

## STUDY OF THE INFLUENCE OF SOME GENETIC AND NON-GENETIC FACTORS ON THE PRODUCTIVE PERFORMANCE OF ILE DE FRANCE EWES

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### Abstract

The effect of selection in sheep populations and the successful management of all processes related to breeding and improvement depends primarily on a properly developed breeding program. In this regard, precise information is needed on the effect of various factors on main productivity traits and farms economic efficiency. The aim of the present study was to determine the influence of various factors (genetic and non-genetic) on the productivity of Ile de France ewes.

Subject of research were two ewe flocks of the Ile de France breed, raised at the Experimental farms of the Agricultural Institute - Stara Zagora and Institute of Animal Science - Kostinbrod, Bulgaria, for the period of 5 years. The effect of the influence of genetic (sire, dam and genealogic line), biological factors (age, sequence of birth, type of birth and number of live-born lambs at sequent lambing), as well as environmental factors (flock-year-season, and year of production) on the level of productive traits live weight and fecundity were established. The live weight of the animals at birth, at 10, 30 and 70 days of age, at weaning, at 9, 18 months and 2.5 years, and the number of lambs born per ewe on average for the study period were indicated. The statistical working model was based on the "Animal-model".

Based on the results obtained, it could be summarized that genetic factors (sire, dam and genealogic line) had a highly significant influence ( $p < 0.001$ ) on all traits within the study. Biological factors (age, sequence of birth, type of birth and number of live-born lambs at sequent lambing) influenced the productive performance of ewes with varying degrees of significance ( $p < 0.05$ ,  $p < 0.01$ ,  $p < 0.001$ ). Environmental factors (flock-year-season, and year of production) had a significant effect ( $p < 0.001$ ) on most of the studied traits.

It can be concluded that genetic and environmental factors had a highly significant influence on all traits, while biological factors had varying degrees of significance an effect on productive performance.

**Key words:** *Ile de France, Fertility, Live weight, Genetic factors, Environmental factors.*