

How to Cut Cost of Layer Replacements

• The mushroom growth of broiler production throughout the world in recent years has pulled the props right out from under the market for old hens. The carcass value of scrapped layers has slumped dramatically, particularly in the case of small-bodied hybrids which have to compete with low-priced, tender, meaty young broilers of about the same size.

This means that livestock depreciation (cost of rearing minus income from carcasses) has escalated to become a major item in the economics of egg production. In some countries, the reduction in carcass revenue has done more to cut back producers' profits than the trend to lower egg prices, which have been partially offset by big advances in laying stock performance and management efficiency.

With broiler production still expanding swiftly all over the globe, the market for old hens is unlikely to improve. On the contrary, all the signs are that it will

still further deteriorate. So what action can eggmen take to counter this loss of income?

Cost Reduction. Cutting replacement costs seems to be the most realistic answer. Cheap point-of-lay pullets depreciate less in value than expensive ones, and some up-to-date research shows that several opportunities exist for reducing rearing costs.

Most good stockmen are reluctant to make economies during the growing period for fear of adverse effects on performance in the laying house. Common sense tells them the more they invest at this stage, the bigger the dividend later. But this view is not supported by the latest research, some of which reveals that pullets actually respond better during lay to a cost cutting rearing policy.

Most of this research has investigated feeding methods from around 6 weeks old to maturity. Food

is the biggest single cost item in pullet raising, constituting between 50 and 60% of the total outlay, and therefore offers the most scope for economies.

Scientists at Wye College, in England, have been experimenting with lightweight hybrids to find what effects limited feeding techniques have on rearing costs and on profitability during lay.

Nutrient Control. Restricted feeding is not a new idea. It is widely employed by producers of broiler hatching eggs to prevent meat-type parent stock depositing too much body fat, a physical condition which inhibits both egg production and fertility. Controlling the nutritional intake of commercial layers, however, has only recently been considered a viable proposition by researchers and progressive egg farmers.

There are two different approaches to reducing the daily nutrient intake of growing pullets: 1. Employing a low-quality ration which is deficient in essential ingredients like lysine, or which has an artificially high fiber content, 2. Restricting the quantity of feed available to the birds to less than the amount they would consume if they had unlimited access.

Various problems have arisen to make the first method impractical on commercial farms. Example: Pullets increase their consumption of low-quality rations to make good the nutrient deficiencies. So it is the quantity restriction method which researchers have been investigating for use in raising cheaper laying replacements.

Research: The Wye College scientists divided their experimental pullet flocks into 4 groups, to compare the following feeding regimes:

1. Ad lib feeding with no control over nutrient intake,
2. Daily intake restricted to 85% of full feeding,
3. Daily intake restricted to 70% of full feeding,
4. Ad lib feeding 6 days a week, no feed on Sundays.

The best performance throughout the trial was put up by the groups on limited feeding. They not only showed valuable feed savings during rearing (as much as 1s.2d or U.S. 14¢ per pullet) but they also laid more eggs and suffered less adult mortality, as shown in the accompanying table.

Although the 70 and 85% restricted feeding systems effect considerable savings in feed costs during rearing, they have one drawback. Daily calculation



ONE SAVING pullet rearers should never attempt is to feed a poor quality, low-protein, low-cost ration to chicks between day-old and 4 weeks. The better pullets are fed at this stage, the better they will start to grow—then feed economies can be made later. Chicks need 21% protein in starter ration.

and weighing out of the correct amount of food is time consuming. This may not be a serious consideration in countries where wage rates are low, but if hired help is highly paid, outlay on the extra labor can offset a big proportion of the saving.

For this reason, British scientists are currently looking into the possibilities of an extension of the Never-On-Sunday method. The technique which seems most promising is alternate day feeding. On feeding days the birds have ad lib access, so the only extra labor involved is opening and closing hoppers.

