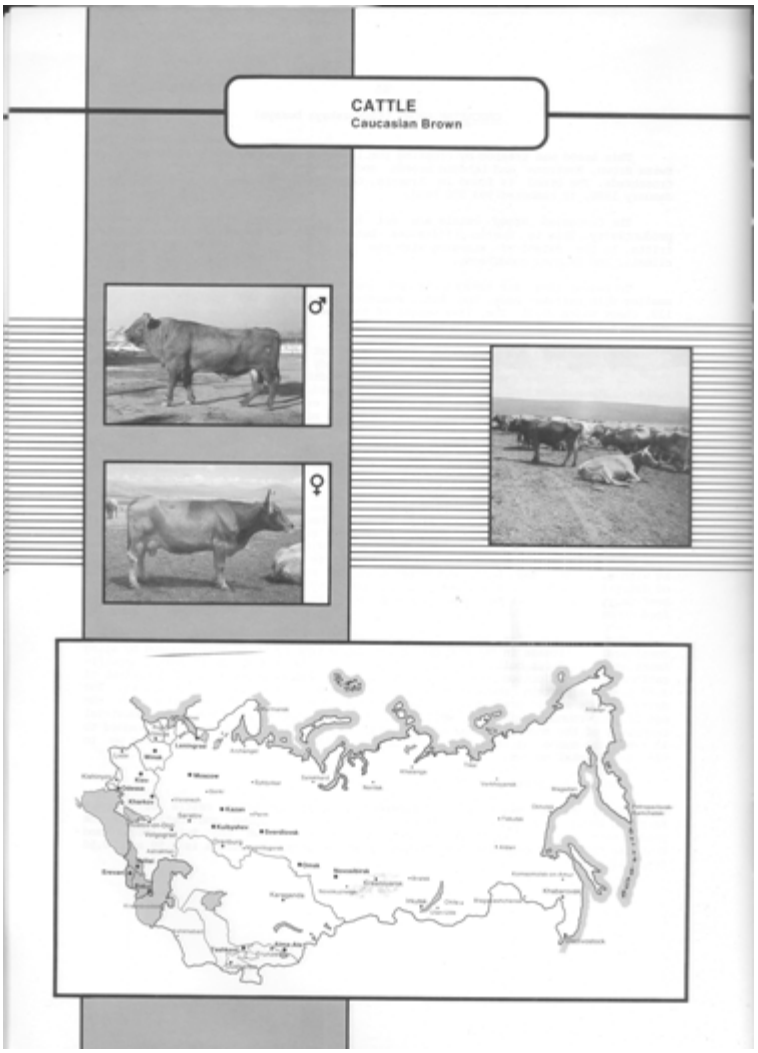


CAUCASIAN BROWN (Kavkazskaya buraya)

This breed was created by crossing the local Caucasian cattle with bulls of the Swiss Brown, Kostroma and Lebedin breeds and the long-term breeding work with the crossbreds. The breed is found in Armenia, Georgia, Azerbaijan and Dagestan. On 1 January 1980, it numbered 993 000 head.

The Caucasian Brown cattle are not homogeneous in their conformation and productivity. This is due to differences between the local cattle in various districts, to the extent of crossing with the Swiss Brown and to different natural, climatic and feeding conditions.

In colour they are homogeneous and resemble Swiss Brown cattle but they are smaller with narrower body. The basic measurements are (in cm): withers height 123-129, chest width 37-41. The live weight of the cows entered in the herdbook is 430-480 kg; that of bulls is 700-800 kg.

