MANAGEMENT OF CHICKENS BY SMALLHOLDERS

By R.E. Abdelsamie*, Formerly Officer-in-Charge,
Labu Poultry Research Centre, Lae

INTRODUCTION

A smallholder broiler industry has operated in the Morobe Province since 1972. A locally-owned broiler breeder farm, and a hatchery were set up to supply day-old chickens to smallholders. Smallholders raised these chickens, in groups of 1000, to 9 weeks of age. A central abbatoir collected the chickens from smallholders for processing and marketing.

Smallholders borrowed money from the PNG Development Bank (now known as the 'Agricultural Bank') to cover the cost of day-old chickens and feed. Loans were paid back from the money earned by selling the chickens to the abbatoir.

Ever since the industry started there have been problems of high death rates, and poor growth rates.

A field survey was carried out by staff of the Poultry Research Centre, Labu to determine the reasons for these problems. Results of the survey suggested that the problems may have been due to poor management.

This article describes the management practices which smallholders have been following, and points out some problems. An alternative system is suggested. This system was tested to see if it was suitable for local conditions.

MANAGEMENT OF CHICKENS BY THE SMALLHOLDERS

Housing

In all projects, chicken houses were made of bush timber and chicken wire, with roofs of kunai grass or sago leaves. Chickens were raised on deep litter of wood shavings. Each chicken had floor space of about 0.09 m^2. The houses were usually adequate. However, they were often not secure, and chickens were lost because of stealing and attacks by predators such as dogs, cats and pigs.

Water supply

Most projects did not have a water supply close to the chicken house. Water was usually carried in buckets from a river or a creek. This made a lot of work for the smallholder. Most projects used bamboo troughs. These did not hold much water, and needed filling about every 2 hours. Sometimes 20 litre drums buried in the ground were used. There were 4-6 drums for every 1000 chickens.

Feed troughs

Adjustable self feeders, with a tube and a tray which can be separated, were used in all projects. These feeders were found to have several problems. The wire that connects the tube with the tray often broke, so the feed fell out and was wasted. The tray was only 5 cm deep, so the feed tended to overflow from the tray and again was wasted.

Brooding

Smallholders often did not brood the young chickens correctly. In many cases, the day-

* *Present address: CSIRO Project for Animal Research and Development, P.O. Box 123, Bogor, Indonesia.*

old chickens were placed in a small area of the chicken house with no extra protection. During the day, the chickens were usually warm enough, but at night, temperatures fell to 19-22°C and chickens often died from chilling. Some smallholders used kerosine lamps to provide extra heat, but did not supply enough kerosine to keep the lamps lit all night. Crowding of chickens around the lamps also caused some deaths.

Because of the problems smallholders had with brooding, the management of the hatchery decided to stop sending day-old chickens to the projects. Instead, the chickens were brooded for 10-14 days before sending to the projects.

Brooding was done in a large shed near the hatchery. The shed was divided into 3 areas by 90 cm high flat galvanised iron sheets. Each of the areas held one week's production of chickens - about 10,000 - 15,000 birds. Gas heaters were used to raise the temperature.

Unfortunately, this method of brooding also had problems:

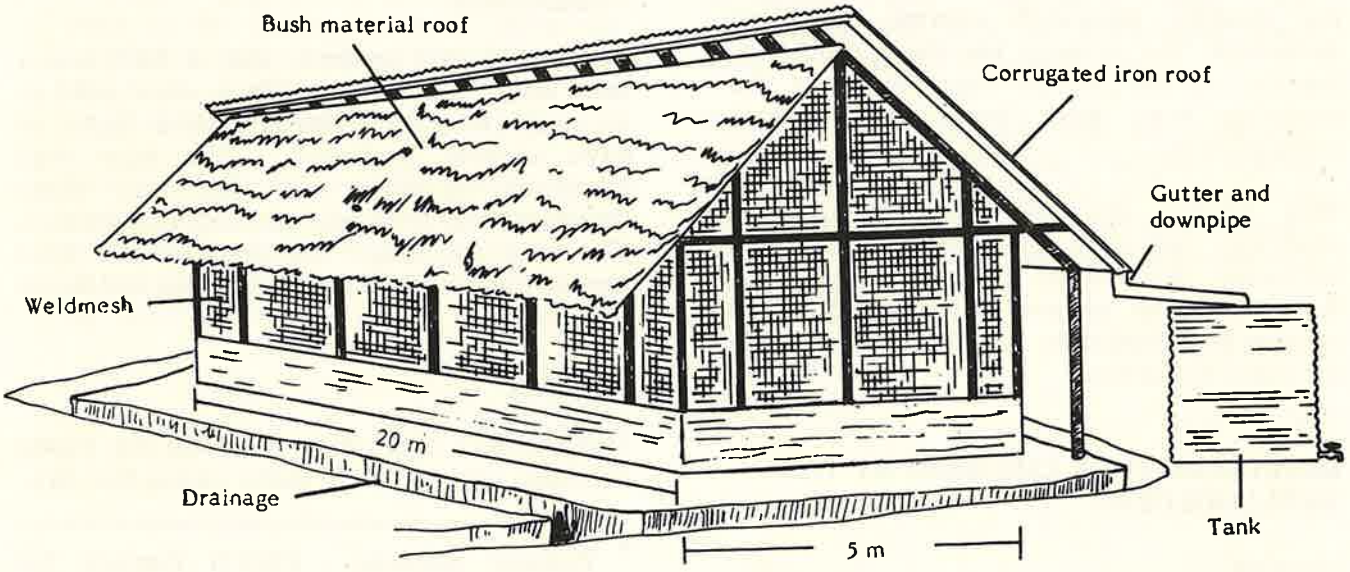
- The shed was dark, poorly ventilated, and had a strong smell of ammonia.
- Chickens which died were often left rotting in the deep litter.
- The partitions separating the shed into 3 areas were not secure, and different age groups became mixed.
- Chickens brooded by this method seemed to be under a lot of stress. Feather picking and cannibalism (chickens eating each other) were common. This behaviour continued after brooding when the chickens were at the smallholder projects.

