Polupan Yu. P. Ontogenetic features of formation of young cattle exterior

The aim of the research was to study patterns of forming exterior in dairy cattle during postnatal ontogenetic development (particularly in terms of uneven growth for individual measurements and changing proportions of body structure).

Instrumental assessment of young's exterior was performed in three scientific and economic experiments by taking measurements of new-born calves and heifers at the age of 1, 3, 6, 9, 12 and 16 months. For the experiment 30 bull-calves of Ukrainian Black-and-White Dairy were taken in "Aleksandrivka" breeding farm, Kiev region, 29 bull-calves and 21 heifers of Ukrainian Red Dairy and red-and-white Holstein (German selection) – in "Bilshovyk" breeding farm, Donetsk region and 38 bull-calves and 31 heifers of Ukrainian Red Dairy and Angler breeds – in "Shyroke" breeding farm, Crimea.

The analysis of age dynamics showed uneven development of young by individual measurements. Several clusters with similar values can be distinguished by the relative degree of development of new-born or one-month-old animals compared to older age. The highest level of relative development (69.4-74.3%) and slower growth rate till age of a year (34.8-44.7%) were fixed for girth of metacarpus. The high degree of development of new-born or one-month-old bull-calves and heifers (63-67.6% of age of a year) and low rates of relative growth during the first year of growing (48.2-58.7%) were revealed for measurements of height (the first cluster). The second cluster includes measurements of length showing significantly lower level of development in new-born or one-month-old animals (52.7-61.3%) and consequently higher rates of (63.4-90.7%) relative growth rate till age of a year. Lower degree of "maturity" in new-born or one-month-old bull-calves and heifers (47.7-57.7%) and higher rate (73.8-110.0%) of relative growth rate till age of a year were observed for measurements of breast depth and girth. The lowest degree of relative development (43.0-58.5%) and the highest relative growth rate till the age of a year (71.4-132.9%) were found in cluster of width measurements. The separate cluster, approximated to measurements of length by degree of "maturity" in new-born calves, was observed for measurements of a head and forehead. The lowest degree of relative "maturity" was revealed for scrotal circumference measurements, which at the age of three months was only 53.4% of its size in one-year-old bull. It has the most intensive growth in period of puberty (6-9 months).

The revealed uneven age dynamics of growth for individual measurements logically leads to an adequate age-related changes in proportions of the relevant indices of body structure. Stable steady decline was noted from birth to age of a year for index of long legs (by 13.5%) and growth for indices of chest depth (by 13.5%), chest width (by 10.0%), massiveness (by 31.9%), steepness of edges (by 15.8%), lengthiness (by 17.7%) and a large head (by 6.4%). Significant increase with age was observed for thoracic index (by 5.5%), downedly (by 10.3%), format of a pelvis (by 17.0%) and conditional body volume (3.5 and 3.3 times) and significant reduce for indexes of eirisomia (by 111.7%), boneness (by 1.3%) and broad forehead (by 6.5%). Proportion of a body has no unidirectional significant

age-related changes on the indices of outgrowth, narrowbuttly and pelvic-thoracic.
Keywords: **heifer, bull-calf, exterior, age dynamics, frame proportion, uneven growth**