

## Eggs are rarely eaten in rural Bangladesh: why and how to improve their availability

**In many ways an egg is an ideal food for a child: it is a handy and hygienic source of easily digested, high quality protein, and a single hen or duck egg provides almost enough vitamin A to meet a young child's daily needs. Yet the Nutritional Surveillance Project found in 2000 that the majority of people in rural Bangladesh had not eaten an egg in the last week even though raising poultry is a traditional part of village life. Why is this, and what can be done about it?**

When infants are given other foods in addition to breast-milk at about 6 months of age these complementary foods need to be rich in micronutrients, energy and protein so that children grow to be healthy and strong. A good mixture of traditional family foods can meet these needs, as we have shown in a previous Bulletin.<sup>1</sup> The main source of energy and protein in the diet of poor rural people in Bangladesh is rice, which is typically eaten with vegetables, fish, lentils, or eggs. Although vegetables can provide vitamin A and iron, these micronutrients tend to be less well absorbed from plant foods than from animal foods. Eggs are a good source of both high quality protein and vitamin A and are an ideal complementary food. But data collected by the Nutritional Surveillance Project show that eggs and other micronutrient-rich foods are not eaten often enough in rural Bangladesh to meet nutritional requirements. This Bulletin focuses on why eggs are not commonly eaten and examines ways to increase egg production and consumption.

### Eggs are rarely eaten

During the interviews conducted by the NSP in a sample of around 9,000 households every two months in rural Bangladesh in 2000, questions were asked about how many days in the last week

certain key foods had been eaten, including green leafy vegetables, lentils, fish and eggs. The interviewers also asked mothers whether the eggs they had eaten came from the local market or from their own chickens, and the interviewers visited the market to record the local price of eggs.

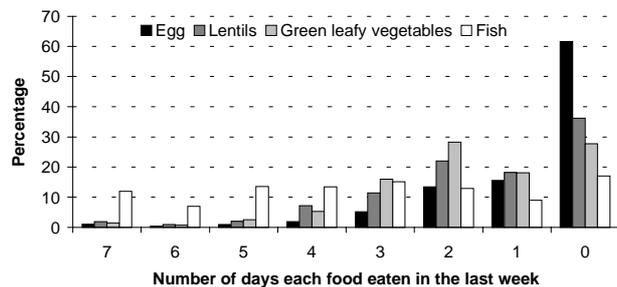
Figure 1 shows how frequently young children had eaten eggs, lentils, green leafy vegetables and fish in the week before the interview. Fish was the most frequently eaten food, but the typical child had eaten vegetables and lentils on fewer than two days in the last week, and more than 60% of all children had not eaten a single egg.

The picture was similar for other household members: they also rarely eat eggs. Figure 2 shows that more than half of households had not eaten egg during the six surveys in 1999 and 2000, and that there was a slight seasonal variation: between April and July eggs were eaten within around 40% of households compared with around 30% of households between August and November. This suggests that eggs are seasonally available.

### Chickens and eggs

Raising poultry is a traditional part of village life in Bangladesh and more than 90% of households visited by the NSP reported that they have animals, mostly poultry. Even

**Figure 1.** The number of days in the last seven on which four key foods were consumed by 51,177 children aged between 12 and 59 months in rural Bangladesh during 6 rounds of data collection in year 2000.



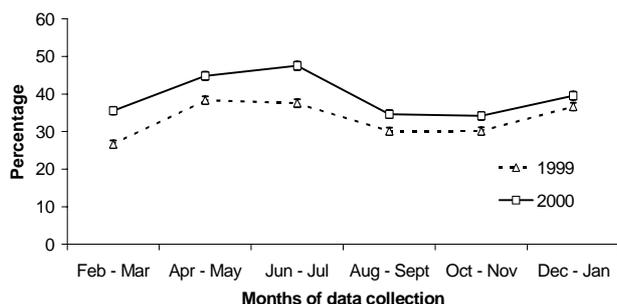
functionally landless households, defined as having less than 2000 m<sup>2</sup> of land, typically have poultry – 80% of them in fact.

However, while most households have one or more chickens or ducks Figure 3 shows that less than 35% had eaten an egg laid by their own chickens in the previous week. The proportion was larger for landowners than functionally landless households, perhaps because landowners have more chickens or because their chickens lay more eggs.

As well as finding that few people are eating eggs produced by their own birds, they do not seem to be buying them in the local market either. Figure 3 shows that less than 15% of households had bought eggs from their local market in the last week.

Why are there so many chickens and so few eggs in rural Bangladesh? This could be for several reasons: households have few chickens; chickens lay few eggs because they are unhealthy or unproductive; eggs are kept to hatch chicks; or eggs are sold, given away or exchanged. These data suggest that availability is a problem that limits the consumption of eggs in rural Bangladesh, but what about their cost?

**Figure 2.** The percentage of households that had eaten an egg at least once in the last week, by round in 1999 (n=43,200) and 2000 (n=53,848)



### Eggs are expensive

In 2000 the average price of eggs reported in rural Bangladesh was 12.8 Taka for a *hali* of four eggs from local chickens, and commercially produced eggs from better breeds of chicken are even more expensive. How does this compare with other foods? A kilogram of rice, for example, costs roughly the same amount, about 12 Taka. Given that a typical household spends 33 Taka per person on food each week, eggs are too expensive to be a regular food item.

