

RED STEPPE (Krasnaya stepnaya)

There is no single view on the origin of Red Steppe cattle. It is known that it was formed as a local breed in the middle of the 18th century. One group of investigators see the origin of Red Steppe cattle as linked with the movement of settlers from various areas of Germany to the south of the Ukraine. They assume that the founders of these cattle were the Franconian, Brown and other German breeds. There are also references to a Tyrolese and Polish Red origin. Another group of investigators believe that the common type and productivity point to a link between the Red Steppe and the Angeln and Red Trondheim breeds. Some experts think that the East Friesian breed considerably influenced its formation. But there is no doubt that the local cattle in the south of the Ukraine, especially the Ukrainian Grey, played a considerable part in the formation of Red Steppe cattle. This is the basis for the statement that the Red Steppe are of local origin.

Late in the last century, to improve the exterior, beef qualities and milk production, the crossing of Red Steppe cattle with foreign improved breeds was started. After the 1917 Revolution breeding farms and the State

breeding stations for Red Steppe cattle were set up. Of great importance for the improvement of this breed was the establishment of the herdbook in 1923. The experience of several individual farms in selecting and propagating the best animals of this breed was summed up and their work was centralized.

At present, the majority of Red Steppe cattle are in Donetsk, Zaporozhye and Crimea regions. Other areas of concentration are western Siberia and Kazakhstan.

In conformation Red Steppe cattle are considered to be of a dairy type; they have poorly developed muscles and low live weight. The head is light, moderately long. The neck is long, narrow and bony; the dewlap is usually undeveloped. The chest is fairly flat and not deep. Forequarters are commonly poorly developed. The withers are pointed; the back is long and fairly level; the loin is well developed. The rump is not well developed; some animals have sloping and pointed hindquarters. The legs are strong and straight. The udder is of medium size, glandular, proportionally developed, with loose skin.

Coat colour is red of various shades from light to dark. Some animals have white markings on the lower barrel, legs, abdomen, dewlap and udder. The bulls are usually darker in colour than the cows. The basic measurements of mature cow are (in cm): withers height 128-132, chest depth 68-71, heart girth 184-190, oblique body length 155-160, cannon bone girth 18-19.

The live weight of calves at birth is 30-34 kg; that of mature cows is 480-520 kg (maximum 700 kg) and bulls weigh 750-850 kg.

The Red Steppe cattle form a population of animals adapted to a specific environment, namely the markedly continental climate in the south of the Ukraine. It is the most numerous breed in that Republic (5.4 million).

After the end of the Second World War three zonal types, namely: Zaporozhye, Donetsk, and Crimean were formed within the breed. The Zaporozhye type have high milk production; the Crimean type cows combine high milk yields with high fat content; the Donetsk animals combine high milk production with high live weight.

One of the leading breeding farms that deals with the breeding and improvement of the Red Steppe breed is the Diktatura breeding station in the Donetsk region. On 1 January 1983 the farm had 2180 head of cattle, including 800 cows. The cattle are characterized by heavy weight, harmonious conformation and ability to increase milk yields to meet the requirements of machine milking. The average daily gain of the young stock exceeds 700 g. By the age of 18 months the heifers reach a live weight of 380-400 kg. In the last decade the milk yield has been constantly increasing: in 1982 the herd average was 4678 kg of milk. In Dzerzhinski state farm in the Crimean region milk yield in 1983 was 4037 kg with 4.02% fat.

Volume 84 of the National Herdbook of the Red Steppe cattle (1983) contains the data on 563 purebred animals, including 424 cows. The average 305-day milk yield of these cows was 4385 kg with 3.94% fat. Milk yields vary from 3383 to 8375 kg and fat content from 3.70 to 5.31%.

