

### KAZAKH WHITEHEADED (Kazakhskaya belogolovaya)

The breed was formed in the territory of the Kazakh Republic and the southeast of the RSFSR in a harsh continental climate. Since 1930 on the state farms of the Kazakh republic and the Lower Volga area Kazakh and Kalmyk cattle were crossed with Herefords in order to establish a basis for the beef industry. The crosses, mainly 1st and 2nd backcrosses, which combined the good beef qualities of Hereford cattle with the undemanding feed requirements and adaptability of the local cattle, were bred inter se. The aim was the formation of a beef breed and the work was completed in 1950. Valuable features of the Kazakh Whiteheaded are their ability to tolerate both hot and cold weather, to fatten rapidly and to have high weight gains.

In its colour and conformation this breed resembles the Hereford. The cattle are small, of compact conformation, with a deep and wide chest, a light strong skeleton, wide rounded body, and well-developed muscles. In winter they develop thick, long hair cover.

The colour is red of various shades; the head, dewlap, lower abdomen, lower legs, and the switch are white.

The live weight of calves at birth is 27-30 kg; when suckling they reach 220-240 kg by 8 months of age. The cows weigh 500-560 kg, some up to 700 kg; the bulls weigh 800-850, 1000 kg maximum.

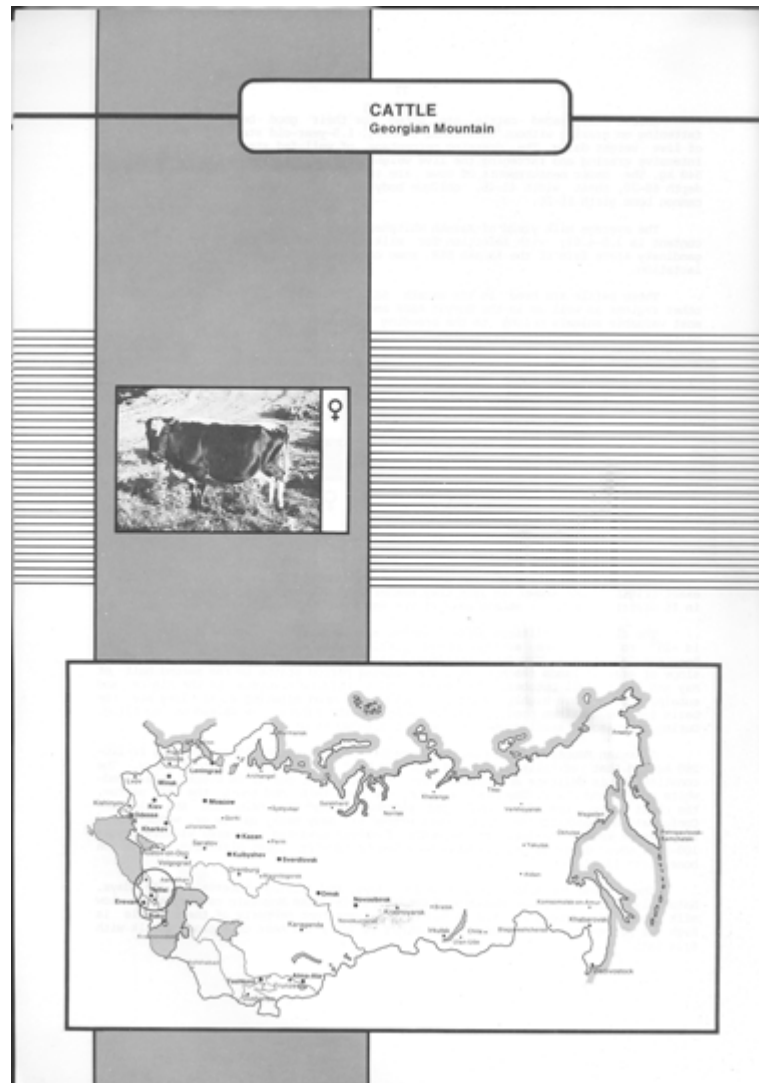
Kazakh Whiteheaded cattle are noted for their good beef qualities. When fattening on grazing without additional feeding, 1.5-year-old steers gained 800-900 g of live weight daily. The dressing percentage of well-fed steers is 63-67%. With intensive grazing and fattening the live weight of steers at the age of 18 months was 540 kg. The basic measurements of cows are (in cm): withers height 123-145, chest depth 68-70, chest width 42-45, oblique body length 152-156, heart girth 187-190, cannon bone girth 18-20.