So far the NSP data have shown three things. First, that the majority of households had not eaten eggs in the last week. Second, that comparatively wealthy landowners were more likely to have eaten eggs than landless households. And third, that eggs are a relatively expensive food considering the small amount of money that households spend on food.

### Improving the availability of eggs

The main problem seems to be there are not enough eggs available in rural Bangladesh. While commercially produced eggs are sold, they cost more than locally produced eggs, and Figure 3 shows that few household buy eggs anyway. Increasing homestead egg production will therefore make more eggs available to eat and would reduce their price. This can be done in several ways.

First, hens can be reared successfully around the homestead – they do not need much land and can scavenge for food at no cost.<sup>3</sup> Their diet can be supplemented with damaged grains, rice bran, and food unfit for human consumption, while the empty shells of water snails and other mollusks can be crushed to provide calcium.

Second, the breed of chicken can be improved. The breed traditionally used in rural Bangladesh lays only around 50 eggs per year but better and more robust breeds such as Egyptian chickens can lay some 150 eggs a year.

Third, the death of chicks due to disease – a major reason why poor rural people are thought to be reluctant to invest in chickens – can be prevented. A vial of vaccine against Newcastle disease costs Tk 10 for example, and can immunize about 100 birds. Vaccines against three other common killer diseases are also produced in Bangladesh. If a supply

**Figure 3.** The percentage of households that had not eaten egg at all in the last week, had eaten eggs bought from the local market, or had eaten eggs from their own chickens, according to landownership<sup>a</sup>, in rural Bangladesh in year 2000 (n=53,845)



chain can be created to make vaccines available in rural villages, and if one vial can be used by several householders, then birds can be vaccinated at very low cost.

In theory the potential to increase egg production is very great. Using an estimate of 125 million chickens in Bangladesh,<sup>2</sup> if each of these birds produces only 50 eggs a year, then this provides less than one egg a week for every person in the country. If the number of chickens could be increased by 50% and if the yield per bird could be trebled, both of which are realistic improvements, then this would provide almost five times as many eggs. If these improvements could be tied to nutrition education and social marketing so that young children were given preference to receive eggs, the diet and nutrition of children could be substantially improved.

### Homestead food production

To promote this strategy Helen Keller International are broadening and expanding their tried and tested model of homestead gardening to include raising poultry as a strategy to combat malnutrition and poverty.<sup>4</sup> Since 1990 the HKI homestead gardening project has increased the production and consumption of fruits and vegetables by poor rural households, even amongst those that own little land. In the HKI model of homestead gardening a village nursery is established which acts as a source of supplies as well as a focal point for training and demonstrations where poor rural women can learn new skills. The Box to the right explains how HKI is expanding this model to train poor rural women to rear poultry as well as producing vegetables.

There are other potential benefits from participating in a homestead food production project. Women develop new skills that can improve their status in the community and, by working in groups, they can widen their social networks. The sale of excess produce can provide additional income to buy food or pay for children's education. The consequences of women's involvement in homestead food production can lead to a better use of household resources and improved caring practices for young children. When women are in control of household resources their children are better nourished than those of women that are not in control of the resources.<sup>5</sup>

This bulletin illustrates how carefully collected quantitative data, practical experience, and technical expertise can be brought together to provide a sound basis on which to design a program. With sustained support the NSP can continue to respond to the need for the information required to design programs such as this, and to further our understanding of household nutrition and food security in Bangladesh.

#### HKI village model farms

A pilot project is being conducted by HKI with two NGOs who are already implementing a homestead gardening program. Village Model Farms with poultry units have been established to provide farmers with training in rearing, housing and feeding poultry, treating common diseases, and giving vaccinations to birds. HKI has provided farmers with 10 birds of an improved breed to start poultry production. HKI will provide vaccines in the first instance, but to ensure sustainability linkages will be created between farmers and the suppliers of vaccines. The model farms will eventually breed chicks to sell to local households as well as producing eggs and birds for sale as meat. Farmers will also be given training in how to manage a small business and thus increase their chances of surviving as a self-sustaining microenterprise.

Using the HKI homestead gardening model these village poultry farms are providing training, technical assistance and poultry vaccines to rural women organized into groups of 20. Each participant has been given five 3 week-old chicks by HKI. Women are being shown how to build hygienic housing for their birds using locally available materials, and how to feed chickens properly and keep them healthy. The women will be encouraged to give the eggs their hens produce to their young children before selling any excess for income.

<sup>a</sup>Households with less than 2000 m<sup>2</sup> are defined by HKI as "functionally landless".

## Conclusions

- Eggs are rarely eaten in rural Bangladesh even though the majority of households have chickens.
- Eggs are relatively expensive and most households rely on their own chickens for eggs rather than buying them in the local market.

## Recommendations

- Producing eggs at the homestead has the potential to increase egg consumption, especially if better breeds of birds are used and vaccines are made available.
- Social marketing and education can be used to encourage people to eat more eggs and to feed eggs to their children, thereby creating a greater demand for eggs in rural areas.
- HKI's program for homestead food production, which includes poultry rearing and vegetable production, can be expanded to include more households in other parts of the country.
- Nutritional surveillance can monitor changes in eating habits and food security in Bangladesh and provide the information needed to design and improve interventions.

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This publication was made possible through support provided by the United States Agency for International Development Mission to Bangladesh under the terms of Cooperative Agreement No. 388-A-00-99-00060-00. The opinions expressed herein are those of the authors and do not necessarily reflect the views of USAID.