II. — GENETIC IMPROVEMENT

Statistical analysis of numerical productivity components in sows of four french breeds
I. — Evolution from 1969 to 1975

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A total of 40,960 litters from 135 Large White herds, 17,359 litters from 73 French Landrace herds, 1,470 litters from 12 Pietrain herds and 7,493 litters from 28 Belgian Landrace herds were used to estimate the evolution from 1969 to 1975 of the numerical productivity components of sows reared in France.

The age at the first farrowing has decreased very markedly in Large White (4.3 days/year) and French Landrace (3.5 days/year) breeds. It was remained more constant in the two breeds of the " double-muscle " type. Lactation length has greatly decreased in each of the four breeds at an annual rate ranging between 2.6 and 3.4 days.

Reduction of the weaning-fertilization interval in the Large White and French Landrace breeds has led to a decrease in the interval between farrowings at annual rates of 3.1 and 3.9 days, respectively.

Evolution in the litter size at birth and at weaning was estimated by analysis of variance on account of the effect of age at farrowing (22 age classes) and of the regression of these variables on lactation length. In the Large White breed, a significant decrease ($P < 0.01$) was noticed in the litter size at the rate of 0.04 piglet whereas this variable remained unchanged in French Landrace. On the other hand, litter size at weaning significantly ($P < 0.01$) increased in each of these two breeds at annual rates of 0.04 and 0.08 piglet/year, respectively.

It may be concluded that the number of weaned piglet/sow/year regularly increases at the rate of 0.4 to 0.5 piglet/year in the first two breeds, whereas it remains relatively unchanged in the two breeds of the " double-muscle " type.

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II. — Components of the variance, repeatability, correlation

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A total of 40,960 litters from 135 Large White herds, 17,359 litters from 73 French Landrace herds, 1,470 litters from 12 Pietrain herds and 7,493 litters from 28 Belgian Landrace herds were used to estimate the " herd " and " sow " components of the variance as well as the repea-