The book of high producing Red Steppe cattle (1982) reported data on 2018 record holders that produced during 305-day lactations more than 6000 kg of milk with fat content of 3.7% or more. The majority of high producing cows were raised and milked at the breeding farms Kirov in Zaporozhye

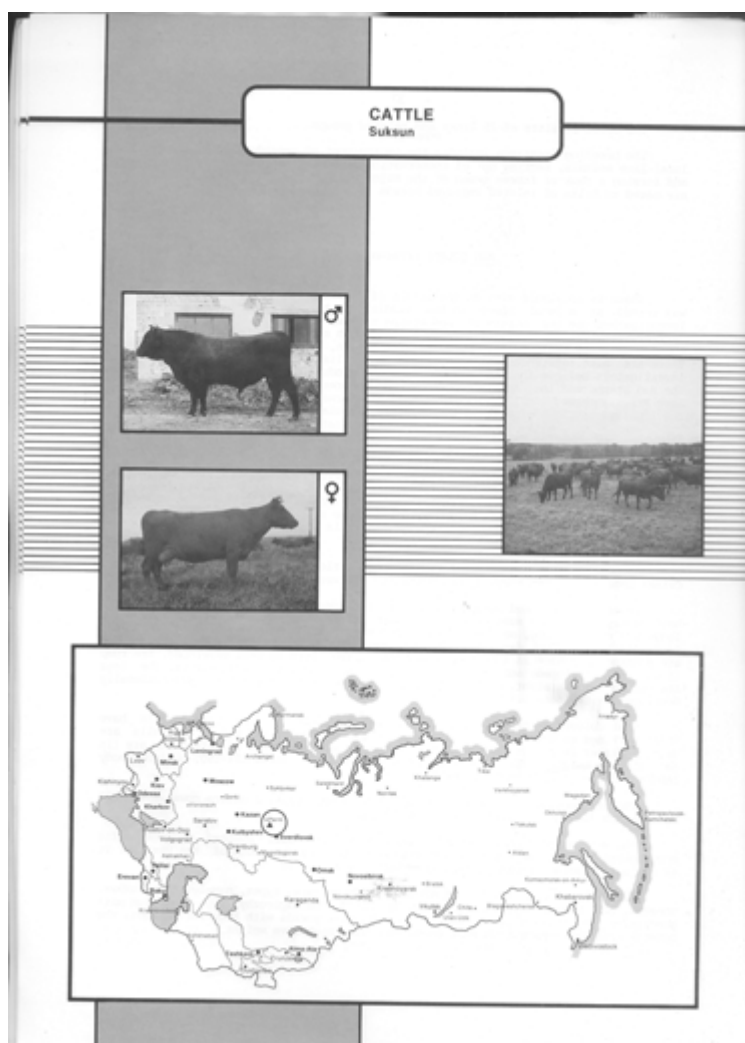
region, Diktatura in Donetsk region, Chervony Shakhter in Dnepropetrovsk region, Ventsy-Zarya in Krasnodar territory, Shirokoye in Crimea region and Karagandinski in Karaganda region.

During the last 50 years, 14 record holders have been recorded with milk yields of over 10 000 kg in a 300-305-day lactation. The average milk yield of these cows was 10 354 kg with 3.69% fat; the average live weight was 612 i.e. 1691 kg of milk per 100 kg live weight. There were 32 record holders with milk yields of 9000-9999 kg. The unbeaten prize winner is cow Moroshka 201 from Karagandinski farm with 12 426 kg of milk and 3.82% fat; cow Burya 6070 from Proletarski Borets . collective farm in Zaporozhye region produced 10170 kg milk with 4.0% fat and 407 kg fat.

When comparing the red breeds by the proportion of the 10 most widespread B-alleles of the blood groups, the Red Steppe and Danish Red breeds are found to be similar. They have four common alleles (BO_1Y_1D' , BO_1 , BP' and Y_2Y') out of the basic ten. Yet, Gorbatov Red cattle have a large number of B-alleles that are not observed in Danish Red cattle. This allele range is the result of involvement of the other breeds that participated in the formation of the Red Steppe.

The Red Steppe cattle population consists of 24 lines (1193 bulls).

