POULTRY BEHAVIOUR AS IT AFFECTS MANAGEMENT

By R. H. MORRIS, Officer in Charge, Poultry Branch

UNDER natural conditions animals have considerable control over their movements and over their proximity to each other. Today, however, there is a trend in animal husbandry towards greater intensification, and this is most evident in the poultry industry.

This trend towards intensification and high density housing demands behavioural adaption by our animals and assistance from those managing them to enable them to return the greatest profit.

In trying to improve the performance of poultry the stockman has two avenues open to him:

- He can arrange for the normal functions of the fowl to be performed artificially, thereby entirely eliminating the effect of poultry behaviour. This has been done in artificial insemination, incubation and brooding, which have eliminated mating behaviour, broody behaviour and maternal behaviour respectively.

- In fields of production, where the fowl cannot be dispensed with, the stockman must provide conditions which help the birds to perform well. Before he can do this he must know how poultry behave or react when placed under different conditions and then adopt a management programme which ensures that the birds are under the minimum of stress.

Let us now look at some of the ways in which modern poultry raising conditions can lead to stress and see what we can do about minimising this stress.

During their first week of life and particularly between 9 and 20 hours after hatching, chickens are able to develop a strong attraction for a locality known to them (such as a particular brooder or feeding or watering vessel) and can condition themselves to their environment during this time, in such a way as to establish habits which remain with them throughout life. This process is known as “imprinting,” and through it, we find chickens confined to a given area in a shed or to a brooder learning to regard that brooder as home even when later on they may be able to range over a larger area. This necessitates the even distribution of facilities throughout the shed at day-old to ensure subsequent even distribution of the birds over the floor.

Again, the unfortunate consequences of light failure through pile-ups and smothering, well known to some broiler growers who use 24-hour lighting, can be eliminated by educating the chickens to sudden periods of darkness during the first few
days of life while they are still susceptible to "imprinting" and well before the development of fear reaction which takes place at between 7 to 10 days of age.

**Stress can be reduced**

Knowing the normal behaviour of his birds the good manager can provide conditions which enable them to live under minimum stress; really good managers constantly study their birds and observe their reactions to changes in environment, then quickly correct any practices which may place their birds under stress or at a disadvantage.

**The "peck order"**

It is worth mentioning that the nature of the birds themselves does not make the lot of the poultryman any easier, for in every flock, social tension begins to develop after the chickens reach 10 weeks of age.

This leads to the establishment of the "peck-order", which reaches a peak in degree of organisation at about maturity. This means that sooner or later every bird fights every other bird and soon learns who it can peck and who it must avoid. When bird A and bird B meet for the first time they size each other up and may fight, although a cold stare can sometimes be as effective as open warfare.

If because of size, or just plain aggressiveness, A defeats B, B will always in future give way to A. If A wins all her encounters with other birds within the flock, she becomes the boss hen. B could then become second boss, and C third boss, and so on down the social ladder.

In providing facilities such as feeders, waterers and to a lesser extent nesting, it is important to have a large number of them very well distributed throughout the pen so that timid birds in particular do not have to travel long distances in order to meet their food or other requirements.

The further they have to travel the more harasing they will receive, until finally some birds lose so much condition that they develop into culls.

This is one of the advantages of the wire cage system of housing where the birds can never move very far away from adequate watering and feeding facilities.

Factors affected by the peck-order are sexual maturity, egg production, egg weight and body weight. Sexual maturity can be very easily affected by the "peck-order", followed by egg production and in extreme cases egg weight and body weight. Thus under poor husbandry conditions the effect is on egg mass produced, since both egg number and egg weight are affected.

**A stable social order**

Whatever system of housing is used, the aim is to help the flock to attain a stable social order as soon as possible, and to try to maintain this order.

