

# Genetically superior hens reduce egg breakage losses

PENN STATE — Poultry scientists at Penn State have developed genetically superior hens to help poultrymen reduce losses of some \$250 million annually from egg breakage.

Directing the research still underway is Edward G. Buss, professor of poultry science at University Park. Buss and associates have developed hens with the genetic ability to produce either high or low shell quality — to use in comparisons.

"Improved shell quality through genetic selection would require only maintenance of the desired shell strength through breeding techniques," Buss stated.

Poultrymen know, he said, that egg shell quality normally declines

during 14 months of laying. However, even after 14 months, hens in the better genetic line produced stronger shells than the hens of the lower quality genetic line.

Buss reported that shell breakage in some flocks exceeds 10 percent of the eggs laid. Eggs with high shell quality can best withstand damage from laying cages, egg conveyor belts and processing equipment, and handling of cartons.

He said eggs with high shell quality have 10 percent or more of their weight in the shells. Shell weight may vary from a high of 11 percent to less than seven percent. When the percent shell is below nine, there is a noticeable increase

in breakage. Losses become critical below 8.5 percent shell weight.

"The results of our experiments indicate that it is important to start with hens producing eggs with high shell quality, above 10 percent of the egg in shell weight, if an acceptable level of shell quality is to

be maintained over a 14-month laying period," Buss affirmed.

The findings suggest, he said, that hens in the genetic line producing high shell quality are superior at absorbing calcium from the intestinal tract.

"When the diet is deficient in calcium, these same hens produce

poorer quality shells," he stated.

Attempts were made at University Park to improve shell quality by feeding a diet containing 5 percent calcium in place of the 3.5 percent calcium in a standard diet for hens. The results showed no significant change for hens with high or low shell quality.



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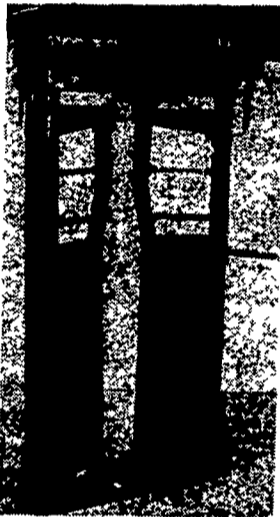
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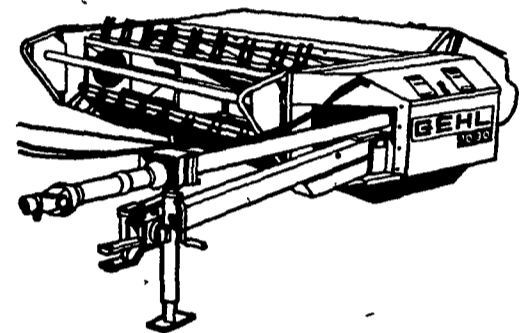
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