Intake Limited. On the days when food is available pullets overeat. But the physical limitation imposed on their intake by the size of their crops and

ZUSAMMENFASSUNG — Da der Schlachtwert der abgewirtschafteten Legehennen in den meisten Teilen der Welt gleich null ist, sind Eiererzeuger und Junghennenvermehrter unaufhörlich bestrebt, die Kosten für den Legenachbesatz zu senken. Aus jüngsten Forschungsergebnissen kann man schließen, daß es verschiedene Möglichkeiten für eine weitere Senkung der Nachbesatzkosten gibt. Folgende Faktoren verdienen hierbei Beachtung: Senkung der Futteraufnahme während der Aufzuchtperiode, Kosten der Eintagküken, Gebäudekosten, Besatzdichte. Bei der Senkung der Futterkosten während der Aufzuchtperiode handelt es sich wahrscheinlich um den Faktor, der die größten Kosteneinsparungen ermöglicht. Die wissenschaftliche Forschung gelangt nämlich zu der Erkenntnis, daß eine weniger teuer formulierte Aufzuchtsration zu ebenso guten Junghennen führt. Zur Frage der Besatzdichte werden ebenfalls Studien angestellt, und es hat den Anschein, als ob die Besatzdichte noch erheblich gesteigert werden kann. Bisher sind jedoch keine kombinierten Versuche angestellt worden, anhand derer die Verabfolgung eines billigeren Aufzuchtsfutters bei gleichzeitig erhöhter Besatzdichte getestet wird.

SOMMAIRE—Comme le prix des carcasses des poules de réforme est pratiquement nul dans la plupart des pays du monde, les producteurs d'oeufs et les éleveurs de poulettes, s'ingénient constamment à abaisser le prix des cheptels de remplacement. Des recherches récentes montrent qu'il existe plusieurs moyens de réduire les prix. Par exemple en comprimant les quantités d'aliment pendant le démarrage, en réduisant le prix des poussins d'un jour, des bâtiments, et, en augmentant les densités. La diminution des quantités d'aliment est certainement l'un des secteurs où les économies les plus importantes peuvent se faire. Des chercheurs ont trouvé que les futures reproductrices seront d'aussi bonnes pondeuses même avec un régime alimentaire peu coûteux avant l'entrée en ponte. La densité fait aussi l'objet de recherches et il semblerait qu'elle puisse être augmentée d'une manière considérable. Toutefois, il n'a pas été fait d'essais conjoints pourtant sur une augmentation de la densité et sur une baisse de qualité du régime alimentaire.

RIASSUNTO—Siccome il valore della carcassa di ovaiole fuori produzione è praticamente nulla in molte parti del mondo, i produttori di uova e gli allevatori di pollastre sono continuamente alla ricerca di sistemi per diminuire il costo delle rimonte. Recenti ricerche al proposito mostrano che vi sono diverse possibilità di ridurre i costi. E fra queste vanno incluse: la riduzione del consumo di mangime durante il secondo periodo d'allevamento, il costo del pulcino di un giorno, le spese d'alloggiamento e la densità d'allevamento. La riduzione del consumo di mangime è probabilmente l'area nella quale si possono effettuare i maggiori risparmi. Alcuni ricercatori stanno rilevando che molti animali da rimonta produrranno ugualmente bene anche se alimentati seguendo una dieta meno costosa durante il secondo periodo d'allevamento. E'anche allo studio la densità d'allevamento e si hanno informazioni sulla possibilità di aumentare notevolmente la densità. Comunque, non sono stati ancora effettuati esperimenti che comprovino la possibilità di una dieta a minor costo e un'aumentata densità di animali allo stesso tempo.

gizzards and the speed of their digestive processes prevents them eating a double ration. They consume 50 to 60% more than they would if they were fully fed daily, so their average intake over each period of 48 hours is around 70 to 80% of full feeding.

To sum up: Alternate day feeding seems to offer the same advantages as restricting the daily quantity of food provided, without, the drawback of requiring a lot of extra labor. Potential saving in feed costs should be in the order of 10d to 1/- (US 10 to 12¢) per pullet.

Because low-lysine and high-fiber diets have not been as successful in practice as was predicted, this does not mean that the quality aspect of feed economizing should be over-looked. In fact, many nutritionists believe that poultrymen tend to give their pullets better quality (and therefore more expensive) rations than they need.

