

INTRODUCTION

Poultry keeping in the tropics is fast outgrowing the barnyard stage and becoming an important and self-contained enterprise for commercial egg and meat production. In this development, the new industry has depended almost entirely on exotic breeds of poultry imported from temperate climates usually as day old chicks. Producers are adopting intensive systems of management, particularly the Deep Litter System which has relatively cheap capital investment requirements and therefore considerable advantage in the tropics where capital availability is often very low. Under such intensive systems, the design of house and choice of building materials become a matter of some consequence since they influence to a very large extent the internal environment of the space within which the birds are to be permanently confined.

Consideration of the internal environment of intensive poultry houses assumes a position of special significance under tropical conditions where ambient temperatures and atmospheric humidities are usually quite high, both conditions often occurring together over long periods during the rainy season. The combined effect creates a debilitating heat burden which requires prompt alleviation if the birds are to maintain optimum growth and production. Actual mortality due to heat stroke is quite common in countries like the U.S.A. and Australia with very hot summer temperatures, but does not appear to be as important in the tropics. This is due probably to the ease of acclimatisation of poultry to heat stress especially if they are introduced to the hot environment as day old chicks. Nevertheless, the poor growth rates and production given by poultry in the tropics as compared to those of otherwise similar groups reared in temperate climates under identical systems of feeding and management do bear out the adverse effects of heat stress on poultry production under tropical conditions.

In the early stages of the development of confinement housing of poultry in the tropics, the tendency was towards the whole-

sale importation and use of house designs for temperate conditions with little or no modifications. The result was that such houses proved uncomfortably hot for the birds and presented difficulties in the management of the litter. Subsequent alterations to the designs were rather haphazard owing to the lack of fundamental data on poultry housing requirements in tropical climates. Therefore, at present, one finds that types of roofing material in use and heights of roof vary from holding to holding particularly among the smaller poultry keepers, and no one appears to know what is the optimum height for any of the materials used to give the best results.

Building materials and durable roofing sheets are expensive, and in most cases have to be imported and transported over very long distances. As a result, poultry housing in the tropics, as in temperate climates, forms the most expensive item of capital investment in poultry production. Much useful information is already available on all aspects of poultry house design and construction for temperate conditions, but very little yet appears to be known about optimum conditions of house design, ventilation, cooling, etc. of poultry houses in the tropics. Some knowledge of the appropriate height and type of roofing material consistent with the maintenance within the poultry house of optimum physical conditions for the birds, and provision of adequate working room for human operators would be of vital and practical importance to every commercial poultryman wishing to produce eggs and meat with the greatest economy and efficiency.

| | Cost/1000 sq. ft. | Cost/1000 sq. ft. |
|------------------------|-------------------|-------------------|
| Corrugated aluminium | 0.28 | 0.25 |
| Asbestos cement | 0.24 | 0.20 |
| Galvanized steel (new) | 0.26 | 0.22 |
| " " (used) | 0.17 | 0.13 |
| Lightly treated | 0.24 | 0.20 |
| Darkly treated | (not given) | 0.20 |
| Thin galvanized | 0.24 | 0.20 |