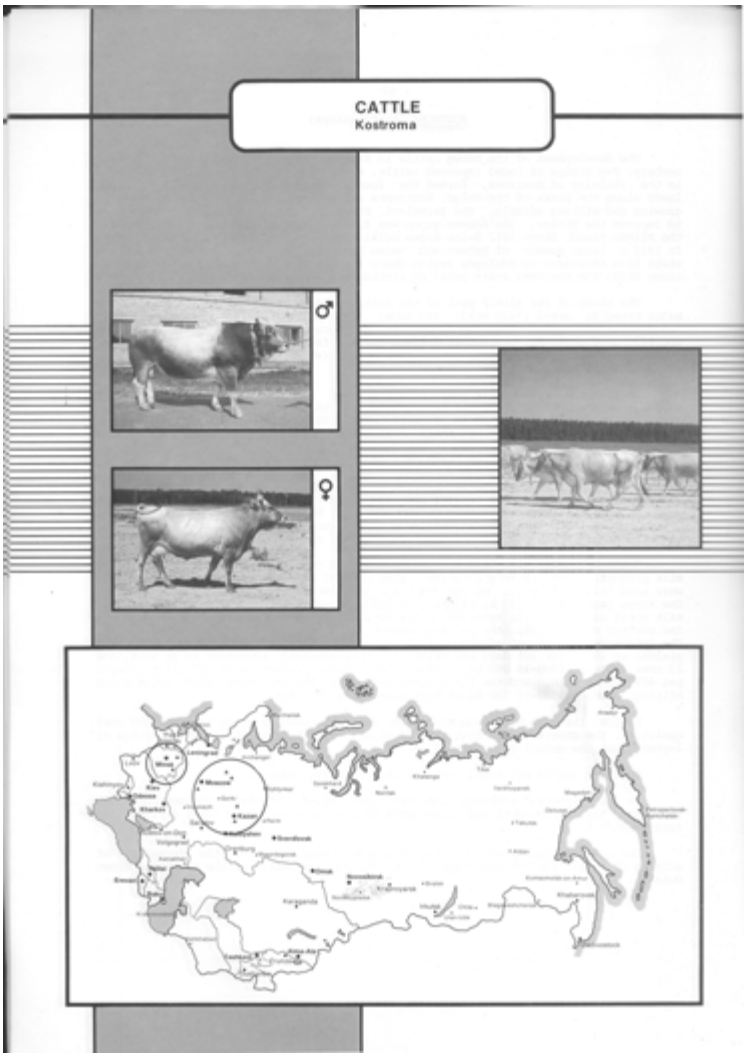
The animals have a harmonious conformation but the short body is their specific feature. Medium-size cows have shorter neck and body than Swiss Brown but longer than the local cattle. The chest is deep, of medium width. The rump is wide and somewhat sloping. The mid-part of the body is well developed. The legs are strong. The udder is satisfactorily developed; it has a sufficient excess of skin and well-developed teats; the mammary veins are clearly defined; the milk wells are large. The skin is elastic.

The Caucasian Brown breed includes three conformational and performance types: dairy, dairy-beef, and beef-dairy. In most herds the dairy-beef animals , predominate. This basic type was inherited from the Swiss Brown. Nevertheless, in some herds in the vicinity of Yerevan, most cows are of the dairy type. For example, in the herd that belongs to Kuibyshev collective farm in Abovyan district they account for 74.2% of all stock; at Shaumyan collective farm in Shaumyan district they account for 76.0%. At these farms the cows produce 23.5% more milk than the dairy-beef cows and 61.1% more than the beef-dairy cows. In some breeding farms the mature cows produce . over 4000 kg of milk. The milk yield of 792 mature cows of the dairy type was 4160 kg with 3.78% fat, and of 898 dairy-beef cows 3367 kg with 3.84% fat. The live weight of dairy-type cows is 453-514 kg, that of the dairy-beef cows 470-529 kg and of the beef-dairy cows 514-541 kg. The dairy-type cows are superior to the other types in food conversion.

The programme for the improvement of Caucasian Brown cattle requires a considerable increase in the numbers of the dairy type by pure breeding and by using American Brown Swiss bulls. Mature dairy-type cows should meet the following specifications: milk production in a 305-day lactation of 4000-4500 kg with ,a fat content of 3.80-3.90%, a protein content of 3.35-3.40% and a live weight of 500-550 kg. The dairy animals should preferably be bred on the farms of the lowland areas with the use of year-round housing, as well as on the large mechanized farms and industrial complexes of the mountain areas with the use of cultivated pastures. It is planned to increase the number of the dairy-type cattle at the farms in the lowland area up to 70% of the total number.