Phase Feeding. The possibilities of reducing layer replacement costs by diet variation or "phase feeding" has been investigated by

REARING DENSITIES COMPARED THROUGH LAYING HOUSE

| Rearing | Sq. feet per bird | Cms ² per bird | Pounds feed per pullet | Kgs. feed per pullet | % Mortality 3-18 weeks |
|---------|-------------------|---------------------------|------------------------|----------------------|------------------------|
| 2.00 | 1860 | 1860 | 15.6 | 7.1 | 1.1 |
| 1.50 | 1395 | 1395 | 15.8 | 7.2 | 2.6 |
| 1.00 | 930 | 930 | 15.4 | 6.9 | 1.6 |
| 0.75 | 698 | 698 | 15.5 | 7.0 | 1.5 |

Laying (in cages)

| Rearing density sq. ft./bird | Cms ² per bird | Hen-housed production per bird | Mortality % | Pounds feed per dozen eggs | Grams feed per egg |
|------------------------------|---------------------------|--------------------------------|-------------|----------------------------|--------------------|
| 2.00 | 1860 | 241 | 11.6 | 4.7 | 178 |
| 1.50 | 1395 | 244 | 11.5 | 4.6 | 174 |
| 1.00 | 930 | 250 | 7.8 | 4.6 | 174 |
| 0.75 | 698 | 246 | 11.2 | 4.6 | 174 |

Laying (on deep litter)

| Rearing density sq. ft./bird | Cms ² per bird | Hen-housed production per bird | Mortality % | Pounds feed per dozen eggs | Grams feed per egg |
|------------------------------|---------------------------|--------------------------------|-------------|----------------------------|--------------------|
| 2.00 | 1860 | 252 | 9.8 | 4.8 | 182 |
| 1.50 | 1395 | 244 | 14.0 | 4.9 | 185 |
| 1.00 | 930 | 251 | 10.2 | 4.8 | 182 |
| 0.75 | 698 | 243 | 9.3 | 4.9 | 185 |

TYPES OF FEEDING METHODS

| Feeding Method | Rearing | | Laying | | Mortality % |
|----------------|--------------------|---------------|-------------------------------|---------|-------------|
| | Food Cost Per Bird | Eggs per bird | Fees Consumption lbs/doz Eggs | Gms/Egg | |
| Full Feed | 4s-2d US 50¢ | 231 | 4.2 | 158 | 16.6 |
| 85% restricted | 3s-6d US 42¢ | 242 | 4.0 | 151 | 13.8 |
| 70% restricted | 3s-0d US 36¢ | 242 | 4.2 | 158 | 11.7 |
| Not on Sundays | 4s-0d US 48¢ | 239 | 3.9 | 148 | 10.8 |

(All birds were fed ad lib during lay)

researchers in America, Britain and Canada. Notable among them is Dr. C. E. Holmes of Virginia, U.S.A., who advocates making a substantial reduction in pullets' dietary protein level at an early age.

He recommends starting pullet

Poultrymen who process their own feed can cut costs by progressively reducing the protein content of the pullets' diet from about 6 weeks onwards. Feathering is complete and rate of growth slows down at this point, so pullets do not need so much protein. The protein level can be lowered to 12½% by 12 weeks.

chicks on a 20.8% protein level, then cutting back drastically to 14% protein at only 4 weeks old. This compares with the normal commercial practice of feeding 21% protein to 6 or even 8 weeks old, then feeding growing-on rations containing 15 to 17% protein until maturity.

