

Karandagolla—A New Feature in Poultry Development

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MEDICAL SCIENTISTS and nutrition chemists have long recognised that protein derived from animal sources has a higher feeding value than vegetable protein for human beings. It is now common practice to assess proteins on the scale of their biological values, in which proteins of animal origin rank above those of vegetable origin. While it is true that animal proteins are richer in certain amino-acids, it is also equally correct that a mixture of vegetable and animal food will furnish man with the most satisfactory diet. In Ceylon, the consumption of foods of animal origin has hitherto been below normal, but nutritionists have during recent years pointed out the necessity for increasing it in order to build a healthier and stronger population. The country is as yet far from self-sufficient in regard to foods of animal origin, and at present large quantities of animal food have to be imported to make up this deficiency. The increasing demand for animal foods is giving local agriculturists an excellent opportunity to plan their farming on a broader basis and thus stabilise their economy to a greater extent. In doing so, they have to plan not only to meet present day needs, but also to cater to the rapidly increasing human population.

The main sources of animal protein are milk, meat, eggs and fish, and while Ceylon could easily be self-sufficient in

all of these, eggs are one commodity in which self sufficiency could be attained within a few years. It is true that poultry, to some extent, compete with man in their food requirements, but on the other hand it should be noted that egg production in Ceylon could be based at least in part on the left-over food from households, hotels, &c., and on the rice that is damaged during transport and storage. It is the realization of this fact that has prompted the Department of Agriculture to intensify its campaign of back-yard and small-scale poultry keeping. The recent introduction of the modern "Deep Litter" system provides an excellent opportunity for all households to produce their own requirements of eggs even when hardly any backyard space is available.

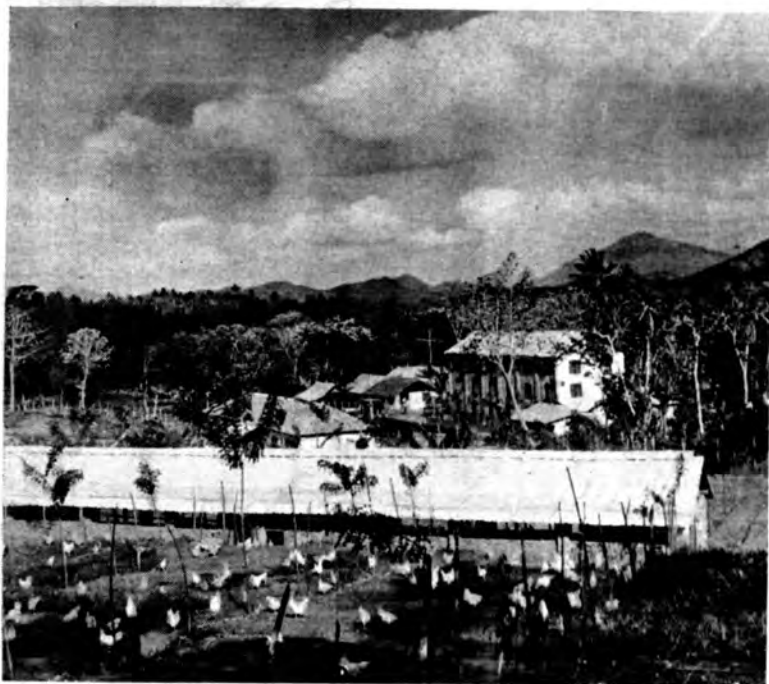
Extension work in poultry development can be carried out efficiently only if the public have access to good stock at reasonable prices. Advice and demonstration by themselves will not be of very great value unless stock can be supplied at prices that are commensurate with the return that will be obtained from the eggs produced by the stock. It is, however, not the intention of the Department of Agriculture to rear all the chickens required annually for the country, but the Department has a very important function to fulfil at the present time by making stock cheaply available to *bona-fide* breeders until

privately owned poultry farms are in a position to meet the demand. Once the private breeders are able to meet the demand for replacements for producers' flocks, or once the producers themselves become sufficiently organised to rear their own replacements, the Department's foremost role in poultry development would be to rear high producing stock with a view to raising the genetic merit of private owned flocks. Multiplication of stock would then be in the hands of private enterprise, while the Department would only be catering for occasional introduction of high producing material besides carrying out its investigations on poultry management, feeding and housing.