The improvement programme plans to improve the constitution of Red Steppe cattle in all breeding zones, to increase size, milk production and fat content and to improve the technological characteristics.



SUKSUN (Suksunskii skot)

The formation of the Suksun cattle began in the second half of the 19th century and it is linked with setting-up of a copper-smelting plant in the settlement of Suksun in the former Perm province. Favourable conditions of feeding, the use of Danish Red animals for crossing with the local cattle and strict selection of the offspring from the best cows helped to form the Suksun cattle as an individual population. By the end of the 19th century these cattle were noted for good milking qualities and high butterfat content. Early in the 20th century Danish Red and Angeln sires were imported again for crossing. Later (1933-38) the Suksun cattle were influenced by the Red Steppe, Latvian Brown and Estonian Red breeds. The modern Suksun cattle have a high frequency of BO_1Y_1D' and Y_1Y' blood antigen alleles. These are characteristic of the Danish Red and Latvian Brown breeds.

At present, Suksun cattle populate Suksun, Perm, Ordyn, Kishert and Uin districts of Perm region. The principal breeding zone of this breed is the Suksun district where these cattle are approved as a planned breed. During

the last two decades the number of the Suksun cattle has declined from 49 000 head to 20 000.

The modern Suksuns have strong constitution and compact conformation. The head is light; the neck is medium long; the chest is deep, but often narrow; the back and loin are level and wide; the rump and hindquarters are usually level, sometimes slightly raised; the body is moderately long; the skeleton is medium strong; sickle-hocked legs are frequent. The muscles are not well developed. The hide is thin and elastic. The udder development is satisfactory: 9.8% of first-calf heifers have a tub-shaped udder, 76.8% have a cup-shaped one, and 13.4% have a spherical udder. Coat colour is usually red of various shades.

The conformation of the cows at Suksunski breeding state farm is characterized by the following measurements (in cm): withers height 129.3, chest depth 66.1, oblique body length 155.3, heart girth 203.6, cannon bone girth 20.7.

The average live weight of cows is 480 kg; that of bulls at the age of 3-4 years is 768 kg; 5-year-old and older bulls average 922 kg. Bull calves weigh 30-32 kg at birth, heifer calves 27-28 kg.

Experiments have shown that the most desirable type of Suksun cows is wide, deep and compact. The milk production of such cows is higher, the lactation curve is more even and the quantity of milk fat per 100 kg of live weight is higher.

According to the 1982 evaluation mature Suksun cows (5160 head) had a milk yield of 2162 kg with 3.71% fat. The milk production per 100 kg of live weight was 522 kg. The conservation herd of 1226 cows at Suksunski breeding state farm in Perm region in 1982 averaged 2528 kg of milk with 3.88% fat. The limited number of animals in the herd results in an increase of inbreeding which has an adverse effect on their production: an increase in the inbreeding coefficient of 1% results in a decrease in milk yield of 21 kg per lactation.