British researchers favor a progressive decline in the protein level from about 6 weeks onwards, dropping to as low as 12½% (or even 11% if fortified with extra amino acids) during the 12 to 20-week period. Since protein is the expensive ingredient in every poultry ration, these low-level

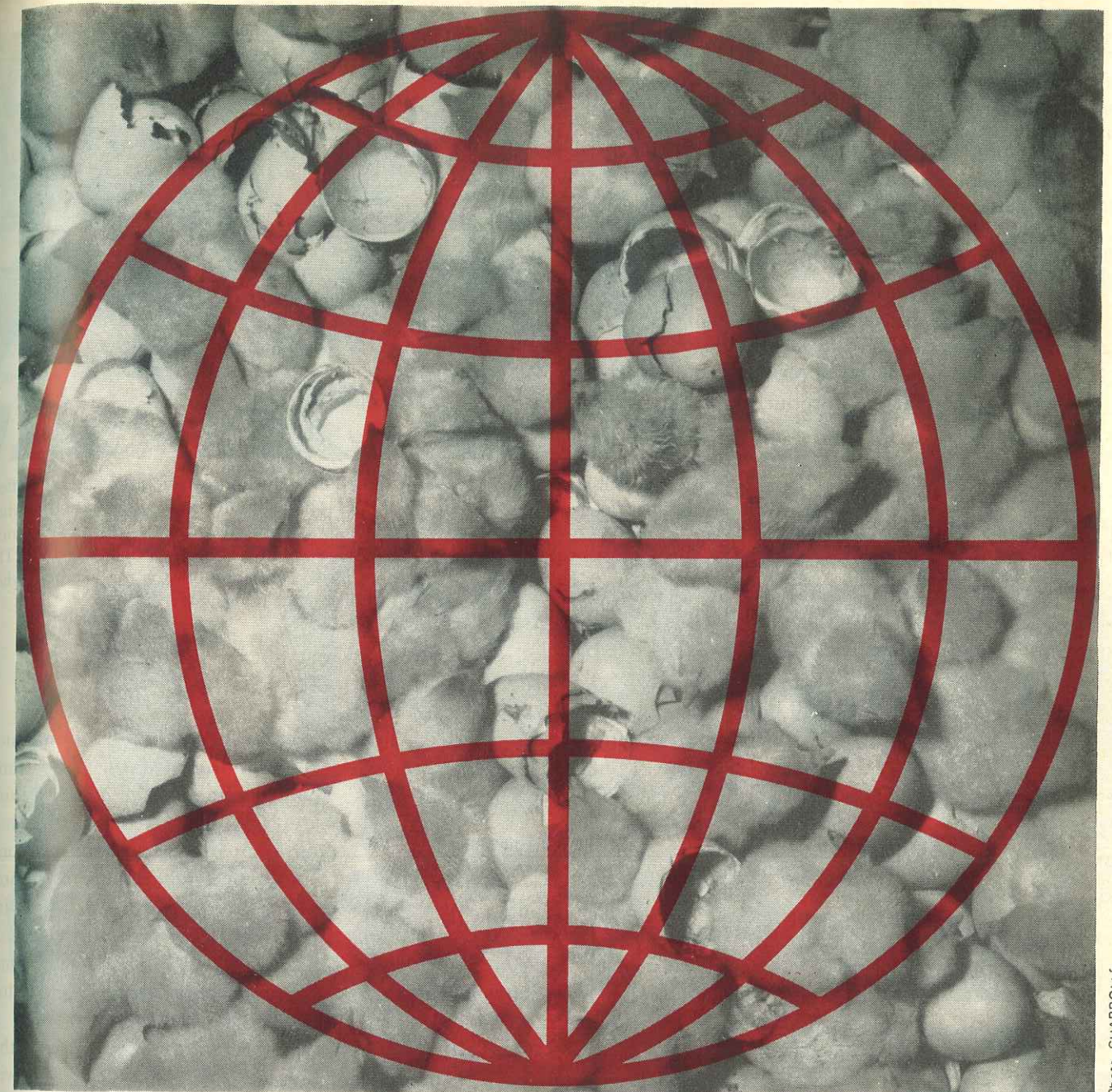
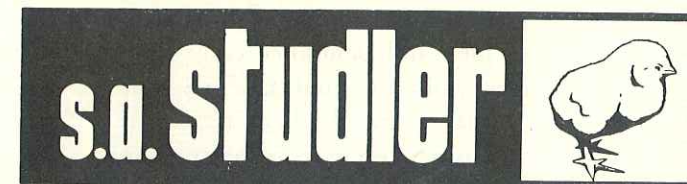