THE ALTERNATIVE MANAGEMENT SYSTEM

In the light of the problems mentioned above, the following management system was suggested.

Housing

The houses were made more secure by using 5 x 8 cm security weldmesh instead of chicken wire. One side of the roof was covered with corrugated iron sheets, and a gutter and down pipe were installed to collect rain from that side of the roof, into a 2,000 litre tank. (See diagram below.)



The alternative management system - broiler house

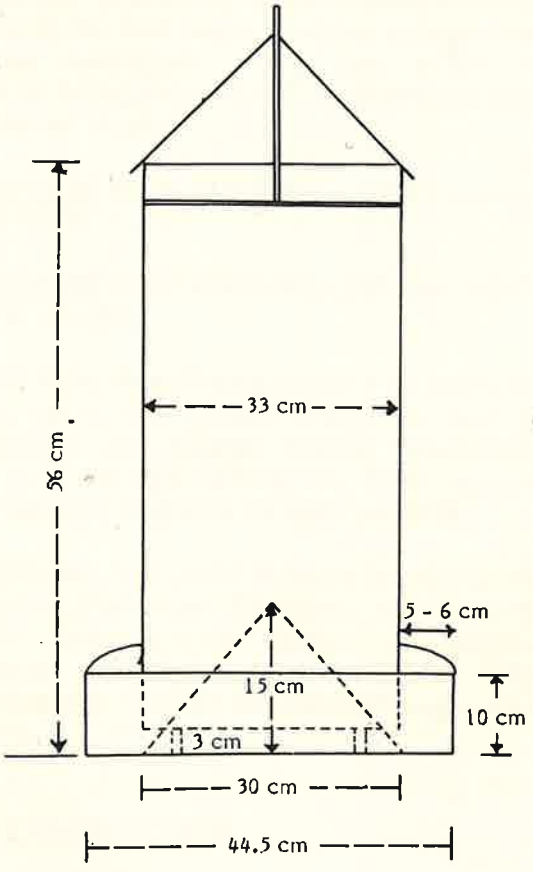
Water troughs

Water troughs were galvanised iron gutters, 15 cm wide x 10 cm deep x 180 cm long with ends sealed using flat galvanised sheets. Troughs were placed inside the chicken house so that each chicken had 2.5 cm of trough space.

Feeders

The design of self feeder used is shown in the diagram below. It was made of galvanised metal, and consisted of a feeding tray with a cone soldered to the centre, and a barrel placed over the cone 3 cm above the tray by means of 3 legs. Feed was placed in the barrel, and fell into the feeding tray through the gap between the cone and the barrel.

The whole unit can be hung up if necessary.



The alternative management system - the self feeder

Brooding

The brooder used was the cold brooder described in Harvest 10: 2 (1984).

TESTING THE NEW MANAGEMENT SYSTEM

Four houses were built at the Poultry Research Centre for evaluation.

The following observations were made.

The house

The house was found to be adequate and easy to manage. Collecting water from the roof into the tank saved a lot of hard work. The rainfall in the area was enough to keep the tank nearly full all the time.

Water trough

The water trough held about 18 litres of water. This supplied enough water for about 8 hours, compared to 2 hours with bamboo troughs. When chickens were less than 3 weeks old, adding some stones to the water trough stopped the chickens from falling in the water and drowning.

Self feeder

The self feeder was suitable for chickens after the 10 day brooding period. Very little food was wasted. When used for young chickens (up to 2 weeks old), it was necessary to partly bury the tray in the deep litter. As the chickens grew, the level of the feeder was raised, so that it was about level with the back of the chickens. One feeder was enough for about 50 chickens.

The brooder

The cold brooder, and how to use it, has been discussed in an earlier article (Harvest, 10: 2, 1984). When used correctly the temperature inside the brooder stayed close to that needed for the young chickens.

CONCLUSION

The new method of management of chickens was found more suitable for broiler projects in the Morobe Province, than the old system used by the small holders. It is recommended that this system should be introduced in all projects.

FURTHER INFORMATION

For further information, you can contact:

The Officer-in-Charge
Labu Poultry Research Centre
P O Box 348
Lae
Telephone: 421022

FURTHER READING

Abdelsamie, R. (1984). A chicken cold brooder suitable for the New Guinea lowlands. *Harvest* 10 (2): 76-98.

Bakau, B.J.K. (1985). Some suggestions for improvement management on small semi-commercial broiler projects. *Harvest* 11 (2): 71-74.