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ABOUT BEEF CATTLE EARLY MATURING

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Higher average daily gains of calves meat breeds in the period from the 8 to 15 months of age contribute to the improvement of their beef productivity and deterioration of breeding value.

Early maturation, beef cattle, bulls, estimation, growth rate, the rate of formation

There are two types of early maturation in beef cattle breeding: growth rate and rate of formation. The rate of formation determines qualitative carcass evaluation and quantitative - the growth rate and its duration. Early maturation of animals is complex biological property, which has not only positive but also negative aspects.

The aim of the study was to examine the expediency of breeding of early-matured animals for slaughter for meat or for breeding use.

Research was conducted on Ukrainian beef breed bulls (n = 61) in stud farm "Volia", Cherkasy region. Early maturation of the rate of their formation and growth rate was determined by the average daily gain from 8- to 15 months of age.

Live weight after starvation, carcass weight, and pure gain of 18-month bulls depend on the rate of their growth in the period from 8- to 15 months of age. According to the before-slaughter live weight animals with high growth rate have higher indices than the analogues with low growth rate by 8.7%, by carcass weight – 8.2%, by the pure gain – 4.9%. Growth of average increases of bulls from 8- to 15-month age increases pulp yield in carcasses, including superior and first qualities, and reducing tendons and ligaments.

Bulls that have higher average daily gain (1101 g or more) are further characterized by much worse growth rate. The animals with higher average daily rate (early matured) after reaching 15 months of age have reduced growth rate, and animals with smaller gains (up to 1100 g) have steady growth rate and grow longer. Their gains from 15- to 18-month age are higher by 4.3% and from 18- to 24 months - by 40.7% than for early matured animals. Selecting bulls according to the best average daily live weight gain in the period from 8- to 15 months of age they prefer animals, which have undesirable high growth rate and low live weight in adulthood.

Calves with higher average daily gains are not the best ones according to sperm productivity. The relationship between growth in the period from 8- to 15 months of age and sperm productivity indices is different in direction. Positive medium strength correlation exists between body weight of 8- to 18-month bulls and ejaculate volume ($r = 0.47$-0.61). With the mobility of sperm it is much smaller - from 0.13 to 0.24. The correlation coefficient between body weight at different ages and sperm concentration is negative (from -0.26 to -0.35).

There is a positive correlation between the features of sperm productivity of bulls and their rate of growth from 8 to 15 months on the one hand and ejaculate volume ($r = 0.46$) and sperm mobility ($r = 0.24$) on the other hand. Correlation between the growth rate of 8 to 15 months and the concentration of sperm is also negative ($r = -0.20$). Fertilizing ability of sperms after the first insemination is negatively correlated ($r = -0.73$) with average daily gain.

Parents' early maturity is inherited by their daughters. In females of parents with higher gains worsens reproducible and milking ability. There is an inverse relationship between average daily gain of bulls on the one hand and the number of calving of their daughters for life ($r = -0.24$), the number of weaned calves ($r = -0.25$), lifetime milk production ($r = -0.31$, $P > 0.95$), and the average period between calving ($r = -0.14$). Thus, the growth rate of beef breed bulls contributes to the manifestation of sexual early maturity in their daughters. There is a positive

correlation between parents' live weight at the age of 8 to 18 months, the number of daughters' calving and obtained from them live calves during weaning.

The growth rate of the parents on the one hand negatively correlates with the age of first insemination of daughters (r = -0.33), age of the first heifer calving (r = -0.18) and duration of heifer pregnancy (r = -0.18) on the other hand. Live weight of parents at the age of 8, 12, 15 and 18 months is negatively correlated with the age of the first insemination and the first calving of daughters.

Thus, preference should be given to the sires, which during the evaluation of their own performance from 8- to 15-month old have average daily gain, lower averages in the group, moderate and stable growth rate in the period from 8 to 24 months, since they are characterized by higher breeding value. This type has long body, high legs and greater final live weight. Its representatives have high growth rates for a long time and reach the maximum live weight later than animals of early-matured type. They have better own breed value and better convey it to their descendants.

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