Until recently Ambepussa Farm was the main Poultry Station of the Department of Agriculture and it held that position for very many years. Poultry-keeping at this farm, however, had never been crowned with any great success, partly due to the unfavourable climatic conditions resulting from excessive humidity and partly due to the high incidence of disease for which the efficient drugs of today were not available. It was therefore decided about two years ago that poultry operations at Ambepussa should be abandoned, and that a new poultry station capable of handling a larger number of birds and running on more modern lines should be established in a more congenial climate elsewhere. The result was that part of the Karandagolla Division of the Kundasale Cacao Estate was taken over for this purpose. This new site offered several advantages: the rainfall was far below that at Ambepussa and was even less than that at Kandy; six of the already existing buildings on the land were suitable for conversion into poultry

houses and accessories, viz., the old cacao factory which has since been converted into an excellent three-storied brooder house, the old store which is now used as the incubator house, two bungalows for the staff and two quarters for labourers; the station was in close proximity to Kandy and Peradeniya which made transport problems and the problems of veterinary and managerial supervision from headquarters easier. The work of building up this new Poultry Station was started in earnest only after October, 1954, and it is encouraging to note that the Station is already paying good dividends in that during the last 8 months alone, it has issued or sold approximately 45,000 birds plus a large quantity of table and hatching eggs to the public.

The Station at Karandagolla was started almost entirely with imported foundation stock, only some 200 pullets being material transferred from Ambepussa. This Ambepussa stock was carefully checked several times for bacillary white diarrhoea before transfer to Karandagolla. Part of the imported material was obtained from Australia as a gift under the Colombo Plan Technical Assistance Scheme, but the bulk of it was purchased from the U. K., U. S. A., Denmark and also Australia. All the material came from recognised breeding units in the different countries. The breeds now represented at Karandagolla are R. I. R., Australorp, White Leghorn, Brown Leghorn and New Hampshire, and the flock at present consists of some 1,600 layers and about 9,000 other birds. With the gradual expansion of housing and other facilities, it is anticipated that Karandagolla Poultry Station will have a flock strength of approximately 50,000, of which about



Karandagolla Farm—General Layout



Modified Deep Litter System—Runs on either side for rotational grazing

2000 would be layers. The large number of birds that we plan to have in the non-commercial categories is an attempt to provide increasing quantities of breeding material to the public. It must also be mentioned in this connection that it is the accepted policy of the Karandagolla Poultry Station to encourage the public to purchase day-old chicks or chicks that are a few weeks old in preference to hatching eggs. It has been found by experience that the issue or sale of eggs for hatching is often a wasteful way of disseminating good stock, as hatching under small holders' conditions is rarely very efficient. It is in pursuance of this fact that chicks under five weeks of age are priced very low.

Housing. In spite of its being a large-scale poultry enterprise, the housing facilities at Karandagolla Farm have been designed in a manner that would permit emulation even by small holders. It is well recognised that the provision of efficient and adequate housing facilities often accounts for the major part of the ultimate success or failure of poultry keeping. This does not, of course, mean that the old method of having poultry running around the house, as we find it in rural areas, should be ruled out forthwith. On the contrary the bulk of the eggs produced in this country will almost certainly continue to come from such systems of poultry keeping. But it should be our endeavour to change peoples' ideas of poultry keeping and gradually make them adopt more efficient ways of egg production for their own benefit as well as for the benefit of the country at large. In those countries where poultry keeping has reached an advanced stage, birds are often maintained under highly artificial conditions. In fact many modern poultry farms

remind one more of egg factories rather than farms. The old concepts of poultry farming have to be gradually changed to yield place to these modern systems that have paved the way for an easier and more economical method of producing eggs. In this connection the more or less mechanised "battery system" is an outstanding example of how space and labour requirements can be reduced drastically while at the same time the control of food-intake and productivity of birds can be achieved with amazing accuracy. But, of course, it is very costly to establish, it is uneconomic if the number of birds is small, and it requires very careful and efficient management as the birds have to be almost spoon-fed. A system of poultry keeping far more suitable to present conditions in this country is the modern "Deep Litter" System. It is labour saving, it requires very little space, and it does not call for a very high degree of human skill in management. Moreover, it is a system that everybody can afford to adopt.

The deep litter system and various modifications of it are in use at the Karandagolla Poultry Station. The following are the main features of the housing facilities on this farm :—

- (1) One large house for layers to accommodate 2,000 birds. Here, a modified system of deep litter has been adopted in that in addition to the "deep litter" house alternate grass runs are provided for rotational grazing.

The house is divided into compartments fitted with doors which permit ready access from one end of the house to the other.