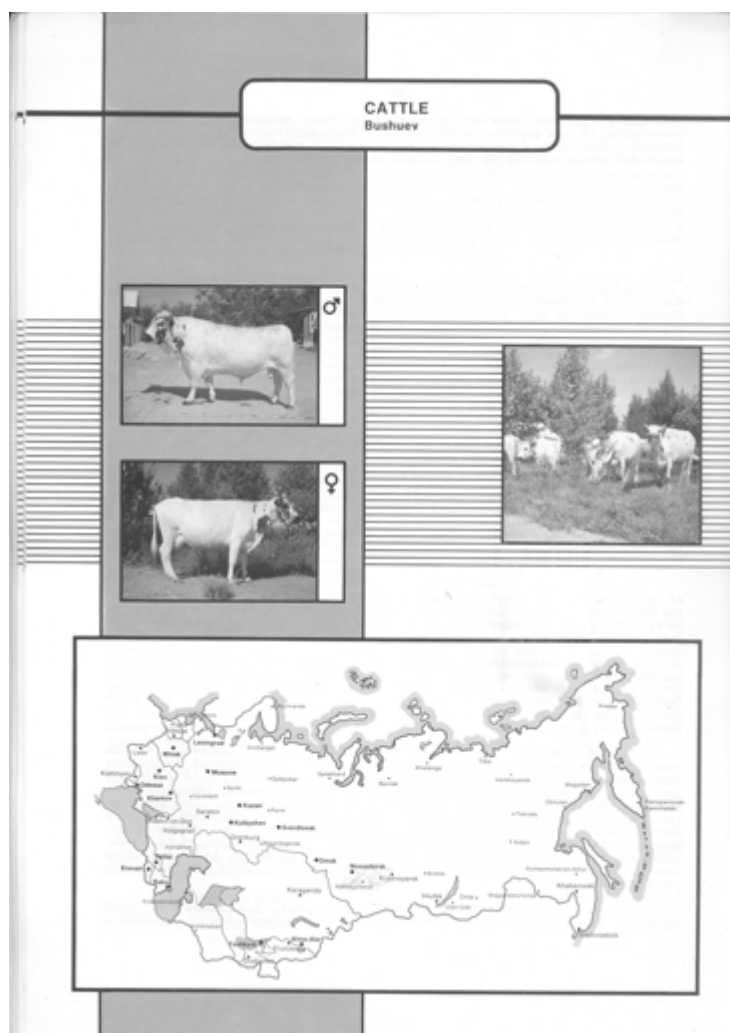
The genetic potential of Suksun cattle is illustrated by the milk yields of the best cows: Knyazhna 4588 - 4th lactation, 8875 kg milk, 3.96% fat; Bomba 970 - 3rd lactation, 7070 kg milk, 3.97% fat; Groza 18 - 4th lactation, 6423 kg milk, 3.98% fat; Yedinstvennaya 2052 - 4th lactation, 6048 kg milk, 4.59% fat.

In 1966 a group of 36 cows with average butterfat content of over 4% and an average milk yield of 4100 kg was selected on the selection farm Suksunski. Under the improved feeding and management conditions the next year the cows averaged 5260 kg of milk with 3.84% fat. The milk production increase over one year was 28.3%. Later the numbers of selected cattle at the farm increased to 90-100 head, but feeding became rather worse. Nevertheless, during the period that followed, the milk production at this farm has been stable at the level of 3.5-4.5 thousand kg per cow, which exceeds the average figures at this establishment by 500-1000 kg.

The most valuable characters of Suksun cattle are as follows: adaptation to the severe climatic conditions of the Central Urals, high resistance to many hazardous diseases (tuberculosis, leucosis, etc.), compact conformation. Suksun cattle consist of three genealogical lines: Kazakhstan 1371, Lebed 1507, Yeruslan 267 and two related groups: Tur 55 and Tir 66. The founders of the first three lines carried the genes of the Latvian Brown and

of the local cattle, and the latter two have the genes of the local cattle and the Danish Red. In recent years the bulls of the Estonian Red breed have become widely spread: along with the sires of the Tir 66 related group they represent the genealogical line of Danish Red bull Loke 4323. The first calf heifers from the related group of Tir 66 at Suksunski pedigree state farm, where the animals of all lines and related groups are concentrated, boast the best milk yield, that is 3002 kg of milk with 3.93% fat.

The unique germ plasm of the Suksun cattle is currently concentrated in Suksun district of Perm region. A store of deep-frozen semen of sires of all lines has been established at the All-Union Institute for Livestock Breeding and Genetics. Outbreeding with line rotation is being used. These measures will ensure the conservation of the genetic variety of this small population with no danger of inbreeding depression. Suksun cattle should be selected according to the same plan as Danish Red cattle treating the Suksun breed as their Ural branch.