The average milk yield of Kazakh Whiteheaded cows is 1200-1500 kg, and the fat content is 3.8-4.0%; with selection for milk production at some farms, e.g. Kara-gandinsky state farm of the Kazakh SSR, some cows produced up to 6000 kg of milk per lactation.

These cattle are bred in the Kazakh SSR, Orenburg, Volgograd, Chita and some other regions as well as in the Buryat ASSR and the Mongolian People's Republic. The most valuable animals belong to the breeding centres Chapaevski in Ural region and Balkashinski of Tselinograd region, as well as to the breeding state farms Bagrationovski of East Kazakh region and Alabotinski of Kokchetav region (National Herdbook, vol. 10, 1981). Further improvement of beef productivity will be effected by use of animals of the six leading related groups of sires.

Kazakh Whiteheaded bulls are used to improve the local cattle in some areas of Siberia and the Far East, as well as for crossing with other breeds.

At 1 January 1980, the total population stood at 1 570 000 head.



### LOCAL BREEDS

#### GEORGIAN MOUNTAIN (Gruzinskii gornyi skot)

These are a variety of the ancient high mountain Georgian cattle but their exact origin is not known. In 1980 they numbered 80 000 head and they are distributed in 15 districts in the west and east of the Republic.

The climatic conditions of the habitat are severe: the minimum air temperature is -25 to -30 C. The average annual precipitation amounts to 900-1500 mm. The heaviest falls are in May-June, the lowest in January. Snow lies for 5-7 months. The slope of grazing lands reaches 45°. The grazing period starts in the second half of May and lasts till October. The pastures with difficult access in the alpine and subalpine zones have highly nourishing grass and good drinking water. They are the basis for the maximum productivity of animals. The calves are raised by suckling. During a two-month suckling period they get 120-200 kg of milk.

Georgian Mountain cattle are very small: the live weight of mature cows is 220-280 kg and that of bulls is 270-370 kg; the beef qualities are unsatisfactory. The constitution is delicate and conformation compact. Coat colour is black, black-and-white or red-and-white. The head is light, the neck thin and short, the back narrow, the chest deep, the udder small and glandular, and the skin thin and elastic. Conformational defects are as follows: humped or sway back, narrow or wedge-shaped rump, knock knees. The basic measurements of mature cows (in cm) are: withers height 100-108, chest depth 53-56, diagonal body length 120-126, chest girth 139-142, cannon bone girth 13-14.