There are 3 popular lines in the breed.

Study of the blood antigen alleles in Caucasian Brown cattle of Nagorny Karabakh shows that genes characteristic of the Swiss Brown and Kostroma breeds predominate. The similarity index between Caucasian Brown and Swiss Brown and Kostroma cattle according to the frequency of the common B-alleles is 0.59 and 0.50 respectively.



KOSTROMA (Kostromskaya)

The development of the Brown cattle in Kostroma region started late in the last century. Two groups of local improved cattle, Miskov and Babaev, in rural settlements in the vicinity of Kostroma, formed the foundation of Kostroma cattle. The flood lands along the banks of the Volga, Kostromka and other rivers provided good feed for growing and milking animals. The Yaroslavl, Kholmogory and Ayrshire breeds were used to improve the Miskov. The Babaev group was formed by crossing the local cattle with the Allgau breed. Since 1912 Swiss Brown bulls have been widely used on Babaev cows. In 1920 a large number of Babaev and Swiss Brown cattle were concentrated in the state farm Karavaevo in Kostroma region where the crossbreds have been bred inter se since 1932. The Kostroma state breeding station was set up in 1934.
The study of the allele pool of the Kostroma breed in the pedigree herds in the major breeding areas (7194 head) and among the populations of the founder breeds (1538 cows) has shown that in the

process of improving, the Kostroma breed got a specific gene pool. At present it differs in the frequency of milk protein alleles from the Yaroslavl, Kholmogory, Swiss Brown and Ayrshire breeds which were founders of the initial Kostroma stock.

In 1940 the average milk yield in the herd of the Karavaevo state farm reached 6310 kg. Poslushnitsa II was the record holder in that herd. In 300 days of the 6th lactation she produced 14 115 kg of milk, with 3.92% fat. The Kostroma breed was recognized in 1944. Since 1950 these cattle have been bred in Ivanov, Vladimir, Vitebsk and Mogilyov regions and in the Tatar and Mari ASSRs. In 1974 the number of Kostroma cattle reached 865 000 head; on 1 January 1980 it was 838 100.

Kostroma cattle resemble Swiss Brown in colour, live weight and productivity. In Karavaevo the animals are heavier and wide-bodied, with short legs; they are light grey in colour with yellow or pale yellow top-line. While resembling Swiss Brown and Allgau cattle, Kostroma animals have several distinctive features: longer body and head, narrower forehead, raised withers, straighter and wider back and loin.

