



# Systems and features of ungulate management

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# 1. Systems and methods of sheep management

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The following management systems are used in sheep and goat breeding:

- Indoor and pasture management
- Pasture and indoor management
- Pasture management
- Year-round indoor management





## Indoor and pasture management system

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- Indoor and pasture management is distinguished by the prevalence of the indoor period. This management system is used mainly in the northern regions of Russia (Western Siberia, Cis-Urals, Urals, and the Far East).
- In continental climates, permanent, insulated structures (sheep barns) are built. It is mandatory to arrange winter shelters, with a capacity of 25–30% of the total number of ewes.





## Pasture and indoor management system

- Sheep are primarily kept on pasture and only brought indoors during the coldest months and under unfavorable weather conditions.
- This system is used in southern, south-eastern, and semi-desert regions of Russia (North Caucasus, Transcaucasia, Lower Volga Region, and Trans-Urals).





## Pasture management system

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- Year-round pasture management of sheep is common in the Lower Volga Region, Eastern Siberia, North Caucasus, and southern Russia. In these regions, there are sufficient pastures suitable for winter grazing.





## Year-round indoor management system

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- It is used in intensive farming zones with well-developed field fodder production in the absence of own pastures. When using this system, sheep and goats indoors and in paddocks in the winter, and just in paddocks in the summer.





## 2. Hygiene of indoor management

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- Insulated sheep barns are built for winter sheep keeping in Russia's central and northern areas, while sheds, bases, or covered corrals are built in the southern regions with warm, short winters (fly camps are used).





## Hygiene of indoor management

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- Open bases (usually on the south side) for daytime keeping of sheep are built near sheep barns and sheds. Their total area is 2–2.5 times larger than that of a shed.







## Hygiene of indoor management

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- Wooden or metal panels are used to divide the indoor space into catching pens and to create paddocks for animals of different sex and age groups.
- The length of the panels may vary; more often, it is 1.0–1.5 m or 3 m; the height is 120 cm.





## Sex and age groups of sheep and goats

There are the following age groups in sheep breeding:

- Stud rams and teaser rams older than 1.5 years
- Ewes (barren, pregnant, and nursing)
- Lambs (ram lambs, ewe lambs, and wether lambs) up to 4–5 months of age
- Replacements (ram lambs and ewe lambs), fattening by grazing
- Additional replacements (ram lambs and ewe lambs), fattening by grazing
- Adult culled animals





# Microclimate of sheep housing

Microclimate parameter	Sheep barns; premises for rams, ewes, weaned lambs, and wether lambs	Maternity barn in a winter shelter	Fattening station	Service pen, artificial insemination stations
Temperature, °C	6 (3–6)	10 (8–16)	12 (10–18)	16 (13–17)
Relative humidity, %	75 (50–80)	70 (50–75)	70 (50–75)	75 (50–30)
Air exchange rate, m <sup>3</sup> /h per head:				
in winter	0.3	0.2	0.2	0.5
in transition period	0.5	0.3	0.2	0.5
in summer	0.8	0.5	0.3	0.8
Permissible concentrations of harmful gases:				
carbon dioxide, %	0.25	0.2	0.2	0.25
ammonia, mg/m <sup>3</sup>	0.02	0.01	0.01	0.01
hydrogen sulfide, mg/m <sup>3</sup>	0.01	Trace amounts	Trace amounts	Trace amounts
Permissible microbial contamination, thousand microbial bodies per 1 m <sup>3</sup> of air	Up to 70	Up to 50	Up to 50	Up to 5

# Space requirements for different sex and age groups when kept together



Stud rams and goats	2.0
Replacement ewes	0.8
Pregnant ewes	1.0
Ewes with lambs	2.2
Adult animals at fattening	0.5
Young stock at fattening	0.4





## Equipment inside sheds

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- Feeders and watering troughs are installed in sheep barns and at bases. Sheep are kept on permanent deep litter.





### 3. Hygiene of pasture management

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- Sheep and goats are sent out to pasture in the spring once the soil has dried thoroughly. Sheep trample wet areas, destroying the sward. When the weather is cold at first, sheep are driven to sheds overnight, and once the weather warms and stabilizes, they are kept in the pasture around the clock.





## Hygiene of pasture management

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- Dry pastures with small plants work best for sheep and goats.





## Hygiene of pasture management

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- During grazing, sheep and goats must be offered salt and salt licks. They need it for mineral metabolism and normal digestion. Salt is placed in shallow troughs located near the watering place.







## 4. Hygiene of wool sheep

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- Shearing begins when the weather turns warm, windless, and dry. Only completely dry sheep can be sheared. Shearing rooms should be spacious, light, and well-ventilated.





