

One of the first difficulties found with wire floors was the tendency for birds to pile on each other at night. Laying timber perches at regular intervals on the wire, as shown above, has been found necessary to insure an even spread of the birds at night.

## WIRE FLOORS: The System That Failed?

*The experience of British poultrymen with wire floor poultry houses provides a lesson in laying system design and flock management.*

● Five years ago, the successes claimed by a single British egg producer for laying houses with all-wire floors sparked a countrywide wave of interest in the system. Today, poultrymen are ripping out their wire floors as fast as they put them in and filling their houses with cages.

The reason for the apparent failure of a system which, at one stage, seemed to have every advantage, makes an interesting study from which a number of valuable lessons can be learned.

When the wire-floored house was

introduced, most layers in the United Kingdom were on deep litter. The deep litter system, "imported" from America after World War II, has never been really satisfactory, due largely to Britain's cool, damp climate. Wet and unhealthy litter is almost inevitable in such a climate without an expensive controlled environment building and a sparse stocking density of 2-1/2 to 3 sq. ft. (2322 to 2787 sq. cm.) per bird. These factors increase costs and producers were paying about 1/16/ (U. S. \$5) a bird for specially built deep litter houses.

for only £1 (U.S. \$2.80) a bird. It seemed to possess all the assets of the laying cage coupled with the one advantage of deep litter, the need to clean out the manure only once a year.

Of course, the low cost was achieved by high density stocking; only 1 sq. ft. (929 sq. cm.) per bird overall, which was reduced to about 0.8 sq. ft. (834 sq. cm.) of effective floor space by service passages and nests.

Because the droppings were allowed to accumulate under the floors throughout the whole laying cycle and the automation of feeding and watering, the only chore was egg collecting. And the universal adoption of roll-away nest-boxes made that a once-a-day task. The first floored houses seemed to be the ultimate in minimum manpower egg production.

### What Went Wrong

Unfortunately, it didn't take producers very long to discover that there were some flaws in their "perfect" set-up. A few individuals at research centers, who were able to compare wire floor profitability with cages,

quickly found that the new system was not competitive.

For example, an experimental farm in Herefordshire reported layers on wire floors lost 1/6d (U.S. 20¢) per bird while pullets in cages in the next house made a net profit of 16/6d (U.S. \$2.30) per bird. A producer in Hampshire obtained 15 percent fewer eggs from wire-floor layers than from identical birds kept in cages. These instances were typical of many.

Several factors appear to have contributed to the disappointing performances of wire-floor laying houses. Increased flightiness is one of them. There are two theories about its cause.

The older generation of British poultrymen is convinced that the lack of contact between the layers and their attendants causes the birds to become nervous and flighty. Feeding and watering is automatic. Eggs are gathered along a central passage lined with nest-boxes which hide the operator from the birds' sight. A week could go by without the hens seeing a human being!

Scientists don't discount this theory,

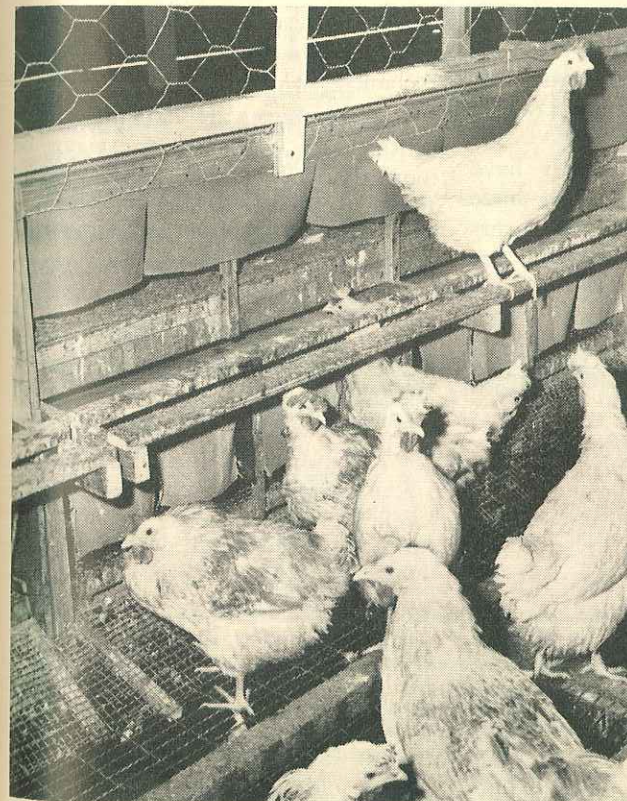
but they advance another explanation. Investigations have disclosed that birds on wire floors have enlarged adrenal glands. The adrenals produce adrenalin, the "pep" hormone released into the bloodstream at times of stress. This action causes the bird to become more nervous and excitable.

### Why the Stress?

Further studies showed the adrenal glands return to normal size when the layers are transferred to litter floors. It was, therefore, deduced that the ability to scratch is important to a chicken.

Some argued that layers in cages can't scratch either! But they have other advantages which may compensate for the loss. Caged birds are not so densely crowded in such large numbers. There can be little doubt that high-density stocking is a stress factor which can be severely aggravated by inadequacies of management.

Poultry behaviour studies in Australia have demonstrated how peck order rules the life of every bird in a flock. Each individual has a dis-



No floor laying problems are experienced in this Surrey, England, poultry house because the manager has made the nest boxes attractive. Ramps and perches make access to both tiers of nests easy. The mesh floors in the nests are covered with soft matting. Plastic curtains provide the birds with the privacy they like when laying. Some producers put straw in the nests to attract the birds when the pullets start to lay. When the straw is mashed down through the mesh floors, it is not replaced.