When young pullets are placed in laying quarters, especially in floor pens, they generally have to be moved from their rearing quarters, or from range. This is done at the time the "peck-order" is developing. Besides the stresses of fear and undue activity or excitement that may occur at this time, there are the social stresses of strange surroundings and strange pen mates, while any social order that may have been developing may be disrupted. When pullets are shifted care should be taken to ensure that the integration of the flock towards a stable peck order continues.

At this stage of the pullet's life adequate facilities such as feeding, watering, nesting and perching are extremely important to offset the effects of shifting, as well as to ensure good productivity in the future. If any of these facilities are inadequate, competition and therefore social tension is greatly intensified and birds at the bottom of the peck order are likely to go out of production.
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If facilities are inadequate, competition is greatly intensified and birds at the bottom of the peck order are likely to go out of production.

It has been suggested that each bird in a flock recognizes up to 100 of its pen mates. Some workers suggest that the number may be as few as 50 and for this reason recommend that ideally, all facilities should be geared to 50-bird communities. In practice, it seems more reasonable to arrange for 100-bird communities. Each 100-bird unit must contain all facilities, feeders, waterers, nests, roosts and grit feeders, just as though it were a separate wired-off pen.

From the centre of her community a bird should not have to travel further than 10 feet in order to reach any facility she needs. In this way she will seldom run into a strange bird.

Culling not the answer

Attention to details like this can substantially lower the culling rate. It cannot be denied that many good birds are transformed into culls by man himself. This is well expressed by Dr McBride of the Queensland University, who says:

"Culling may not always be the true answer to overcoming low average flock production since poor management may be the cause of intense social tension which leads to poor production. Removing birds in poor condition in this case is not going to really improve the position since there is always a bottom to the peck order and birds in the peck order immediately above those removed, soon slip to the bottom and in turn become culls. About all culling achieves under these circumstances is that when heavy enough, it relieves competition, and so enables the remaining birds to produce satisfactorily under the reduced social pressure. Because of this, the usual recommendation to poultry farmers to cull hard, may frequently not be sound, since most of the birds culled are probably low in the social order. Management must be vigorously checked before recommending a heavy culling programme and frequently it will be found that an improvement in management will achieve very much more than rigorous culling".

Most farmers find it easier to obtain good production from birds in laying cages, compared with hens on the floor, and this is due largely to the even distribution of liberal feeding and watering facilities which cages automatically provide.

Even in wire cages, which normally provide adequate feeding space, the social tension increases as more and more birds are placed together into a given area. With farmers faced with high capital costs for housing there is a real temptation to increase the stocking rate without a proportionate increase in floor area. The result is high density housing with lower capital cost but also lowered performance per bird, and the question arises, how many birds is
it best to place together in a cage and how large should the cage be?

There is an urgent need to obtain information in Australia on the advisability, on economic grounds, of housing different numbers of birds in different sized wire cages. It was not very long ago when one or two-bird cages were the only types used in Western Australia. Now some farmers are removing every second cage partition and placing five birds in an area previously allowed for four birds, while others are using larger cages for even larger groups. As group size increases certain economies are made, but new problems arise or old ones intensify, such as bird competition, lower production and the accumulation of droppings with the associated problem of fly breeding.

As the industry makes these changes research should be undertaken simultaneously so that the problems may be solved as they arise. In fact, research should precede industry changes so that the industry can be provided with leads and perhaps saved the expense of costly mistakes. There is a large field for investigation here.

Although debeaking controls feather picking, cannibalism, feed selection and feed wastage, it does not eliminate social tension. It will not overcome management problems created by the peck order.

**Effect of debeaking**

Finally, a word about debeaking and the establishment of the peck-order. Actually, debeaking does not inhibit pecking nor the formation of the peck-order, so, although debeaking is effective in controlling feather picking, cannibalism, feed selection and feed wastage, it does not eliminate social tension. Experiments have shown that in paired encounters between debeaked and non-debeaked hens, the debeaked hens won as many encounters as those with entire beaks. The farmer then cannot rely on debeaking to see him through problems in management created by the peck-order.

—from an ABC “Country Hour” radio talk.

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