UDC 636.22/.27.082.26

CROSSING OF THE SIMMENTAL CATTLE WITH THE CHAROLAIS AND CHIANINA BREEDS. PART I. GROWTH OF CROSS-BRED HEIFERS AND COWS

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Influence for the females' height of the crossbreeding of Simmental females and Charolais and Chianina bulls are studied. It is certain that the Simmental-Charolais crossbreed heifers of the same age excel on living weight of Simmental Breed and Simmental-Charolais crossbreed on 4.7-20.7 %. The crossbreed cows excel on living weight of Simmental Breed coevals. The most increase of body height and living weight is certain at Simmental-Chianina crossbreed cows. During the crossbreeding, for increase of living weight of heifers, the Simmental Breed females are the necessary to couple with Charolais bulls. For the increase of living weight and body height of cows, the Simmental Breed females are the necessary to couple with Chianina bulls.

Beef cattle, crossbreeding, Simmental Breed, Charolais Breed, Chianina Breed, body height, living weight.

Summary

Countries with the well-developed beef farming widely use different options of commercial crossbreeding. Usage of two-way commercial crossing in the USA permits to increase the calf crop by 1.5%, its viability by 4.1%; live weight at weaning time by 4.6% and the efficiency of range utilization by heifers by 6.5%. Cross-bred cows (1/2 Aberdeen Angus, 1/2 Hereford) are larger than the purebred ones by 5%, and their use allowed to increase the animal yield by 6%, the calf crop at weaning time by 8% and the live weight of weaned calves by 10%. Breeds of cattle used for crossing should be checked for combining ability. Local researchers have

received a lot of materials indicating the effectiveness of crossing with the purpose of increasing bull beef production, but they have not paid enough attention to production indicators of cross-bred heifers and cows. The goal of research is to study the linear and weight growth of cross-bred heifers and cows, resulted from crossing of Simmental breed with Charolais and Chianina ones.

The study was carried out based on the materials on breeding of the Ukrainian beef strain by Agricultural Limited Liability Company "Volia", located at Zolotoniskyi area, Cherkasy region. Three groups of animals were selected for studying. The first group (control one) was represented by the purebred Simmental heifers and cows (S), the second one – by the cross-breeds with Charolais (Ch 1/2 S 1/2), the third one – by the cross-breeds with Chianina breed (C 1/2 S 1/2). The live weight of heifers in selected groups was studied at the age of 210 days (reference mass at weaning time) and at 12, 15 and 18 months. The live weight of cows was studied at the age of 4, 8 and 12 years, and measurements were taken at the age of 6 years and older. The research results were analysed by the methods of variation statistics.

Cross-bred heifers, resulted from the Charolais and Chianina bulls, in the process of growing left the Simmental peers behind in live weight. The cross-breeds of Ch 1/2 S 1/2 had the greatest advantage in weight. They were superior to the Simmental peers by 20.7% at the weaning ($P > 0.999$) and by 9.9% at the age of 18 months ($P > 0.99$), and they were heavier than cross-breeds of C 1/2 S 1/2.

Cross-breeds of C 1/2 S 1/2 were significantly superior to purebred Simmental heifers only at the weaning time (by 15.3%; $P > 0.999$) and at the age of 12 months (by 9.9%; $P > 0.999$). Their growth rate reduced with further raising. There has been established no difference between C 1/2 S 1/2 and purebred heifers at the age of 15 months and older.

A somewhat different situation emerged with the change of the live weight of cows. Cross-bred animals had an advantage over the purebred ones, but the cross-breeds of C 1/2 S 1/2 had the biggest live weight. At the age of 4 years they were heavier than the Simmental cows by 8.3%, by 15.3% at the age of 8 years and by 13.6% at the age of 12.

Cows, resulted from Chianina breeders, were superior in the live weight to the cross-breeds of Ch1/2 S ½ with high probability.

Cross-breeds of Ch 1/2 S 1/2 at the age of 4 years did not differ from the Simmental cows by live weight, and they scored a statistically reliable advantage over them only due to a continued prolongation of growth at 8 and 12 years.

The 6-year-old cross-breeds of Ch 1/2 S 1/2 were slightly superior to purebred Simmental cows in height, body, back length and chest girth. The statistically significant difference among them was only in withers height and oblique back length. This difference indicates the low efficiency of crossing Simmental and Charolais breeds make a cow growing bigger. Cross-breeds of C 1/2 S 1/2 were significantly superior to both purebred Simmental cows and their cross-breeds with Charolais by the most part of measurements. Their greatest advantage over them occurs at the withers height and rumps (by 11 and 9 cm, P> 0.999), at width in ribbings (5 cm, P> 0.99) and at oblique body length (11 and 10 cm, P > 0.99).

Thus, in order to increase the live weight of cross-bred heifers, it is appropriate to choose the Charolais bulls for the Simmental females during commercial crossing. It is appropriate to choose crossing of the Simmentals with the Chianina breed in order to increase the live weight and measurements of cows.

References

1. Плохинский Н.А. Биометрия / Н.А. Плохинский – Новосибирск: Изд-во Сибирского отделения АН СССР, 1961. – 364 с.

2. Ростовцев И.Ф. Промышленное скрещивание в скотоводстве // И.Ф. Ростовцев, И.И. Черкащенко. – М.: Колос, 1971. – 280 с.

3. Угнівенко А.М. Перспектива розвитку спеціалізованого м'ясного скотарства в Україні / А.М. Угнівенко, Д.К. Носевич // Науковий вісник НУБіП України / Серія «Технологія виробництва і переробки продукції тваринництва». – Вип. 179. -2012. – С. 98-106.

4. Evans J. Crossbreeding Beef Cattle, I / John Evans, C.A. McPeake // Oklahoma Cooperative Extension Service ANSI-3150 [електронний ресурс]. – режим доступу: http://pods.dasnr.okstate.edu.

5. Frahm R.R. Crossbreeding Beef Cattle, III / R.R. Frahm // Oklahoma Cooperative Extension Service ANSI-3152 [електронний ресурс]. – режим доступу: http://pods.dasnr.okstate.edu