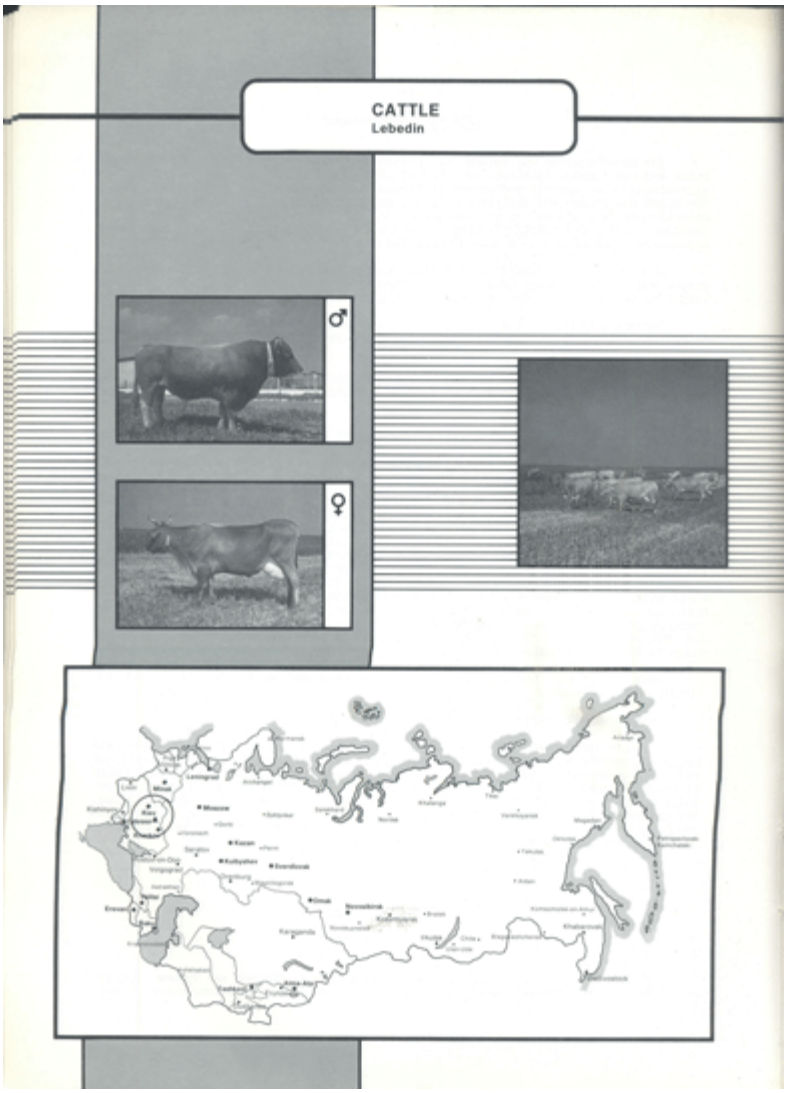
Kostroma cattle are characterized by a strong constitution, hardiness and high milk production over a long lifetime. Some cows at the Karavaevo breeding station were used till 19-22 years of age and their lifetime milk yield was 102-120 000 kg. Cow Krasa produced 120 247 kg of milk, or 5050 kg of butterfat in her lifetime. The milk yield of the animals recorded in the National Herdbook is 3900-5000 kg with the fat content of 3.7-3.9%; the protein content is 3.30-3.60%; udder index is 43-44%. The intensive management adopted at Karavaevo breeding centre produces high milk yields: in 1979, for 305 days lactation, 173 cows averaged 6000-8000 kg of milk, and 23 cows averaged 8000-10 000 kg or more; the average production of 221 first calvers was 4690 kg of milk, and the fat content was 3.84%. The best cows, with twice-a-day milking, produce 9300-10 750 kg of milk with 3.97-4.55% fat.

Besides its high milk production, the Kostroma breed is noted for its good beef qualities. The steers have a high rate of gain; they reach 450-500 kg as yearlings or 2-year-olds; the dressing percentage is 58-60.

Kostroma cattle are being improved at 7 breeding centres.

In recent years 7 breeding lines have been tested. The breed includes over 300 families. All the founders and descendants of the Kostroma cattle lines derived from record holders.

The breeding programme for the Kostroma breed specifies the formation of animals of a new intra-breed type by introducing the blood of the American Brown Swiss.