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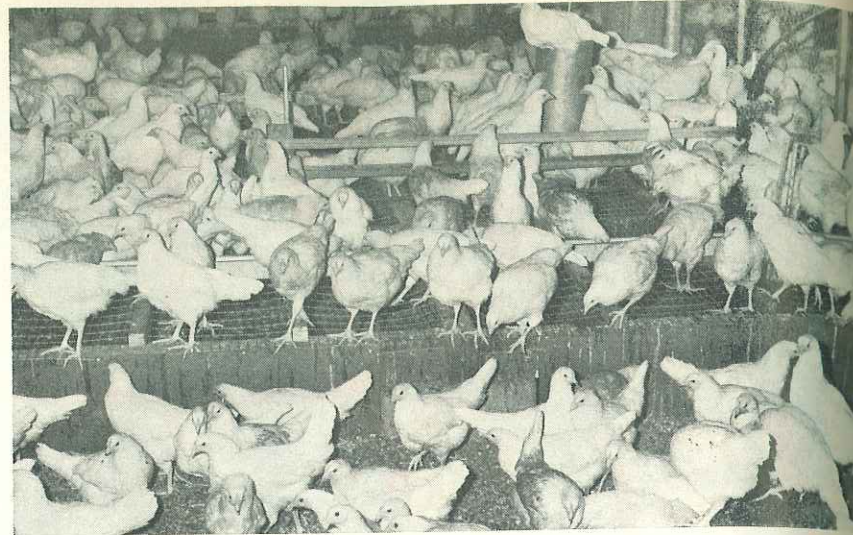
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is indispensable
through the quality of its products
(layers and meat)
through the quality of its services

diets can effect an economy of 5d to 6d (US 5 to 6¢) in the cost of rearing a replacement layer.

Pullets reared on the low-protein diets tend to be marginally smaller at point-of-lay than their sisters reared on traditional feeding regimes. But their mortality is lower during rearing and lay, they produce more eggs, and their egg size is measurably superior.

In short, lower levels of protein than commercial egg producers



BRITISH RESEARCH shows that crowding pullets during rearing has no adverse effect on speed of growth or viability. Nor does it have ill-effects on egg production when the pullets are transferred to laying quarters. Optimal density is 1 sq. ft. (930 cm²) per bird, not the 1 1/4 sq. ft. (1,627 cm²) which has long been advocated. The reduction in floor space can knock 4d or 5d off the cost of each replacement when rearing is in expensive controlled environment housing.

normally feed grow pullets which are fit but not fat: the ideal physical condition for heavy and sustained laying.

Chick Cost. The second largest item in the cost of raising replacement layers is the day-old chick. Less scope for economizing exists here for the independent eggman unless he operates on a very large scale. The temptation for small-scale eggmen to buy cut-price chicks from dubious sources must be resisted: It always turns out to be false economy in the long term.

Small egg producers who are prepared to sacrifice a small slice of their independence can, however, obtain quality chicks at slightly reduced prices if several will join together to form a trading group, co-ordinate their laying programs, and place yearly bulk orders with a single hatchery. All chick breeding organizations offer quantity price reductions, and even if grouping obtains no more than 5% discount it is worthwhile. Large integrated units, of course, can negotiate from positions of strength and can often

obtain 20 to 25% discount rates.

Housing Costs. The third biggest item in the cost of raising replacement layers is housing and equipment depreciation. According to the results of recent research at the British Egg Marketing Board's experimental unit in Shropshire, England, opportunities for economizing exist here too.

Trials with 6,400 pullets in floor rearing houses showed that replacements can be raised with only half the usually recommended amount of floor space without suffering any adverse effects in the growing or laying periods.

Four different stocking densities were investigated in the trial: 1. 2 sq.ft. (1860 cm²) per bird, 2. 1 1/2 sq.ft. (1395 cm²) per bird, 3. 1 sq.ft. (930 cm²) per bird, 4. 3/4 sq.ft. (698 cm²) per bird. Using a light-medium hybrid pullet, this represented 1 1/2, 2, 3 and 4 pounds liveweight per square foot, respectively (7.26, 9.79, 14.61 and 19.53 kg. liveweight per m² space).

