

CHAPTER TWO

Breeds of Sheep and Goats

Kassahun Awgichew and Solomon Abegaz

Objectives

1. To identify some important indigenous breeds of sheep and goats in Ethiopia.
2. To describe the main features of important indigenous breeds of sheep and goats in Ethiopia.
3. To describe some important breeds of sheep and goats that were introduced earlier or have the potential to be introduced into Ethiopia and the advantages and disadvantages of their introduction.
4. To explain important parameters for meat, milk, fiber and skin production.
5. To describe some important breed identification parameters.

Expected outputs

1. Knowledge of the descriptions and types of sheep and goats in Ethiopia.
2. Understanding of some breed identification parameters.
3. Knowledge of the purpose and advantages of breed introduction.
4. Understanding of measures to be taken in breed importation and use.

2.1. Origin, Domestication and Distribution of Sheep and Goats

2.1.1. Sheep

Sheep (*Ovis aries*) are believed to have been among the first animals to be domesticated, preceded by the dog and goat. The domestication of both sheep and goats probably dates back to the pre-settled agricultural period. It is also believed that most domestication took place in western Asia where the majority of the present day small ruminant breeds likely originated. Existence of some ancestral stock of wild sheep extends from western Europe to China. These are:

- the *mouflon* of Europe, the Middle East (Asia Minor), and western Iran,
- the *urial* of western Asia and Afghanistan,
- the *argali* of central Asia, and
- the *bighorn* of northern Asia and North America.

It is assumed that the majority of today's domestic sheep breeds descended from the *urial* which is currently found in central Asian countries and in northern Iran extending up to Tibet and northern China. The hair sheep of Africa and Asia are thought to have descended mainly from the *urial*. The *argali* is believed to have played a significant role in the development of domesticated sheep of India and the Far East.

In Ethiopia, there exists a great variation in climate and topography, harboring diversified livestock species which also have variability among themselves. The sheep found in Ethiopia could fall into different breeds and types whose habitat ranges from tropical to temperate environments. The present fat-tailed sheep of Ethiopia that are believed to have replaced the original African long-thin-tailed sheep came from Asia through the Strait of Bab El Mandeb.

Although sheep were domesticated as dual purpose animals to produce wool and meat, early people would have valued sheep milk as well.

2.1.2. Goats

Goats (*Capra hircus*) are believed to be the second animal domesticated following the dog. It is also believed that the first goats reached Egypt around 5000 B.C. and then spread south and west throughout Africa. African goats could be grouped into three main families: the Dwarf goats of West and Central Africa, the Savannah goats of sub-Saharan Africa and the Nubian type goats of North Africa. The parents of the Nubian goats came from Asia. It is assumed that the first wave of goats entered Ethiopia from the north between 2000 and 3000 B.C. The ancestors of Ethiopian goats are closely associated with goat types which migrated from the Middle East and North Africa. According to earlier characterization work, indigenous Ethiopian goats have been phenotypically classified into 11 types while a recent genetic characterization showed only eight distinctively different types (Tsfaye, 2004).

The indigenous goats of Ethiopia are found in all agro-ecological zones of the country. It is believed that these goats have evolved through a process of natural selection that resulted in goats selected for adaptation and survival rather than production *per se*. Ethiopian goats in the lowlands are highly valued and reared mainly for milk and meat production. In the highlands, goats are mainly kept for meat. Goats are also sources of manure, valuable skins and cash income.

2.2. Ways of Classifying Breeds

Identification, characterization and documentation of sheep and goat breeds is important for any type of development or improvement work. Without such documentation it would be difficult to know the animals and their potential.

A modification of the FAO sheep and goat breed descriptors list (FAO, 1986) could be adopted for use in identifying both species in Ethiopia. In addition to FAO's descriptors, tropical goat breeds could also be classified according to their height at withers (Devendera and Mcleroy, 1982). These methods are useful to list both qualitative and quantitative morphological characteristics and other variables. This serves as a Master Record where physical characteristics of breeds within species are recorded. The main elements of the Master Record are presented in Table 2.1.

Table 2.1. Example of a Master Record showing main elements to be considered in developing a master record for description of sheep and goat breeds.