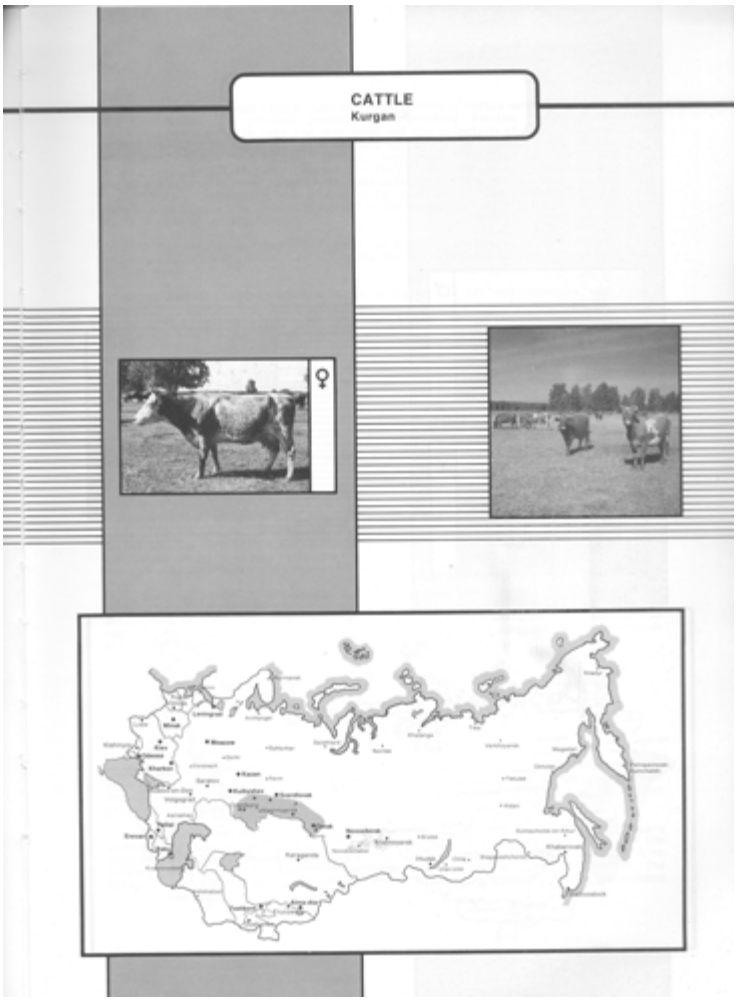


LEBEDIN (Lebedinskaya)

The Lebedin breed was formed by crossing Ukrainian Grey cows with Swiss Brown bulls and the subsequent inter se breeding of the best of the 1st and 2nd backcross generations under optimal conditions of feeding and management for many generations. The breed was formed and distributed mainly in Lebedin, Akhtyr, Trostyanets and other districts of Sumy region. It was recognized in 1950. At present it is regarded as an improver in 40 districts of Sumy, Chernigov, and Kharkov regions. The total population of Lebedin cattle on 1 January 1980 was 599 000.

In colour Lebedin cattle are similar to the Swiss Brown. The basic colour is grey-brown, with a darker shade on the forequarters and on the sides. Individuals vary from almost grey to dark brown. The muzzle is dark.

The measurements of the cows (in cm) are: withers height 130-136, chest depth 65-72, chest width 42-49, oblique body length 156-160, cannon bone girth 19-20. The constitution is strong.
The average live weight of mature bulls is 850-950 kg (maximum 1000-1200 kg); the live weight of cows at breeding farms is 500-650 kg; that of calves at birth is 37-45 kg.
In the main regions where they are kept milk production is 3100-3400 kg with 3.76% fat. Eight volumes of the National Herdbook hold data on over 9000 cows and 2000 bulls. Most of them were raised at the breeding stations of Sumy region. In 1979 in that region 1299 cows produced 5000-6000 kg of milk and 154 cows produced 6001-7000 kg of milk. The milk production in the herds of the breeding farms is much higher: in Chupakhovski it is 4616 kg, in Ukrainka it is 4830 kg. At the breeding farms and the leading breeding centres 90 cows produced 7000-12 000 kg of milk per 305-day lactation. One of the record holders is cow Ledi 5372 from Chupakhovski breeding farm in Sumy region; her 7th-lactation yield was 12 838 kg milk with 4.19% fat. Cow Nyrka 213 from Imeni Lenina collective farm in Lebedin district produced 11 115 kg of milk with 4.3% fat; cow Merezhka 410 from the same farm produced 12 349 kg of milk with 3.93% fat. Lebedin cows are noted for the high butterfat content of their milk. At the breeding farm Mikhailovka a large group of record holders for butterfat content was formed: Mudraya - 3rd lactation, 5000 kg of milk, 5.48% fat content; Molluska - 3rd, 4725 kg, 5.24%; Mirnaya - 9th, 6880 kg, 4.86%; Molekula -3rd, 6040 kg, 4.79%. The lifetime milk yields of some cows of the Lebedin breed reach 92 000 kg. The udder index is 43-45%.
When fattening, the animals have high live-weight gains: the daily gain of steers is 900-1000 g.
The modern structure of the breed comprises 10 lines.
Further improvement of Lebedin cattle is aimed at increasing milk yield and butterfat content and at breeding animals that can fully meet the requirements of industrial methods. To achieve this, both pure breeding and crossbreeding with bulls of related breeds, namely American Brown Swiss, are being used. The American Brown Swiss bulls have a high breeding value for milk production with twice-daily milking. The programme envisages an increase in the milk yields of mature cows in the stud herds up to 5000-5200 kg with 3.9-4.0% fat and 3.35-3.40% protein. It is planned to stabilize the live weight of cows at 550-600 kg.