For this type of pullet a stocking density of 1 3/4 sq.ft. (1627 cm²) per bird at point-of-lay would

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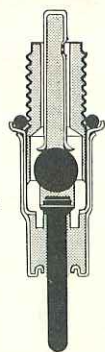
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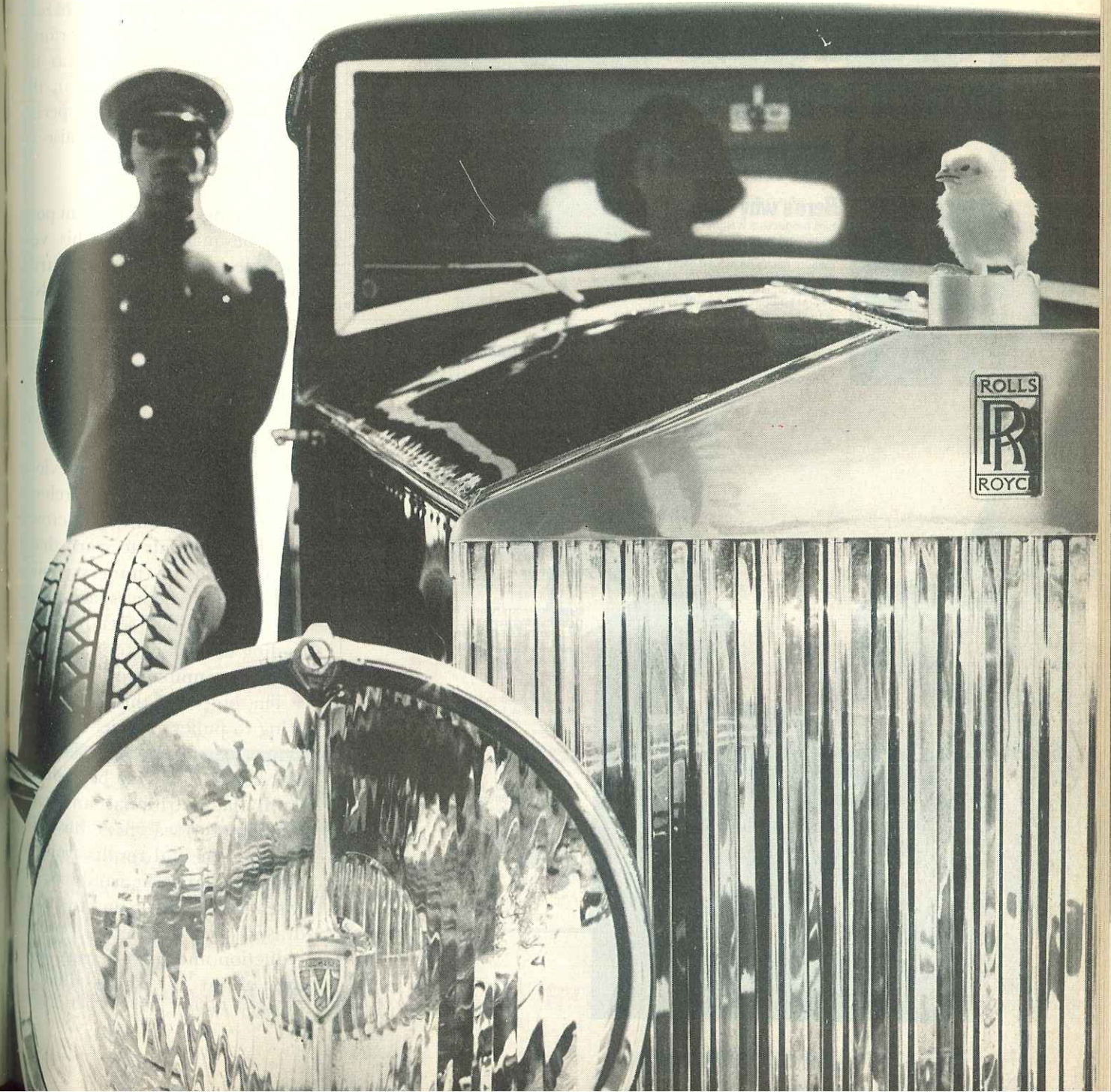
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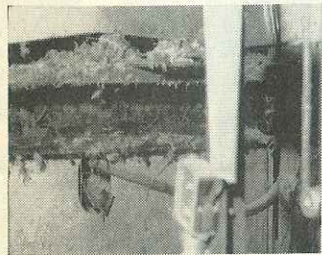
normally be advocated. But the tables show how performance at the more crowded stocking densities compared.