No.	Part of breed master record
1	Breed name (<i>if listed in Mason's World Dictionary of Livestock Breeds, types and varieties</i>)
2	Breed name (<i>local or other synonyms</i>)
3	Classification (<i>for goats</i>): <ol style="list-style-type: none"> a. Short-eared with small or no horns b. Short-eared with twisted horns c. Long-eared, hornless c. Long-eared, horned d. Height at withers (<i>large, >65 cm and weighing 37–50 kg; small, 51–65 cm and weighing 26–36 kg; dwarf, <50 cm and weighing 18–25 kg</i>)
4	Strains (or within breed types or sub-types)
5	Use: for meat, milk, skins, fiber, manure or other (specify)
6	General information and breed description: <ol style="list-style-type: none"> a. General information and breed description b. Region, Wereda, zone and population data (population size, annual population trend: +%; -% or unknown) c. Flock size (communally owned, smallholders, commercial or government farms) d. Origin of breed if known (indigenous, exotic); if exotic, from which country or region was it imported?
7	Coat color (% of surface area for both males and females)
8	Head (Profile: straight, slightly convex, markedly convex-Roman nose for both males and females)
9	Ears (erect, pendulous, semi-pendulous, carried horizontally, vestigial or absent — give % with absent ears)
10	Wattles (sometimes present, always present in both males and females)
11	Horns: <ol style="list-style-type: none"> a. number (males, females: indicate absence by "0") b. shape (straight, curved, spiral, corkscrew) c. orientation (lateral, obliquely upward, backwards) d. size (small, <15cm; medium, 15–25 cm; large, >25 cm)
12	Hair/Wool: <ol style="list-style-type: none"> a. Type (hair or wool) b. Length (12 months-old fleece: short, <5cm; medium, 5–10cm; long, >10 cm) c. Crimp/curl (straight, low crimp frequency: <4/cm, high crimp frequency: > 4/cm) d. Wool cover (give % of sheep in each category): <ul style="list-style-type: none"> Head (covered, bare) Face (covered, partly covered, bare) Belly (covered, bare) Legs (covered to hocks, covered to below hocks, bare)
13	Bearded (males and females): Present or absent (give % in each)
14	Tail (Sheep: males and females) <ol style="list-style-type: none"> a. Type (Thin, Fat rump, Fat) b. Shape of fat tail (cylindrical and straight, cylindrical twisted up at end, broad) c. Length (undocked): short: well above hocks, medium: at or near hocks, long: well below hocks
15	Ruff on brisket and shoulder (<i>males and females</i>) <ol style="list-style-type: none"> a. Present or absent (<i>give % in each</i>)
16	Basic temperament (<i>males and females</i>) <ol style="list-style-type: none"> a. Docile b. Moderately tractable c. Wild

- 17 Conservation status
 - a. Endangered
 - b. Vulnerable
 - c. Rare
 - d. Indeterminate
 - e. Out of danger
 - f. Insufficiently known
 - g. Not at risk
- 18 Drought tolerance (*give grades 1–5, 1 = high*)
- 19 Heat tolerance (*give grades 1–5, 1 = high*)
- 20 Free format breed description field (*description of breed characters may be entered here instead of information under fields 6–15*)
- 21 Record prepared by:
 - a. Name:
 - b. Title:
 - c. Address:
 - d. Institutional Affiliation
 - e. Date of amendment
- 22 Record updated or edited by:
 - a. Name:
 - b. Title:
 - c. Address:
 - d. Institutional affiliation
 - e. Date of amendment

2.3. Ethiopian Sheep Breeds and Their Characteristics

Attempts have been made since 1975 to identify and characterize Ethiopia's sheep breeds or types (IAR, 1975). Unsuccessful attempts have been made to establish elite flocks of identified sheep such as Afar, Blackhead Ogaden (Blackhead Somali), Horro and Menz in research centers and government farms. Other additional breeds/types such as the Washera sheep in the Amhara Region and Arsi-Bale sheep in the Oromia Region have been described to a limited extent. The map in Figure 2.1 shows distribution of some Ethiopian sheep breeds (Solomon Gizaw, 2007) and a sketch of the Red Sea area showing the Bab El Mandeb route of fat-tailed sheep introduction into Africa. .