## Hygiene of wool sheep

- Shearing requires a special platform (table) with a height of 0.5–0.6 m and a width of 1.4–1.5 m; each shearer requires at least one square meter of floor space. Several pens for shorn and non-shorn sheep are made of portable panels should be made in or near the shearing room.





## Hygiene of wool sheep

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- Several pens for shorn and non-shorn sheep are made of portable panels should be made in or near the shearing room.
- Sheep are not fed or watered before shearing because shearing disrupts bowel movement, as well as slows down and disturbs the function of other digestive organs, which frequently results in tympany.





## Hygiene of wool sheep

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- For veterinary and sanitary reasons, healthy sheep are sheared first on each farm. The room, equipment, and shearers' garments are disinfected after shearing sheep with scab, as well as to prevent infectious and invasive diseases.





## 5. Hygiene of dairy goats and sheep

- Machine milking increases labor productivity, makes work easier, improves the sanitary and hygienic characteristics of milk, and extends lactation.
- Machine milking equipment (milking unit) consists of a milking machine, vacuum piping and pump, a box with a width of 35–40 cm and a depth of 70–75 cm, a restraining device, a milk tank, a system for washing the equipment, and milking control and management equipment. The milking time for one sheep or goat is 50–70 seconds. It is not recommended to continue milking for more than 90 seconds.





## Hygiene of dairy goats and sheep

- There are two ways of hand milking sheep and goats: from behind and from the side. Milking from behind (milking with bumping) includes three sequential steps: bumping, milking out, and aftermilking.

Primary milk processing:

- Filtration
- Cooling to 3–4 °C





## 6. BREEDS

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- **Kerry Hill.** Long-thin-tailed meat and wool sheep. The breed derives its name from the village of Kerry in Montgomeryshire, Wales. The first mentions of the breed date back to 1809. The breed is well-suited to climates with wide temperature variations. The sheep are hornless, with distinct black and white spots on the face and legs, and black nose. The ears are set high; the ribs are rounded; the hind quarters are well-formed. The legs are strong, well-set, without fringe. The live weight of ewes is 45–50 kg; the carcass weight of lambs at 4 months of age is 15–17 kg. The fleece is white and thick. The amount of washed wool shorn is about 2.5 kilograms. The staple length is 7.5–10 cm, with a Bradford count of 48 to 56. The ewes milk well. The lambing percentage is 120%. Kerry Hill ewes are interbred with meat rams to produce meat lambs.

# Kerry Hill



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LANDSCAPE**





# Alpaca

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- **Alpaca.** The height at the shoulders is up to 1 m, and the live weight is no more than 70–80 kg. The alpaca has a flattened, rounded muzzle, a long neck, short pointed ears, big eyes with long lashes, a shaggy foretop, a cleft upper lip, and long legs. The upper jaw of the alpaca has no incisors, but the lower jaw has two incisors that are constantly growing (similar to rodents). The vicuña, the wild ancestor of the alpaca, has the same trait. In the case of overgrowth, the incisors are clipped. Adult male alpacas grow crooked canine teeth. It is recommended that they be removed or clipped to prevent animals from mutilating one another. Alpacas are ruminants, although they only have two forestomachs instead of three (they don't have an omasum). When ruminating, the alpaca lies down and tucks all four legs below.
- The alpaca has a unique limb structure. The alpaca has two fingers on each leg, with callous pads and blunt claws. Domestic alpacas get their claws trimmed from time to time (approximately twice a month), similar to a manicure. Thanks to this leg structure, the animals do not trample pastures, unlike goats, sheep, and cattle. They have a life expectancy of up to 25 years.

# Alpaca



Alpacas and llamas are rarely found on farms, and that's a shame!  
These animals are very beautiful, have a good temper, and are resistant to most livestock diseases.

# Cameroon dwarf goat





## Cameroon dwarf goat

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- **Cameroon goat.** The Cameroon goat has a wedge-shaped, elongated body that widens towards the tail, which is characteristic of dairy breeds. Male and female goats may have small sickle-shaped horns which curve backwards, but most breeders dehorn the animals. Some Cameroon goats are hornless. The Cameroon goat has slender, well-proportioned, short legs with small, neat amber-colored hooves.
- The height at the shoulders in adult males is 55–60 cm.
- The height of adult females is 40–52 cm.
- The weight of males is up to 30–45 kg.
- The weight of females is 15–20 kg.
- The weight of baby goats at birth is 450–400 g.
- The length of the body is 50–70 cm, including the tail.
- The fleece is of medium length. The fleece color varies from white or slightly caramel to dark brown and even gray-brown or coal-black. The Cameroon goat has medium-sized upright pointing ears; both males and females may have beards, and females may also have wattles.



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**Thank you!**