Differences in pullet performance during rearing at the 4 stocking densities were insignificant. So there are potential savings to be gained from the

more crowded densities, not only in housing costs but also in terms of ground rent, insurance, lighting, fuel and labor.

Taking laying performance into account, the rearing density which produced the best results both in cages and on the floor was 1 sq.ft. per bird. There was no significant

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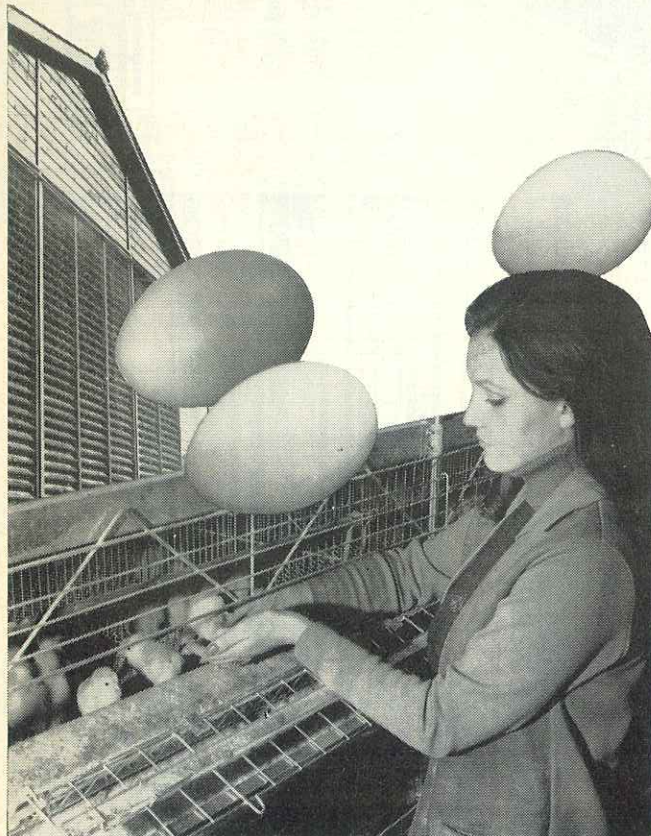
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difference between any of the stocking rates in terms of egg size, interior quality or shell thickness.

Although this trial was not costed, estimates based on the performance figures imply that reducing floor space per pullet from the usual 1³/₄ to 1 sq.ft. could cut outlay on replacements by 4d or 5d (US 4 or 5¢) per head.

The pullets reared at dense stocking rates were inferior to those with more floor space in one respect. Their feather coverage was poor and they looked ragged. Until egg producers realize that appearance and performance are not co-related (as the BEMB trial clearly proves), this could pose difficulties for specialist pullet growers who raise replacement layers for sale.