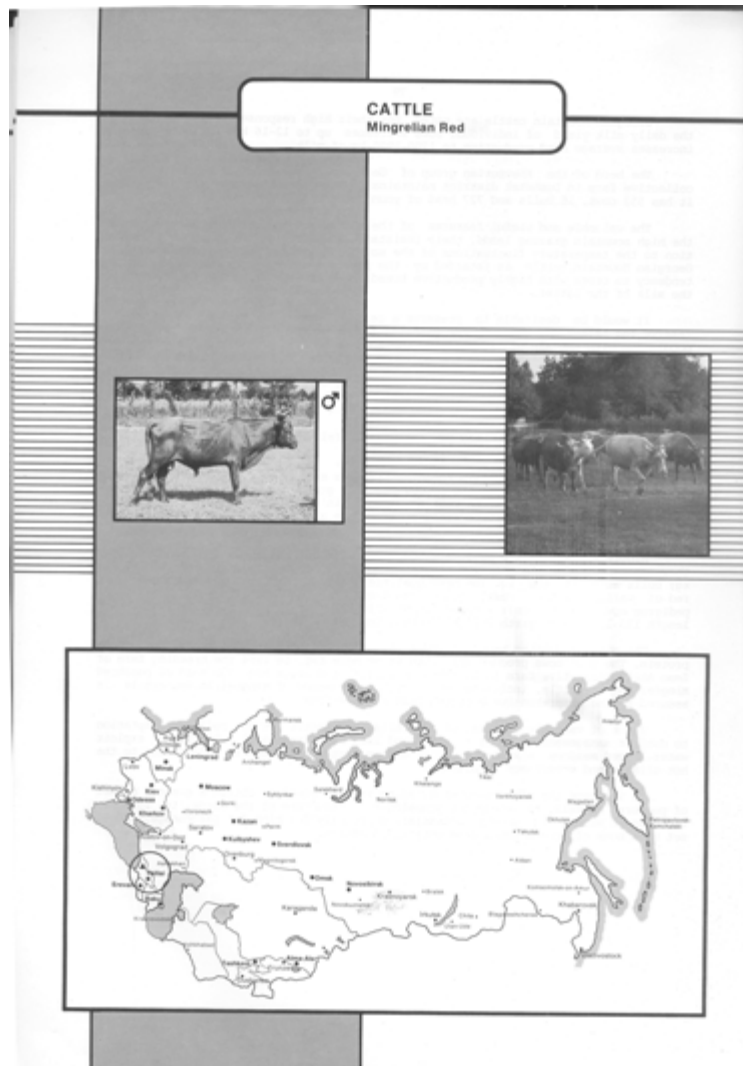
The average lactation period is 230 days, and calving interval is 380 days. Naturally, under extensive management conditions Georgian Mountain cattle have a low milk yield: it varies from 650 to 800 kg. The important property of these cattle is high fat percentage. The average fat content is 4-5%; the best cows produce milk with 6.2% fat.

Georgian Mountain cattle are noted for their high response to better feeding: the daily milk yield of individual cows increases up to 12-16 kg. Adequate feeding increases average herd production to 1700-1900 kg of milk.

The herd of the Khevsurian group of Georgian Mountain cattle at Magoros Kary collective farm in Dushetsk district maintains relatively stable numbers; at present it has 553 cows, 10 bulls and 727 head of young stock.

The valuable and useful features of the cattle are their unique adaptation to the high mountain grazing lands, their resistance to infectious diseases and adaptation to the temperature fluctuations of the southern climate. Further improvement of Georgian Mountain cattle is retarded by the poor selection programme and a strong tendency to cross with highly productive breeds in order to raise the fat content in the milk of the latter.

It would be desirable to preserve a certain number of animals as a genetic reserve for selection; to study the genealogical structure of the active part of the population with the aim of identifying the most valuable genotypes; to characterize the immunogenetic properties of the pedigree stock; and to set up a bank of frozen semen of the best sires.