Other Dual-Purpose Breeds
KURGAN (Kurganskaya)

In the 19th century local cattle in west Siberia (Kurgan and Tyumen regions) were improved by crossing with Tagil, Simmental, Yaroslavl and some other breeds. From 1901 these improved cattle and the local Siberian cattle were crossed with the Shorthorn breed. The planned breeding that involved further crossing of these improved Siberian cattle with the Shorthorn and the selection of the crosses started in 1922 when a breeding State farm was set up; in 1935 a State breeding station was established. During the initial period, replacement crossing was used; then the crosses were interbred. As a result by 1949 there were a large number of early-maturing animals with a higher beef and milk production than the improved local cattle. They differed from the Shorthorn in conformation and productivity and were therefore recognized as a separate breed - the Kurgan. In 1949 the National Herdbook of the Kurgan breed was opened.

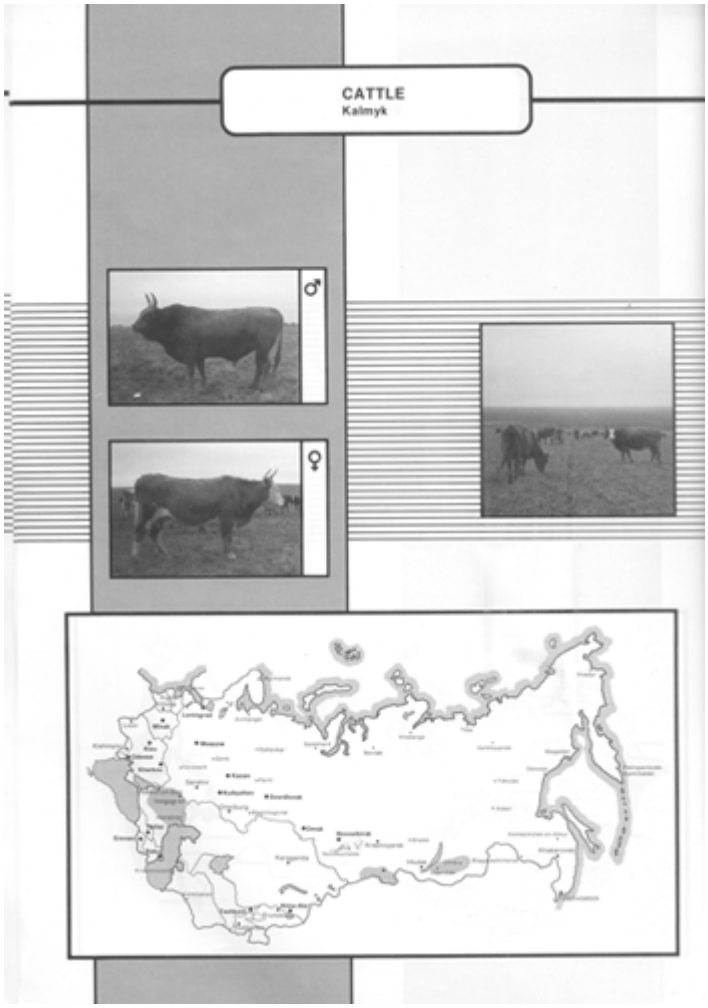
Kurgan cattle are currently bred in Kurgan, Chelyabinsk, Omsk, Tyumen and Orenburg regions and in the Bashkir ASSR. The total population of the breed in 1980 was 322 000.

