

**Problems of IT use in animal
husbandry
from the positions of productive
animals biology**

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The main results of our studies:

1) The constitutive resistance, (*CR*) is the ability of the body's functional systems to withstand the adverse effects of external and internal factors, reducing vitality;

2) the structural prerequisites of this ability are formed with the participation of hereditary factors and epigenetic modifications in the processes of prenatal development and in the periods of rearing young animals;

The data obtained indicate that the length of productive life of cows significantly depends on the value of $1/y_1 = N_1/\Delta N_1$ as a parameter characterizing the viability potential formed before the onset of lactation activity.

3) the *CR* level decreases with an inverse-exponential trend after reaching the age of reproductive maturity

Two tests are proposed for use in breeding and reproduction systems for cows, using CR as reciprocal of Gompertz function $y(t)$

1) to assess the viability, the reciprocal of the value of the Gompertz function $CR(t) = 1/y(t)$ for a given lactation is used;

2) for early prediction of viability
a functional relationship between
the average length of productive
life T and the value of CR at first
lactation.

Experimental verification of
the concept :

1) For five US breeds found a
linear relationship between
 $1/y_1$ and \underline{T} ($r = 0.94$, $P < 0.05$);

2) For 15 production subdivisions of the Leningrad oblast (breeding plants, individual districts), a similar ratio was obtained ($r = 0.98$, $P < 0.001$)

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