### MINGRELIAN RED (Krasnyi megrelskii skot)

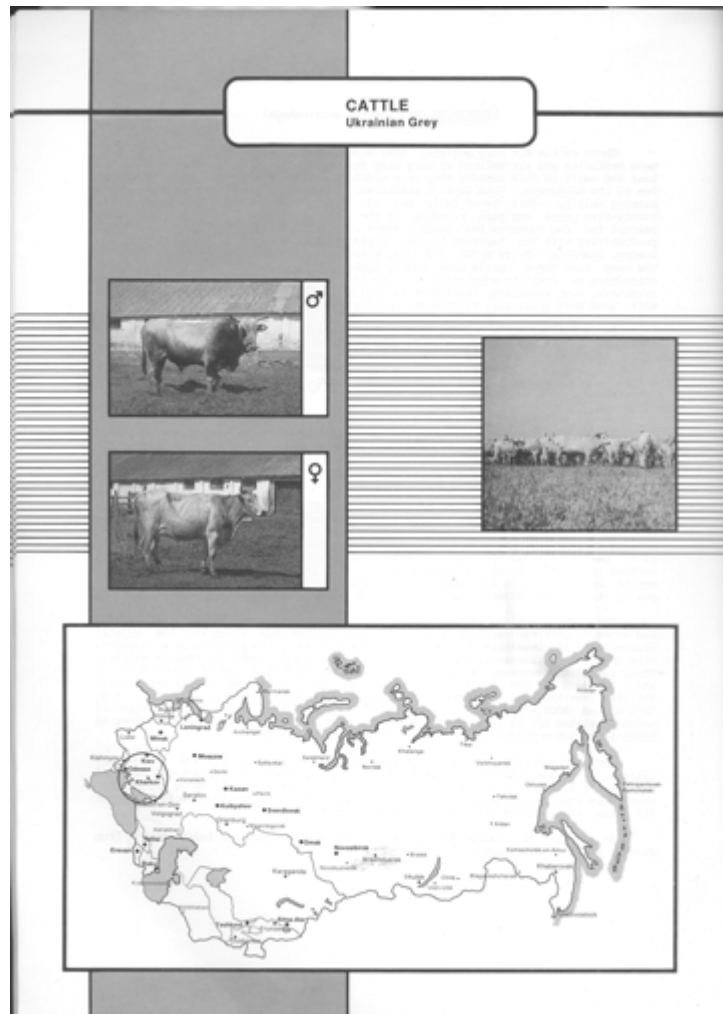
Like the Georgian Mountain these cattle are an ancient local variety of the Caucasian cattle, representing the Lesser Caucasus group. In 1980 the population was 11 000. It is distributed in the west of Georgia in the foothills and valleys of the Lesser Caucasus. As an approved breed these cattle are bred in 11 districts of the Republic. Mingrelian Red cattle have a strong constitution and a compact conformation; they are larger than the Georgian Mountain. The live weight of mature cows is 280-320 kg; bulls weigh 450-480 kg. The beef qualities are not satisfactory. The colour is red of various shades: rust, brown and grey. The basic measurements of mature pedigree cows are (in cm): withers height 110-115, chest depth 58-60, oblique body length 133-135, chest girth 165-167, cannon bone girth 17-18.

The milk yield on breeding farms is 1800-2000 kg with 4.4% fat and 3.7% protein. The best cows produce milk with 6% or more fat. In 1984 the breeding farm of Zemo Aketi collective farm in Lanchkhut

district of Georgia had 459 head of purebred Mingrelian Red cattle, including 198 cows. Conservation of Mingrelian Red cattle is assured by the comprehensive breeding plan at this farm.

The most valuable features of Mingrelian Red cattle are as follows: adaptation to outdoor management, ability to withstand long-distance travel, ability to exploit water-logged meadows in winter and poor alpine pastures in summer, adaptation to the hot climate and resistance to disease.

To increase the efficiency of breeding it is planned to obtain a greater number of purebred animals, to study the genealogical structure of the herds, to identify the animals with a high genetic potential, especially for high fat percentage, and to set up a bank of frozen semen from outstanding sires.



### UKRAINIAN GREY (Seraya ukrainskaya)

These cattle are very ancient; they were formed as a result of selection over many centuries and are related to many Grey Steppe breeds of southern Europe. In the last and early in this century they were widely distributed over most of the Ukraine. Due to its hardiness, good working abilities, modest nutritional requirements, and grazing ability, this breed fully met the requirements of small peasant farms. Twenty-five years ago pure breeding of the Grey Ukrainian cattle was terminated (except for two conservation herds). Since the local breed could not compete in productivity with the improved breeds, replacement crossing with bulls of the Red Steppe, Simmental, Swiss Brown and other breeds was practised on a large scale. At the same time these cattle were highly appraised by many investigators for such characters as complete adaptation to the local environment, strong constitution, hardiness, high viability, resistance to various diseases, high butterfat content of milk, good beef qualities, first-grade quality of hide.

In recent years the population of the Ukrainian Grey has fallen to a minimum: in 1980 the total head was about 1000. Small groups of these cattle are preserved at Polivanovka experimental farm in Dnepropetrovsk region and in Askania Nova natural reserve in Kherson region of Ukraine. Most important is the Polivanovka herd, where 372 head are kept, including 13 sires, 159 cows, 88 steers of all ages and 112 heifers.