The dominant colours of the Kurgan animals are red, red-and-white, and roan. The cattle are noted for their harmonious conformation. The head is of medium size; the neck has well-developed muscles. The dewlap is well developed and clearly pronounced. The chest is deep and wide. The back and loin are level and wide. The hindquarters are deep and full. The measurements of the mature cows and bulls recorded in Volumes 1 and 2 of the National Herdbook indicate that Kurgan cattle have a good conformation, balanced and symmetrical with the parts of the body proportionally developed. The basic measurements of the cows are (in cm): withers height 130.1, chest depth 70.3, chest width 44.1, oblique body length 155.3, heart girth 189.7, cannon bone girth 19.2.

The average live weight of mature cows is 520-550 kg, that of the bulls 800-900 kg, up to 1100 kg. The Kurgan cattle have good beef qualities. When grazing and fattening the steers gain 800-900 g daily. The dressing percentage of fat animals is 62-65.

The milk yield of the cows recorded in the herdbooks is 3200-3700 kg. The record holder of the breed is cow Zenitsa 71; in 300 days of the first lactation she produced 7265 kg of milk. Kurgan cows are noted for the high butterfat content in their milk - 3.8-3.9%. In the pedigree herds the majority of cows have over 4%. Cow Zmeika had the highest butterfat content, namely 5.3%. The milk yield of cows with a cup-shaped udder is higher than that of cows with a spherical udder. At older ages the udder becomes spherical. The udder index is 41-44%.

The best herds of the Kurgan cattle belong to the breeding centres of Kurgan region, namely: Kurganski, Taktashinski and Vargashinski. Breeding is directed to the development of dairy and beef production and to the improvement of constitution. To realize the programme it is planned to use intensively the internal breed resources and to introduce blood of the American Milking Shorthorn.



BEEF BREEDS
KALMYK (Kalmytskaya)

There is no single view of the origin of Kalmyk cattle. P.N. Kuleshov claimed that Kalmyk cattle differ considerably from the European breeds and originate from Indian cattle. Most experts assume that this breed derives from the Asian Bos primigenius which seems likely.

The breed was formed more than 300 years ago on the mountain and steppe grazing lands in the northwest of China (Jungaria), west Mongolia, and southern Altai. In the southeast of Russia the Kalmyk cattle appeared in the first quarter of the 17th century, when the Kalmyk tribes moved from Jungaria to the Lower Volga area. The Kalmyk breed was formed under conditions of migratory husbandry, with year-round grazing. Iced pastures and snowstorms, frequent in the steppe area, as well as epizootics, resulted in the death of a great number of animals. Only the most strong, hardy and healthy animals were able to survive the hard winters. As a result of this

selection Kalmyk cattle acquired the distinctive features that differentiate them from other breeds.

Late in the last and early in this century on some farms of Rostov region and the lower Volga area Kalmyk cattle were crossed with the Simmental to obtain larger animals and with the Shorthorn to improve their beef qualities. Nevertheless the infusion of blood of these breeds did not much affect the basic population of Kalmyk cattle.

The specific biological features of Kalmyk cattle are as follows: high viability, adaptation to the harsh continental climate, ability to graze on poor vegetation. The body temperature of Kalmyk cattle is stable (with only minor fluctuations) under the icy north wind or in the hot burning sun. In winter the epidermis thickens at the expense of the dermis. As compared with other breeds, the skin has more sebaceous and sweat glands. At present, over 90% of the total number of Kalmyk cattle populate the area of dry steppe, semi-arid and arid areas of the country. No other breed can compete with the Kalmyk in that area.

Kalmyk cattle are adapted to exploiting dry sagebrush pastures, where the major vegetation is Artemisia, feather grass, and sheep's fescue. The breed is distributed in the Lower Volga (Kalmyk ASSR, Volgograd, Astrakhan and Rostov regions), the Stavropol territory, the Chita region, the Tuva ASSR, the Buryat ASSR, Kazakhstan, Uzbekistan, and Turkmenia. The number of the breed in 1980 was 381 000 head.