Other Dairy Breeds BUSHUEV (Bushuevskaya)

The Bushuev cattle originated in the Golodnaya Steppe, Syr Darya and Gulistan districts of Syr Darya region of the Uzbek SSR. They spread to many districts of the Tashkent region, as well as to farms of Samarkand, Fergana, Surkhandarya and other regions. The history of Bushuev cattle is associated with the development of the Golodnaya Steppe which started with its settlement early in this century. Many settlers bred imported European cattle. But the severe conditions of this area with the harsh continental climate, intense solar radiation, eccentric atmospheric pressure, and piroplasmiasis in most of the intensively cultivated areas, required the creation of a breed adapted to the local conditions.

The founder herd was formed at the farms of the Vedenski and Golodnaya Steppe experimental station, set up during 1906-18 by M.M. Bushuev. The local zebu cattle were crossed with Dutch and Swiss Brown bulls and some Simmentals and the best crosses were bred inter se. The young stock produced at the farm were distributed among the peasant farms. During 1932-48 to increase milk production most of the cows at the breeding farms

were crossed with purebred and crossbred East Friesian sires under conditions of reduced feeding. It had a bad effect on the development and improvement of Bushuev cattle. The number of pedigree cattle was dramatically reduced, milk production and live weight did not increase and the fat content decreased considerably. In 1948 the crossing was stopped and since then the cattle have been bred inter se. Since 1953 the improvement of the cattle has been done under the auspices of the Uzbek Animal Breeding Research Institute.

At present, in accordance with the plan, Bushuev cattle are bred on the farms of Syr Darya, Gulistan, and Voroshilov districts in Syr Darya, Tashkent, Samarkand and Khorezm regions of the Kara-Kalpak ASSR and the Uzbek Republic. The majority of these cattle (86%) are concentrated in Syr Darya region. The total number was 21 000 head in 1980.

The best animals of the breed (over 6000 head, including more than 2000 cows) are kept at Krasni Vodopad experimental farm of the Uzbek Animal Breeding Research Institute, at Pervomaets-2 breeding centre in Gulistan district, at the breeding farms of Ilyich, Akhunbabaev, Pravda and Lenin collective farms of Syr Darya district, and of Gulistan and 50 Let SSSR state farms in Voroshilov district of Syr Darya region.

The most important feature of Bushuev cattle is their adaptation to the specific natural and climatic conditions of the habitat. The climate of the breeding zone of Bushuev cattle is markedly continental. The vegetation period is 210-220 days (from the end of March till the end of October). Ephemerals, including sagebrush, prevail in the vegetation cover of the Golodnaya Steppe area. They are noted for their short vegetation period and for the uncertainty of fodder crops with high nutritional value of the major species, namely desert sedge and meadow grass. Russian thistle varieties (Bolykhkuz and Azherek) are common on saline plots. Rush, tamarisk, willow and Elaeagnus grow on solonchaks (saline soils) in the Syr Darya river valley. Fodder crops on the arid spring pastures do not yield more than 500 kg per hectare.

The modern Bushuev cattle, like their zebu ancestor, are resistant to blood parasites. When grazed in tick-infested areas Bushuev cows remain healthy, produce a normal amount of milk and calve regularly. Occasional mild cases of piroplasmiasis affect mainly the crossbreds.

This breed is ermine-coloured, i.e. white with black spots on the skin, black ears and rims around eyes, and a black band around the muzzle. The colour remains stable even when the animals are crossed with other breeds. Study has shown that a white hair cover in combination with pigmented skin considerably increases adaptation to the hot climate: the white hair cover reflects the solar radiation and the pigmented skin promotes heat emission. Even at the hottest time of the day, when air temperature is 40-46° C and relative humidity 15-20%, the animals do not need shelter and feel well. Cows with an annual milk yield of 3000 kg or more have 52% more sweat glands per square centimetre and these are 18-31% larger.

The constitution of Bushuev cattle is strong; the exterior is harmonious. They have a medium live weight, deep chest, strong skeleton and well-developed muscles. The udder is well developed; the udder girth of pedigree cows is 90-115 cm, its length 30-35 cm, and its width 22-26 cm or more. The basic measurements of mature cows (in cm) are: withers height

122.8, chest depth 65.1, oblique body length 147.3, heart girth 177.5, cannon bone girth 17.0 (National Herdbook, vol. 2, 1982).

