, worms, soil minerals, gleanings from cultivated fields, bran where cereals are processed and household food scraps. Chicken and duck flocks tend to intermingle so neighbouring households need to work together to manage the resource base for quality, hygiene and quantity.² A given quantity of scavenging resources can support a limited number of productive chickens or ducks. Since the village poultry flock normally exceeds the carrying capacity of the scavenging feed resource base farmers need to provide supplementary feed to ensure productivity.² For example, in Bangladesh, traditional duck management based on scavenging, indigenous breeds and no use of supplementary feeding resulted in each duck producing between 80 and 120 eggs per year. Improved management using breeds such as Khaki Campbell and a mixed scavenging and supplement diet resulted in each duck producing between 220 and 300 eggs per year.⁵

Strategies for good practice

Lessons from Bangladesh, Laos and Vietnam suggest that supplementary feeding leads to better growth and results when:^{5 2 1}

- Feed should be provided daily rather than in one big heap for birds to finish over a few days and offered in troughs to avoid mixing with soil
- Birds that get most of their nutrition from scavenging tend to get enough protein but benefit from the supplemental feeding of carbohydrates such as rice, cassava, maize or commercial feeds, with broken rice being a good example of a palatable, high energy, low fibre energy source
- Rice bran is a good quality food for poultry that is especially useful if mixed with a small amount of fish meal but needs to be fresh for effective production since the nutrients quickly deteriorate if hot or moist
- Maize and sweet potato are good feed sources of carbohydrate but has relatively low protein quality so needs to be combined with other feed such as fish meal, bean meal (e.g. from cow peas, pigeon peas or soy bean)
- Cassava is a high energy feed with low protein, fat and minerals but it needs to be boiled, sun-dried or ensiled by the poultry-keeping household to reduce the impact of cyanide in the raw tuber, which is often an additional burden on women or youth in the household
- Snails collected from rice fields can be chopped, steamed and mixed with rice bran and/or broken rice as a protein-supplement for chickens and ducks
- Chickens and ducks managed for egg production need a diet rich in protein and calcium, which can be provided from crushed eggshells or snail shells
- The survival of day-old-chicks and ducklings is increased by feeding commercial chickfeed crumble – for example in Bangladesh farmers provide concentrate feed to ducklings during the first 35 days of life.

Other good practice strategies include the integration of ducks into rice farming: ducks obtain nutrition from insects and weeds, reducing the need for weeding and pesticides, they fertilise crops with their waste and aerate the field with their movement, reducing the need for fertiliser and soil conditioners.⁶

Where birds are housed, the manure is a valuable fertiliser for home gardens. To be most effective chicken or duck manure needs to be composted for about three weeks which means layering with organic matter (e.g. banana leaves, rice straw, cut grass) and keeping moist by adding water in the dry season and sheltering from heavy rain in the wet season. Compost should be dug into the soil to reduce the risk of disease and to add most value to the home garden.²

Poultry production, whether for home nutrition or surplus sale, is best managed as a coordinated effort between families. In Bangladesh, duck farmers organised themselves into producer organisations to increase their collective bargaining power in the market – both to buy inputs and sell products, especially eggs. This increased profitability for participating households by between 20 and 40%.⁵

Communicating information to poultry farmers is difficult. In Bangladesh, feed sellers are in regular contact with farmers and so play a vital role in disseminating information about simple feeding and management techniques to the farmers and encourage them to adopt better practices for higher productivity.⁵

⁵ Islam, M.M., Bhuivan, M. N. K. and Harun, M. Y. (2012) *Development of Value Chain: An Effective Way of Profitable Duck Farming in Haor Areas of Bangladesh*. INFPD Good Practices of Family Poultry Production Note No 04. IFAD and FAO, Dhaka, Bangladesh.

⁶ Suh, J. (2014) An institutional and policy framework to foster integrated rice– duck farming in Asian developing countries. *International J. Agricultural Sustainability*.