

was noted when the calcium level was increased from 3.75 to 5 percent. The calcium \times phosphorus interaction as measured by egg shell thickness was not statistically significant. Thickness of egg shells declined as the laying year progressed, however, there were no significant interactions between months of lay and calcium or phosphorus level.

When the level of phosphorus in the diet was increased mortality of pullets was significantly reduced (Table 5). Mortality of pullets was significantly lowered when they received diets containing 3.75 or 5.0 percent calcium. The interaction of calcium \times phosphorus, as measured by mortality, was not statistically significant.

**EFFECT OF FEEDING VARIOUS LEVELS OF SOFT
PHOSPHATE AND DEFLUORINATED PHOSPHATE
WITH TWO CALCIUM LEVELS TO HENS
IN CAGES**

EXPERIMENT 6 (1961)

Procedure.—Results of the first 3 experiments indicated that soft phosphate could be satisfactorily used to furnish low levels of phosphorus in laying hen diets, however, supplementing the diet with high levels of soft phosphate resulted in lowering rate of egg production. This reduction in rate of egg production could not be explained on the basis of the low availability of phosphorus in the soft phosphate since a higher rate of egg production was obtained with diets containing lower levels of phosphorus.

Based on a report by Watts and Miner (1959) that the calcium in soft phosphate is less available than that from dicalcium phosphate, it was suspected that the difference of performance of hens receiving diets with low and high levels of soft phosphate might be explained on the difference in available calcium in the different diets. This experiment was conducted to study this hypothesis.

Fifty-two groups, each containing 5 commercial egg production type pullets (Hy-line 934A), maintained in individual cages, were used in this experiment. These pullets had been in production for approximately 6 months when the experiment was begun. They had been receiving the basal diet (Table 1) supplemented with ground limestone and defluorinated phosphate (2.3% calcium and 0.75% total phosphorus).