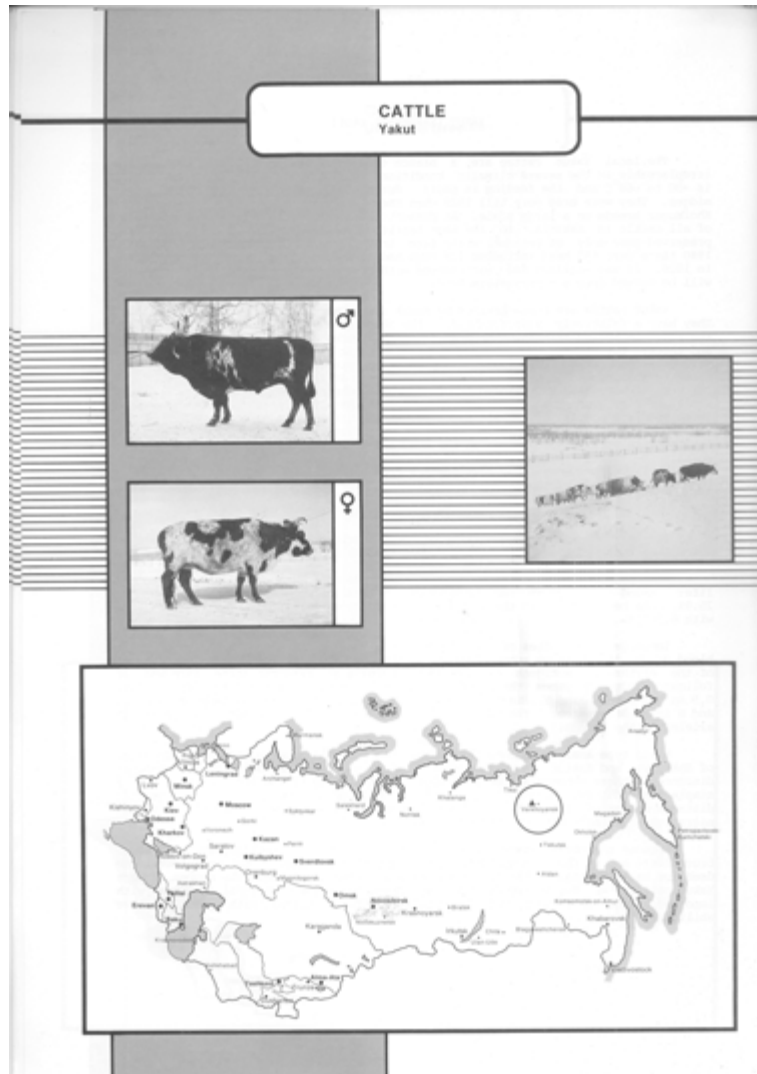
The animals in the herd have a strong constitution and specific hide and hair characteristics. The colour is grey or light-grey and bulls have a darker neck, chest and legs. The horn tips are black. The skin is dense. The animals are tall, rather leggy and long-bodied. The withers are prominent. The muscles are well developed.

The animals in the present-day population are large. The record cow live weight is 750 kg; that of bulls is 1100 kg. The cattle are noted for the small size of the newborn calves: birth weight is 27-29 kg. The highest daily gain in weight is observed at the age of 9-12 months, namely 766-822 g. The milk yield with hand milking is 2457-2921 kg, with 4.23-4.26% fat. The record milk yield was obtained in 1971; cow Iriska 5180 produced 5365 kg of milk with 5.02% fat. When calves are suckled their live weight at weaning varies from 198 to 215 kg. By the age of 16 months the steers reach 439 kg live weight with a food consumption of 7.8 feed units per kg of gain. The dressing percentage is 58.7%.

The immunogenetic status of the breed has been studied by using blood groups and other polymorphic systems as markers. The studies have shown that the genetic structure of the Ukrainian Grey breed is characterized by the presence of a considerable number of antigenic factors, which result in a great number of complex alleles. There is a high frequency of the V antigen in the FV-system, and of the B, G, O, Q and T antigens in the B-system. The Ukrainian Grey cattle have fairly high variability. Nevertheless, a number of alleles are specific for these cattle, e.g. QA'D'G' and BGQY<sub>2</sub>B'D'E'G'J'O'). The blood groups BJ<sub>1</sub>TJ' are characteristic of animals related to the intensively used sire Tabun. The use of only a small number of bulls is reducing the variability seen in blood group antigens.