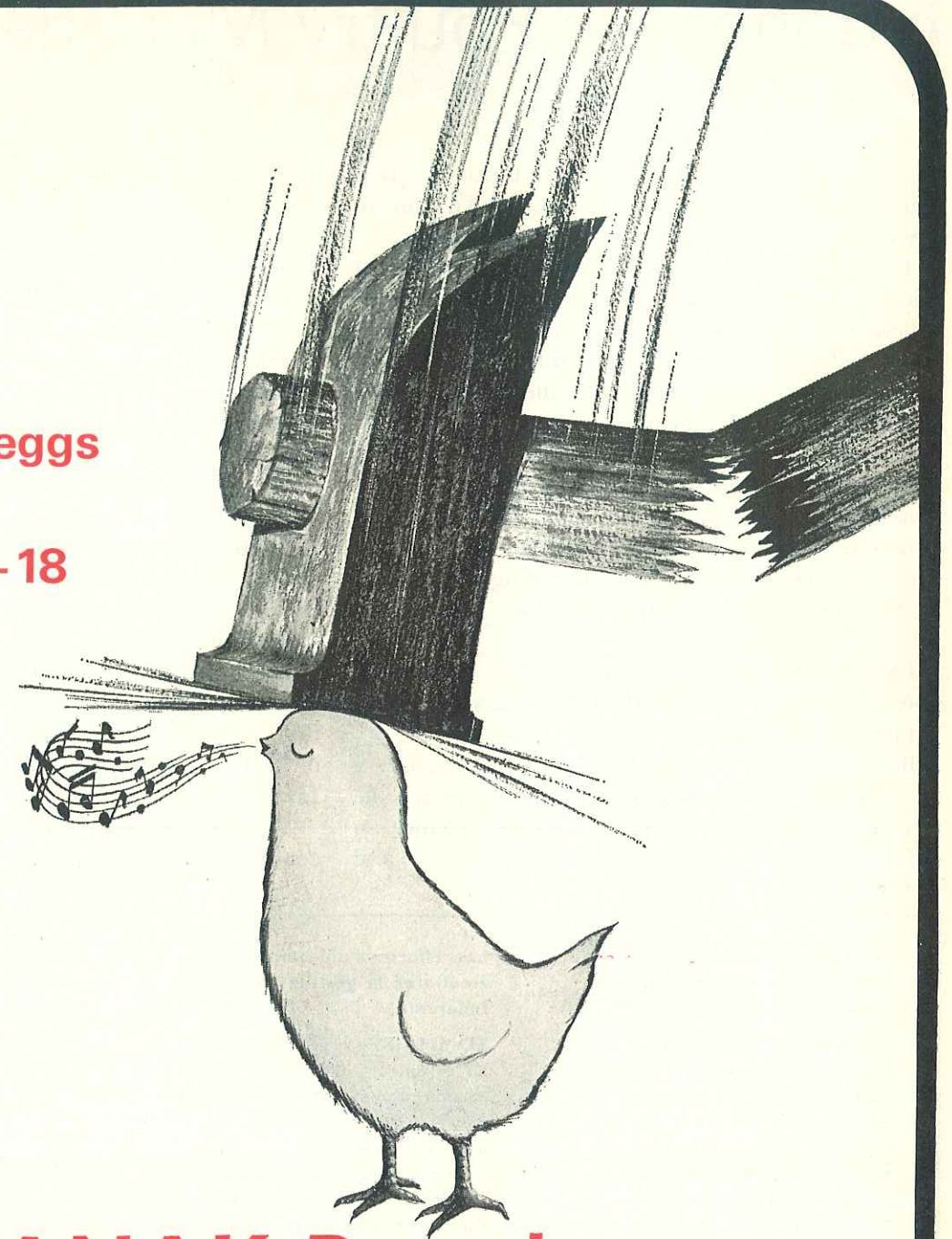
Warning. One important point must be made about this very valuable stocking density trial. All the growing pullets involved were fully fed. It cannot be assumed that the crowded birds would have performed equally well if the trial had also embraced one of the restricted feeding techniques.

Similarly, none of the previously mentioned feeding research was conducted in conditions of crowding. It is only fair to warn that a combination of hungry pullets and limited floor space could spark off serious social tension, leading to flock hysteria or an outbreak of cannibalism.

The object of this article is to bring to pullet growers' attention various methods by which replacement costs can be reduced. Until the nutritional and environmental researchers have obtained successful results from coordinated trials, it would be unwise for poultrymen to adopt drastic feed restriction, protein reduction and high-density housing, all at the same time.

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