

sary to rear both pullets and cockerels until the cockerels have reached an age at which they can be distinguished and removed from the brooders. Unwanted cockerel chicks can easily be distinguished when they are about three to four weeks old. At this stage definite indications of sex begin to show, and it is on these indications that the cockerels are picked out. With Leghorns and most light breeds, the first indication is the rate at which the comb of a cockerel develops. This will often become apparent when the chick is in its third or fourth week, although some birds are quicker than others. At the same time, although not to such a marked degree, the wattles of the male begin to show up.

Fig. 1 demonstrates this point. The cockerel (right) has a definite up-standing comb, with the wattles just beginning to show up. The pullet still has barely more than a line of demarcation where the comb will be. Both the chicks in this photograph are four weeks of age, yet there is no difficulty in differentiating between the two. This difference in the rate of growth of the comb is perhaps the strongest indication of sex in White Leghorns, but it is not the only one. There is also a distinct difference in the rate and order in which the two sexes feather up. Fig. 1 shows a definite feather tail to the pullet, while in the cockerel these tail feathers are absent. This trait is perhaps more prominent in the heavy breeds than in light breeds. Figs. 2 and 3 demonstrate this point more clearly than Fig. 1.

Fig. 2 is a four-weeks-old Black Orpington cockerel. The wattles are beginning to develop, and the comb is already becoming prominent. The most striking feature is the lack of feathers on the back, and particularly

the shoulders. Note, also, the entire absence of tail feathers. This lack of feathers contrasts strongly with the strong feather growth of the four-weeks-old pullet shown in Fig. 3. The pullet's comb and wattles are not yet showing up, but its fast rate of feathering is sufficient to mark it out as a pullet. The slow rate of feathering on the shoulders of the cockerel has been remarked and should be emphasised, as this is the surest indication of a cockerel of the heavy breeds. This distinction applies to young drakelets also, and to a lesser degree to cockerels of the light breeds.

General Indications

These are particular indications. Summarising the general indications there is a decided masculine appearance about a cockerel chick which is hard to put into words, but it is apparent in the heavier bone in the legs, in the stronger head of cockerel chicks, and their bigger size when

compared with pullets of the same age. It can sometimes be observed in their behaviour, which will often savour of bullying or a tendency to domineer over the other chicks.

It is sometimes difficult to separate the sexes until the chicks are several weeks old, in which case a fresh indication becomes apparent. There is a distinct difference in the hackle feathers of the two sexes, which is demonstrated in Figs. 4 and 5. The cockerel feather (right) is definitely more pointed than the pullet feather, which tends to have a rounded tip. This pointed effect is confined chiefly to the web of the cockerel's feather, while the outer fringe is often rounded at the tip. This fringe is largely absent in the pullet feather, as the inner portion of the web itself is rounded right out to the feather tip, leaving hardly any fringe at all. There will be cases where this difference is not so distinct as in the photographs, but when all the various indications are taken in conjunction with each other, there should be no real difficulty in separating the sexes

Cost of Production of Market Eggs

THE Senior Investigational Officer, Mr. W. R. Paton, of the Investigational and Statistical Section of the Department of Agriculture, has presented some interesting figures relative to the cost of producing market eggs during the 1940-41 season. The costs were obtained from 62 farms on a proportional representation sampling basis for flocks of 250 layers and over. According to the 1936 census, there are approximately 1,000 flocks within this range, of which roughly 500 fall within a group ranging from 250 to 500 layers, and a further 200 fall within a group ranging from 1,000 and over; the remaining 300 fall between these two groups.

Labour cost, as it is very involved, must be decided by negotiation rather than by costing processes. The size of flock is one of the principal factors governing hours of labour, and after excluding any private marketing and transport expenses, the total hours for all other duties have been ascertained as 2,367 hours for a flock of 500 layers; 2,950 for 750; 3,333 for 1,000; 3,687 for 1,250; 3,973 for 1,500; 4,273 for 1,750; and 4,554 for 2,000. Roughly two-thirds of these labour hours are taken up in feeding layers and in collecting and crating eggs, cull fowls, etc. The raising and feeding of replacement stock to laying age accounts for about one-fifth of the total hours of work for the year.

In working out costs per dozen eggs, the farm produced hatching eggs used for raising replacement pullets have

been recorded as a charge against production costs, and are therefore not included in arriving at the costs "per dozen eggs."

Subject to the foregoing exceptions, a net production cost of 14.66d. was obtained, being 15.68d. less credits (sales of culls and manure) of 1.02d. The break-up of these costs is 11.90d. for food, grit and milk; 0.29d. for litter, disinfectants and medicines; 0.14d. for repairs and upkeep; 0.21d. for cultivation, seeds, etc. (green feed); 0.46d. for hatching and brooding costs, chick sexing, purchases (if any) of hatching eggs and/or young replacement stock; 0.30d. for sundry items; 0.16d. for rates on poultry land; 1.15d. for depreciation on poultry buildings, plant and equipment; and 1.07d. for interest on poultry enterprise capital.

The preceding paragraph gives the general average, but considerable variations occur between districts. For instance, 16.30d. is the figure for Auckland, 14.89d. for Wellington, 13.52d. for Canterbury, and 12.98d. for Otago. The weighted average for these four sets of figures is, of course, the 14.66d. already mentioned for the Dominion.

Poultry farmers called on by Departmental officers for cost details co-operated wholeheartedly. Much additional information was also obtained from some 180 postal returns, and the time and care which those poultry farmers devoted to detailed compilations warrants commendation.

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