The exterior defects of Bushuev cows are as follows: sloping, narrow hindquarters, underdeveloped chest, poorly developed musculature, small udder (Mustafayev 1982). Newborn heifers weigh 22-30 kg, at 6 months 115-162 kg, at 18 months 280-300 kg; male calves weigh 25-30 kg, 127-180 kg, 300-350 kg at the same ages. The average live weight of mature cows is 380-450 kg; pedigree cows weigh 450-500 kg and mature bulls 750-850 kg.

The young steers are noted for their rapid growth rate and good veal.

According to test slaughter, the average weight of the fresh carcass of a 1.5-year steer was 200 kg. The dressing percentage averaged 61.7.

The milk production of all cows evaluated in 1981 averaged 2493 kg and the fat content was 3.91%; the pedigree stock produced 2693 kg of milk per head with 4.06% fat. At the best farms of the Syr Darya state breeding station in 1980 the milk yields reached 3000 kg and over. The high potential of Bushuev cattle has been proved at some farms of Syr Darya district where the milk yields are 4100-4354 kg per cow.

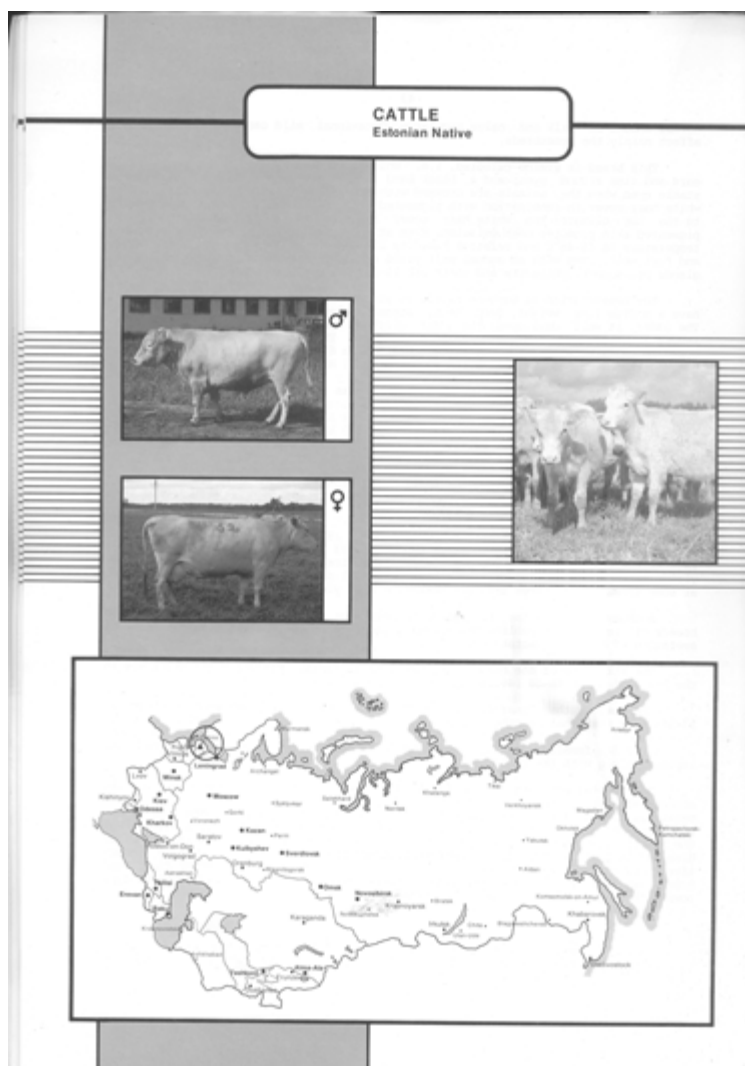
Bushuev cows are the top record-holders for fat content among the approved breeds of the Uzbek Republic. The breeding stock is noted for its high fat content averaging 4% over all lactations.