The Hatchery



Brooder House

- (2) One large intensive deep litter house to accommodate individual components accommodate 250 each.
- (3) Two large intensive deep litter houses for growers (pullets). These houses, once complete will accommodate at least 4,000 birds.
- (4) Portable houses for growers and cockerels, each accommodating 150 birds. These will be shifted around in pens according to the availability of grazing.
- (5) One brooder house accommodating about 5,000 chicks. Until such time as electricity is made available heat is provided by the chicks from kerosene brooders. The usual umbrella type of brooder is used, each having a capacity of 300 chicks. The house has a ground floor for bigger chicks where no artificial heat is provided, and two upper floors with heaters. All floors are divided into small compartments, and chicks are housed according to age—the newly hatched chicks being accommodated on the top floor and the bigger ones lower down. New hatches are put on clean litter (paddy chaff) in disinfected pens. No transport of litter is allowed from floor to floor, a special shaft being provided on each floor for the disposal of old litter. When electricity becomes available there will be a large unit of electrically operated battery brooders in which chickens would be kept on wire netting.

Brooders of this type have already been obtained under the Colombo Plan Technical Assistance Scheme from Australia.

Sexing of day-old chickens is not undertaken at the present time but equipment for the purpose has been obtained from Japan under Colombo Plan aid, and arrangements are being made to send an officer for training in this subject.

Feeding. All-mash rations are given to poultry at Karandagolla and these are fed as dry-mash. This system is not only labour saving but has given good results in regard to both growth rate and egg yield. The rations used are based on the results of carefully conducted poultry nutrition experiments carried out at Peradeniya during 1954-55. They are composed almost entirely of home grown feeding stuffs which are available at relatively low prices. It may be relevant to note here that the most expensive component of the rations is cereals which make up about 40 per cent. of the diet.

Feed troughs and other utensils suitable for feeding dry-mash have been turned out on the farm. These utensils are cheap, efficient and labour saving in that some of them are filled only once or twice weekly. Pipe water has been made available to all houses.

Breeding. At present, as a temporary measure, trap-nesting facilities have been provided in the layer houses. But when separate breeding pens become available, trap nesting will be carried out only for a selected number of layers, (approximately 10 per cent. of the laying flock), while all others will be provided with community nests. The breeding work would be based on combined



Artificial Heater in Brooder



Deep Litter for Growers



Trap-nesting in Deep Litter House

individual and family selection and would also involve a comparison of breeds. It has also been decided that the introduction of new stock from abroad will not be made to Departmental Farms other than Karandagolla, which will therefore serve as the supply centre of high yielding stock to other units.

Multiplication. The primary role of Government poultry units other than the one at Karandagolla would be to function as multiplication stations. In this connection, special reference may be made to Welisara Farm situated close to Colombo. This farm will, as far as poultry development is concerned, work in close collaboration with Karandagolla. It has already been equipped with large incubators and a number of electrically operated brooders are also being installed with a view to accommodating about 7,000 chicks at a time for issue to the public. A large "deep litter"



Egg Collection

house has also been constructed and will be used to some extent as a Demonstration unit to purchasers of breeding material.

Disease Control. It is appreciated that any outbreak of contagious diseases at Karandagolla could have very dire consequences because breeding material from this station is distributed to so many other Department Units and to several private establishments. A rigorous control of disease is therefore very necessary and routine vaccination will be carefully carried out. The fact that Karandagolla is so close to the Island's main Veterinary Laboratory and that Veterinary Research staff with specialized experience in poultry diseases can visit the farm frequently is therefore satisfying.

Karandagolla Farm will no doubt be of great importance to the poultry industry of this country. It will enable

the Department to carry on an efficient extension service and it could also show the way to more efficient poultry farming as a whole. It is hoped that in due course of time, a number of private breeding farms will be established and run on a sound basis so that eventually they will be able to cater to the country's needs of good breeding material. Once this happens, the Departmental Units should turn their attention to the more undeveloped areas. It is extremely important that Karandagolla Farm must always maintain a high standard of productivity so that it may serve as the source from which accredited breeders could renew their stock regularly.

Poultry farming could be developed with great benefit to this country, not only to supply food of high biological

value but also to provide additional avenues of employment and to stabilize the economy of the small holder. It would be relevant to note in conclusion that with the intensive development of poultry husbandry, adequate steps should also be taken to market the produce of small holders in particular. Perhaps the solution to this problem is best found within the frame work of the Co-operative Societies. Would it be too optimistic to foresee the development of Co-operative Poultry Production and Sales Societies embracing co-operative hatcheries as well? With this hope, we can look forward to the day when the country can boast of self sufficiency in respect of eggs. The Department of Agriculture has taken an important step in this direction by establishing Karandagolla Farm.