Kalmyk animals are of medium size and with a compact conformation. The breed includes two types: early-maturing beef, and late-maturing beef. The animals of the first type are somewhat smaller in size and with lower live weight; they mature faster, have a lighter skeleton, thinner skin and a higher dressing percentage (by 2-4%) than the late maturing animals. They also differ in the B-system blood antigens.

The colour of the animals is red, of various shades, with white markings on the head, abdomen and legs; the muzzle is pale. The conformation is characteristic of a beef and draught type. The head is small, forehead short, horns short, face long. The withers, back and loin are usually straight and wide; the chest is deep, wide enough with well-developed dewlap. The rump is occasionally raised. The legs are strong, correctly set. The musculature is well developed. The skin is medium thick. In winter the animals have long thick hair cover. The udder is small. The skeleton is light and strong. The measurements (in cm) are as follows: withers height 126-128, chest depth 68-70, oblique body length 155-160, heart girth 186-188, cannon bone girth 17-18.

Newborn calves weigh 22-25 kg. The live weight of the cows is 420-500 kg; some animals weigh 675 kg. Bulls weigh 750-850 kg; some bulls reach 1020 kg. Kalmyk cattle have good fattening properties. With intensive fattening the young stock reach 400-450 kg by 16-18 months of age. During fattening, the 1.5-year-old steers gain 800-900 g daily. The dressing percentage varies from 55 to 60; that of the fattened bullocks is 68.

The display of beef breeds at the USSR Exhibition of Economic Achievements in 1984 showed that 5-year-old Kalmyk bulls reach a live weight of 860 kg. Fattened steers at 20 months old weigh 505 kg, their daily gain averaging 876 g. Obilny state farm in Priozerny district of the Kalmyk ASSR displayed 6 steers at the age of 17.5 months. Their average live weight was 527 kg; average daily gain was 918 g.

The milk production of the cows is low. The lactation is very short - 180-240 days. Average milk yields are 1000-1200 kg with 4.1-4.5% fat. Some cows produce milk with 5.9-6.5% fat and with the high protein content of 4.2-4.8%. The record milk yield for the Kalmyk breed was achieved by cow Ulan-Alyk on State Farm No. 383 of the Kalmyk ASSR; she produced 4926 kg of milk with 4.7% fat. The low milk yield of Kalmyk cows is compensated for by a high dry matter content. Few other beef breeds can boast that rich and high-protein milk. The highly nutritious milk of Kalmyk cows ensures the normal growth and development of suckling calves.

The breed includes 4 regional types - in North Caucasus, Lower Volga, Kazakhstan and Siberia - which differ in weight.

Study of the blood group antigens showed a high degree of heterogeneity. These cattle differ considerably from other breeds in the frequency of the antigen factors in the A, B and C systems.

The breed consists of 15 lines and more than 40 families.

The breeding Kalmyk animals are concentrated in 3 pedigree stock farms and 20 breeding farms. The best herds of this breed belong to Sukhotinski breeding centre, Chkalov and Kalinin breeding state farms in the Kalmyk ASSR, and to Dubovski state farm and Zimovnikov stud farm No. 163 in Rostov region.

Breeding of these cattle is currently directed to raising of large early-maturing animals with good beef qualities, while at the same time preserving the special characters of the breed, namely: strong constitution, good walking ability, adaptability to the arid continental climate, resistance to diseases, long breeding life, good taste and nourishing quality of the meat, high dry matter content of the milk.

The milk production of the cows can be increased to 1200-1500 kg by means of selection and by better feeding and management. This will allow maintenance of the optimum balance between beef and milk production by getting calves to a live weight of 250 kg or more prior to weaning.

The evaluation of Kalmyk steers by their productivity revealed their ability to maintain a high daily gain (1200-1500 g) after weaning with the low feed consumption of 5-6 feed units per kg weight gain. Such animals reached the weight of 400 kg or more as yearlings.

To preserve this breed, the habitat is being extended and the number of head is being increased by pure breeding.