The structure of the breed comprises 5 major lines. Most breeding stock are in the lines of Gusar TE-10 (46.1%) and Record TE-10 (30.2%).

The cows of the Gusar line have the highest milk yield averaging 3516 kg or 17-24% more than that of other lines.

Over 30 female families, including 20 promising ones, have been formed and improved along with the basic lines.

The further progress of the breed is impeded by its small numbers and by the absence of highly productive breeding herds. To preserve this germ plasm it is necessary to increase numbers by pure breeding and by setting up a semen bank of the best sires of all existing lines. To increase the efficiency of breeding a study of the natural resistance of the cattle to leucosis, tuberculosis, mastitis and other diseases is being conducted. To increase milk production and to breed highly productive lines a single mating to sires of the Holstein-Friesian or the Dutch Black Pied breeds is admissible. The possibility of breeding new lines by crossing zebu-type cows with Dutch bulls should also be considered.



ESTONIAN NATIVE (Mestnaya estonskaya)

This is a native breed but as a result of efficient selection it has reached a production level characteristic of improved breeds. Organized improvement of the local cattle in Estonia began in 1909. At that time the aim was to breed dairy cattle of medium size, rugged constitution, hardy, with high milk production and fat content, economical, polled, and of yellowish or red colour. Since 1914 the best animals have been entered in the herdbook. After the Second World War the population of the Estonian Native cattle decreased considerably and the breed was on the verge of dying out as a result of inbreeding. To stop this, crossing with Jersey and Finnish bulls was undertaken during 1955-67.

At present, the breed numbers 2000 head (1980). Most of the breed are kept at three farms of the Estonian SSR, namely Pyarivere state farm and Vakhenuurme collective farm in Pärnu district and Lekhtse collective farm in Pärnu district.

The breed is mainly polled. The colour varies from yellow-brown to red; the bulls have darker back and body. The head is light, small, of medium length,

with a narrow forehead. The neck is thin and of medium length. The chest is medium wide and sufficiently deep. The back is level. The hindquarters are long and often roof-shaped. The hind legs are often cow-hocked. The udder is capacious, with equally developed quarters, frequently of roundish or tub-like shape. The constitution is delicate and the conformation compact. The muscles are often not well developed. The measurements of the cows (in cm) are: withers height 124.9, chest depth 66.2, chest girth 186.4; live weight is 519 kg.

The milk yield of Estonian Native cows is little less than that of the principal improved breeds of Estonia and the fat content is higher. In Pyarnu district in 1976 10 530 Estonian Red cows produced 3276 kg of milk with 3.78% fat; 12 404 Black Pied cows produced 3616 kg of milk with 3.83% fat; 680 Estonian Native cows produced 3444 kg of milk with 4.45% fat. In 1977 the average milk yield of 519 Estonian Native cows was 3799 kg with 4.45% fat. The highest milk yield of cow Medi EK 1031-E was 6209 kg with 4.75% fat; cow Ekha EK 1201-E over a lifetime of 15.5 years produced 67 931 kg of milk and 3043 kg of fat; cow Miya produced during a 305-day lactation (the 5th) 5621 kg of milk with 5.87% fat; cow Neazi produced in the 3rd lactation 6951 kg of milk with 4.40% fat; cow Nyapi produced in the 1st lactation 5718 kg of milk with 4.14% fat.

At present the breed consists of 10 lines or related groups.

The plan for these cattle envisages pure breeding at the state farm Pyarivere of the Estonian SSR to preserve the breed. The importance of this breed is based on such valuable characteristics as high milk production, high butterfat content, resistance to tuberculosis and leucosis, hardiness and adaptation to the local environment and low food consumption per unit of production.

Estonian Native cattle are indispensable for crossing because they can transfer their distinctive characters to other breeds.