

feed troughs. The experimental diets were available to the pullets at all times.

At the beginning of the thirteenth week, artificial light was given to insure a minimum of 14 hours of light daily so that the sexual maturity of pullets would not be delayed because of insufficient light.

At 20 weeks of age the pullets were individually weighed, the grower phase terminated and the layer phase initiated.

**Layer phase.**—Thirty pullets were randomly selected from each of the 3 grower lots for the layer phase of the experiment. The 30 pullets were divided into six groups of five each, placed in individual cages, and allowed access to the layer diet and tap water *ad libitum*. The layer diet was a slight modification of diet 3 (Table 3) in that the energy content was increased to 1000 Calories of productive energy per pound by increasing the level of animal fat.

The date on which the pullet laid her first egg was recorded as the age of sexual maturity. Records were kept of individual egg production and feed consumption obtained for each group of pullets. Rate of egg production on a hen-day basis and feed efficiency was calculated at 28-day intervals.

Egg weights were obtained at monthly intervals for each pullet, and average weight of eggs determined for all pullets grown on each diet. The pullets were individually weighed at housing and at various intervals throughout the experiment. Mortality records were kept and total mortality calculated for the 11 month laying period. No post-mortem examinations were made.

## RESULTS

**Grower phase.**—Body weights of pullets fed the 10/940 grower diet (Table 12) were significantly less than either of the other 2 groups of pullets at 20 weeks of age. Pullets fed the 16/940 diet were significantly heavier.

Feeding either the 10/940 or 12/600 diet resulted in significantly delaying age at first egg (Table 13). Pullets receiving the 10/940 grower diet were an average of 3 days older when they laid their first egg than those receiving the 12/600 diet.

**Layer phase.**—Rate of egg production for the 336-day period was not significantly different for the pullets grown on the 3 grower diets (Table 14). Pullets grown on the 16/940 diet laid at a higher rate for the first three months as a result of retarded sexual maturity in the other groups. After the fourth month,