The herd comprises 5 related groups that vary in productivity and polymorphic systems. To preserve genetic variability, intra-group selection is practised for 2-3 generations followed by an inter-group cross, i.e. rotation of bull among groups. The inbreeding coefficient is increasing by 0.12% per year. A large bank of frozen semen (22 sires, representing all 5 related groups) is available.

At a number of leading institutes in this country adequate frozen semen from diverse bulls is now stored.



### YAKUT (Yakutskii skot)

The local Yakut cattle are a branch of the Siberian. These cattle are irreplaceable in the severe climatic conditions where the air temperature in winter is  $-50$  to  $-60^{\circ}\text{C}$  and the feeding is poor; during the short summer they suffer from midges. They were bred pure till 1929 when they were crossed with the Simmental and Kholmogor breeds on a large scale. At present the local cattle account for only 0.3% of all cattle in Yakutia. In the vast territory of the Yakut ASSR they have been preserved pure only at Leninski state farm in Verkhoyansk district. On 1 January 1980 there were 653 head including 329 cows and 11 bulls. This population originated in 1820. It was isolated and not crossed with other breeds. In the near future it will be turned into a conservation herd.

Yakut cattle are characterized by small size, deep barrel, and short firm legs. They have a relatively wide forehead. The shape and direction of the horns vary; there are no polled animals. The head is

short, wide, not heavy; the neck is short and thick; the withers are low and wide; the chest is deep, rather narrow, with a well-developed dewlap. The back, loin and rump are level; the hindquarters are slightly sagging and roof-shaped, somewhat narrow in the hips; the leg stand is correct, occasionally knock-kneed or bowed. The abdomen is capacious. The udder is small and firm; udder and teats are covered with thick hair which protects them from frost and from midges. The hair cover is thick with a great number of guard hairs that help to withstand the cold climate. The colour varies from black or red to leopard-like with white markings on the head and lower barrel; the backline of most animals is white. The constitution is strong, characteristic of dual-purpose animals. The live weight of cows ranges from 350 to 400 kg; that of bulls is 500-550 kg.

In 1980 the average milk yield in the herd was 1 015 kg with 5.13% fat.

The beef and fattening qualities of Yakut cattle are good enough; they are no worse than those of the best national breeds (Kalmyk and Kazakh Whiteheaded).

When properly fed and managed Yakut cows are noted for their long productive life: among the cows studied by Romanov in 1963 the 12-year-olds accounted for 25.9%. The better cows in the conservation herd have a milk yield of 2100-2350 kg with 6.1-7.3% fat.

Immunogenetic studies of the Yakut cattle have shown the elimination of rare blood groups in the three subpopulations of this isolated cattle group. The spectrum of the erythrocyte antigens of 458 Yakut animals at Leninski state farm was as follows: in the A-system the blood group A~ was found to have a frequency of over 0.5 as had O<sub>2</sub>, O, and Y., in the B-system, C, , X<sub>2</sub>, 1/ and E in the C-System and U<sub>2</sub> and H in the S-system. The Yakut cattle have the smallest allele fund (about 2S alleles in the B-locus).

Blood type analysis showed the common origin of the subpopulations in the areas of Sakkyryr and Kustur in Verkhoyansk district. The assessment of the genetic distance of these subpopulations confirmed the stability of the indicators by the 9 simple loci for two consecutive generations. Based on the B-system the genetic distance decreased from 0.13 to 0.09 over generations as a result of increased migration of animals between subpopulations.

Because the local Yakut cattle exhibit resistance to tuberculosis, leucosis, brucellosis and to the cold northern climate and poor feeding, local bulls should be used for back crossing in the crossbred herds in order to increase the number of pure Yakut cattle. It may be expedient to use Yakut bulls for commercial crossing with imported breeds (Kholmogory and Simmental) to obtain animals with good adaptive abilities.

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