The wire floor poultry house seems ideal as far as the efficient use of the poultryman's labor is concerned. With rollaway nests located along a central aisle, egg gathering is quick and easy. Or so it seemed, until the hens demonstrated their disapproval of the nesting layout and laid a high proportion of the eggs on the floor of the house, thus negating the labor advantage of the system. In addition to the inefficiency created by floor eggs, the habit results in a high percentage of lost, cracked, broken and dirty eggs.



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tinct social position. It will try to bully those beneath it and to avoid those above it. There is also evidence to suggest that a bird can only recognize and remember between 60 and 100 other birds.

Therefore, two things happen in large crowded flocks. Dominant birds are constantly encountering strangers whose social ranking they do not know. The birds challenge and squabble. In contrast, timid birds tend to keep in small groups of recognized friends and to always limit their activities to the same small part of the floor. Result: Increased tension among the birds.

The subdivision of the large flock into small peck order communities may also explain why the egg yield of layers on wire floors is generally



The layers in this Hampshire, England, poultry house preferred to lay their eggs in the dark corners, rather than in the nests. So the corner was barred with a timber and netting frame and lighted with an electric bulb. The arrangement proved to be a successful deterrent.

low, even when behaviour is subdued. The Australian scientists believe that the small groups remain in a territory of about 144 sq. ft. (13.38 meters).

In other words, they rarely move more than a distance of 12 ft. (3.66 meters) or so. If the feeding, drinking and nesting equipment is not uniformly distributed to permit each group its fair share in its own territory, some birds will go without suf-

ficient feed and water rather than stray from their own territory and risk conflict.

This, of course, is the difference between the wire floor layer and the pullet in a cage. The caged layer always has food and drink within a few inches of reach.

### Floor Eggs a Problem

Of all the problems experienced in wire-floored houses, the most common is the laying of eggs on the floor. Without exception, producers have installed rollaway nest-boxes with sloping wire-mesh floors. One wire floor is probably just like another to a hen. If the nestbox is difficult to reach through the crowd of birds, she takes the line of least resistance and sits down and lays her egg wherever she happens to be.

Large community nest boxes and cold mesh floors are not the hen's idea of a comfortable nest. That's one reason why some poultrymen have experienced as much as 35 percent floor laying. Many of the stray eggs are lost or damaged and most are soiled. And looking for eggs out of the nests detracts heavily from the labor saving value of centralized nesting arrangements.

Not all wire-floored houses have been failures. Some producers have achieved admirable results, with averages of up to 260 eggs per bird per year. But in each case, the poultryman has been an exceptionally skilled stockman. Therefore, we might ask: How much better could such poultrymen do with cages?

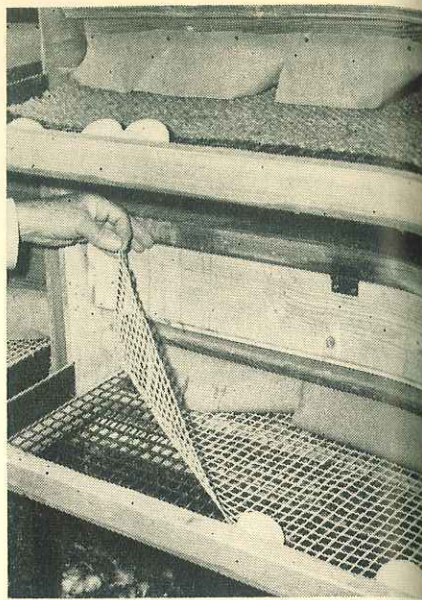
### Six Points to Consider

For the wire-floored system to succeed, attention must be given to six critically important management details.

1. Large houses must be divided by simple chicken netting partitions into small pens to split large flocks of layers into small groups with clearly defined territories.

2. Considerably more than the normal number of feeding and drinking appliances must be provided. They must be uniformly distributed throughout the house so that no bird ever has to walk more than 10 ft. (3.05 meters) to find them.

3. Low intensity lighting is essen-



Overlays are often used to make the nest floors of rollaway nests more comfortable for the birds. Coconut matting and plastic netting are being compared in the nests shown above. The plastic is cleaner and wears longer, but the birds prefer the warmer coconut matting.

tial for its tranquilizing effect. A radio playing constantly will also condition the birds to noise and prevent panic in the event of sudden disturbances.

4. If nestboxes are located along a central aisle, the pens must not be more than 12 ft. (3.66 meters) wide. If the pens exceed 12 ft. (3.66 meters) in width, extra nests along the side walls of the house are necessary.

5. Nests must be attractive. Hens show a marked preference for individual nests over community boxes. Wire mesh floors must be covered with some soft material such as coconut-matting.

6. Popular spots for floor laying — in corners and along the walls — must be fitted with deterrents like lights and barriers to discourage egg laying in such places.

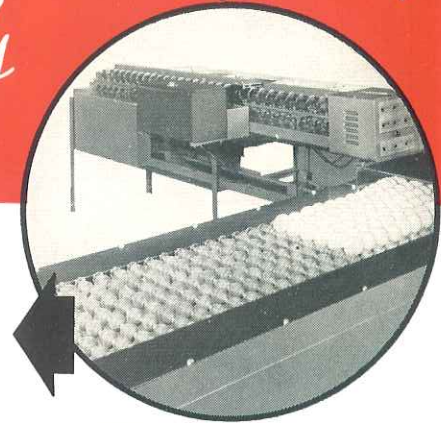
In addition to the various points of high-density stock management, the main lesson to be learned from the wire-floor episode in Britain is that a laying system which is designed solely for the convenience of the operator, without a consideration for the hen's likes and dislikes, will rarely succeed. Perhaps the wire-floor system of egg production has not entirely been a failure if it has been instrumental in ramming that lesson home. — *Anthony Phelps*

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