

Improved Breeding

Fewer Hens Lay 60% More Eggs

Improved systems of poultry breeding — developed through Federal, State, and private research — are paying big dividends in more efficient egg production, a recent issue of Agriculture Research magazine stated.

Thirty years ago, the average hen in the United States laid 121 eggs per year, today she's laying 206 eggs. Our best flocks average 250 eggs or more per hen. As a result, 13 per cent fewer hens on farms last year produced 60 per cent more eggs than their ancestors did in 1930. The savings in feed, labor, and equipment represent a net gain to the egg industry.

Better balanced rations, disease and pest control, and other improved practices have contributed to this progress. But it is the flock that produces more eggs per hen than other flocks receiving similar feed and care that returns the highest net profit. To build flocks like this, poultry breeders must have stock capable of transmitting high egg-laying ability to their offspring.

Development of more effective systems of breeding

has been a goal of USDA poultry research since 1931, when ARS geneticist C. W. Knox was put in charge of poultry breeding investigations at the Agricultural Research Center, Beltsville, Md. A few years earlier at Iowa State College, Knox established the first successful inbred lines of chickens. He has been a pioneer in applying to poultry breeding the principles of hybridization, which have proved so successful in corn breeding.

Knox and his associates set up long-term experiments with White Leghorns and Rhode Island Reds to determine the best system of breeding for improved egg production, egg and body weights, viability, and other economic characters. (Previous research at Beltsville had been concerned mostly with such characters as plumage and skin colors, type of comb and body size.)

Since the early 1930's, two standardbred flocks have been maintained as controls—a Rhode Island Red (RIR) "open" flock with new stock introduced every third year, and White Leghorn (WL) "closed" flock (no outside stock added). Experimental breeding systems have included (1) Inbreeding — mating of closely related in-

dividuals within a variety; (2) Topcrossing — inbred RIR males mated to standardbred RIR females; (3) Incrossing — inbred RIR males mated to unrelated inbred RIR females; and (4) Incross-breeding — inbred RIR males mated to inbred WL females and, reciprocally, inbred WL males mated to inbred RIR females.

Knox recently completed a review of the records obtained in these experiments during 1946-56. His studies showed that incross-breds (progeny of inbred WL males x inbred RIR females) out-produced all the others. They average 260 eggs per bird annually (survival basis) during the 10 years. The Crossbreds (WL males x RIR females) ranked next, with 247 eggs per bird per year.

The Standardbred control flocks averaged only about 200 eggs per bird per year. Despite careful selection on basis of both individual and progeny records, as well as improved rations, these flocks have gained only 20 eggs in average annual egg production since they were assembled 30 years ago.

Topcrossing and Incrossing within the same variety resulted in little or no improvement and were discontinued after a few years.

Inbreeding alone depressed egg production, but hybrid vigor in the progeny from crosses of inbreds pushed their production to top place. The biggest gains came

from using White Leghorn males in crosses of the two breeds. In previous investigations, the scientists used only RIR males—on the theory that nothing would be gained in making reciprocal crosses. Fortunately, in 1946, Knox decided to test this theory and found that progeny of WL males x RIR females averaged about 30 more eggs per bird than progeny of RIR males x WL females. This was true of both crossbreds and incrossbreds.

Knox's studies also showed that incrossbreds out-ranked both standardbreds and crossbreds in age at first egg, viability, body and egg weights, hatchability, and nonbroodiness. The inbreds were inferior to their standard-bred parents in most of these characters, but when they were crossed their progeny regained whatever had been lost in inbreeding.


Most of our commercial egg-producing stock today includes some type of crossbreeding — either between strains, varieties or breeds

Knox says poultrymen are becoming more aware of these higher producing stocks and are buying more of them each year. If this trend continues, he estimates that average egg production could go as high as 250 per hen within the next decade. This means that by 1970 the average flock in the United States may produce as well as our best ones do today.

● Demonstrations

(From page 1)
Penn Maror High School will present "X Marks the Spot". An hour later the team from Manheim Central High School will demonstrate "Animal Cut - u Cakes".

A registered Guernsey cow, Wilma Le Betty, owned by J. Rohrer Witmer, Wil low Street, has completed an official DHIA production record of 9,740 lbs. of milk and 538 lbs. of fat as a senior three-year-old.



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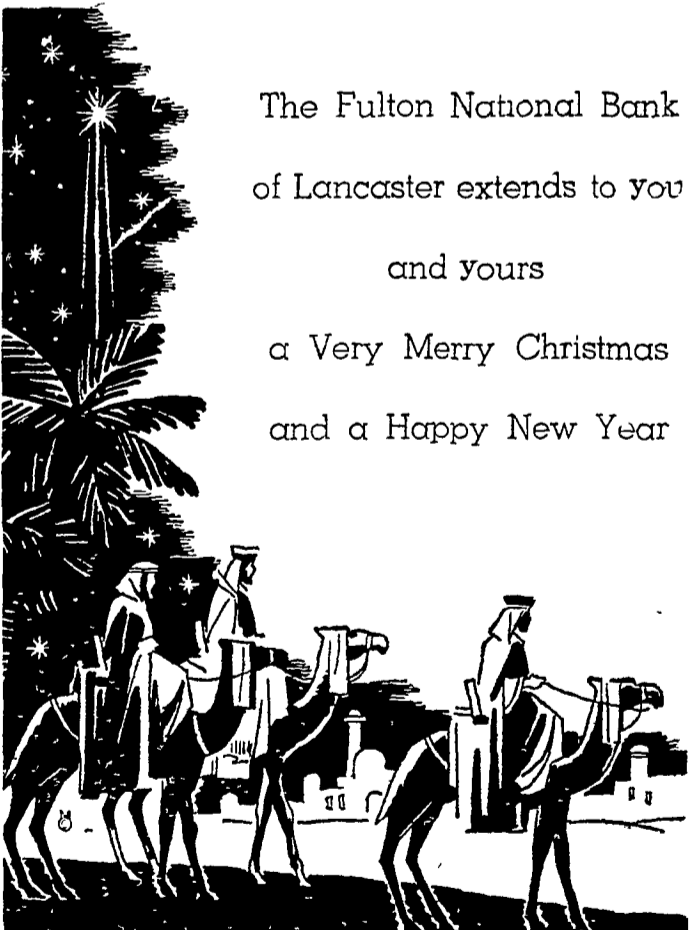


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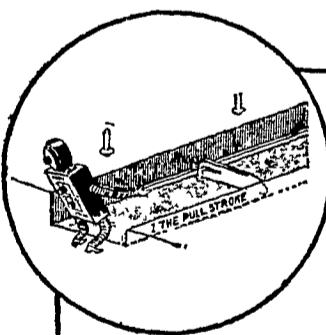
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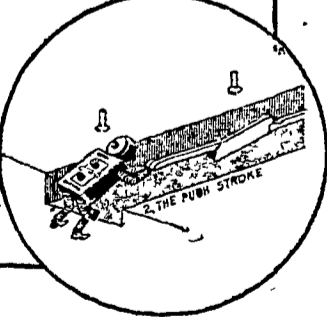
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