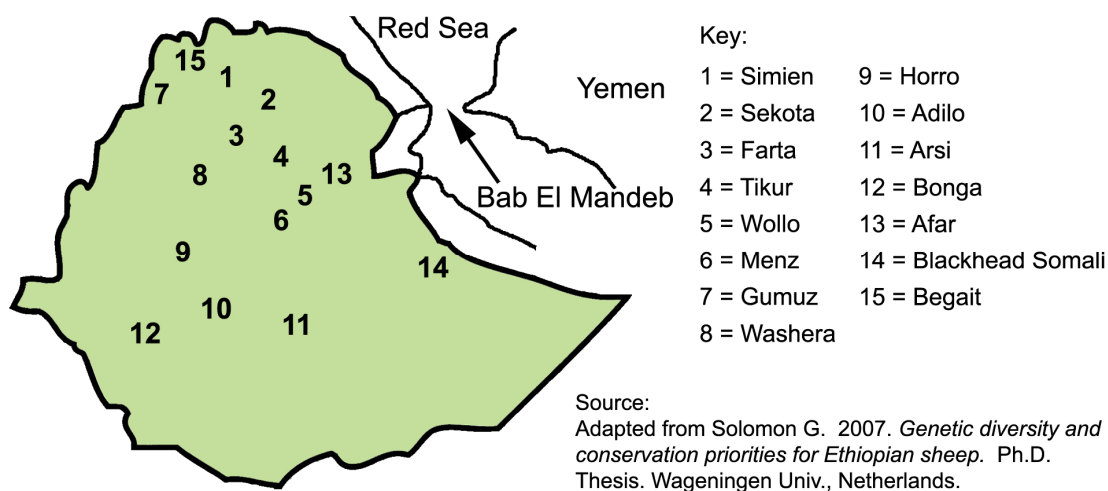


Figure 2.1. Geographic distribution of some of the major Ethiopian sheep breeds

2.3.1. Afar sheep

The Afar sheep formerly referred to as Adal sheep in literature, is a fat-tailed sheep. It is a small-sized breed with mature weight ranging 30–35 kilograms (kg). The natural habitat of the breed is the Middle Awash Valley in eastern Ethiopia, extending as far as Dire Dawa in the east and the town of Bati in the north. The habitat has an altitude ranging 300–1100 meters above sea level (m.a.s.l.), and is between 40 and 42 °E longitudes and 9 and 11 °N latitudes. Rainfall in the area is erratic and annual precipitation ranges from 300 to 700 millimeters (mm). The vegetation is mainly of sub-desert range types consisting of a sparse cover of low shrubs and bush cover, which is currently being invaded by *Prosopis* (an invasive tree species). The Afar sheep are hardy and tolerate periods of drought relatively well as the breed evolved under harsh environmental conditions.

The Afar sheep have small ears and usually have a dewlap and thick layers of fat on the brisket. The fat tail has a wide base and reaches below the hocks. Hair is short and coarse, the predominant color being solid blond with other colors ranging from shaded white to light brown. There are a few exceptions of animals with spotted color patterns and/or dark brown hair. The average observed wither height for adult rams is 66 centimeters (cm) while that for adult ewes is 61 cm. Afar sheep weigh about 2.5 kg, 13 kg and 25.8 kg at birth, weaning (90 days), and one year of age, respectively. Ewe mature weight is about 31.6 kg. Twin births are not common.



Figure 2.2. Afar sheep at Melka Werer Research Center.

2.3.2. Arsi-Bale sheep

Arsi-Bale sheep are fat-tailed and covered with coarse wool (wavy wool). They are widely distributed in the highlands of eastern and south-central Ethiopia, in Arsi, Bale, Hararghe and East Shoa zones of Oromia Region and in many parts of the southern region. The climate in these areas varies from semi-arid to sub-humid with annual rainfall above 1500 mm. The production systems range from agro-pastoral to agricultural and urban. Arsi-Bale lambs weigh 2.7 kg and 14.2 kg at birth and at 120 days (weaning), respectively.



Figure 2.3. Arsi-Bale sheep (in background).



Figure 2.4. Arsi-Bale sheep, Arsi Negele Market.

2.3.3. Blackhead Somali sheep

The Blackhead Somali is indigenous to the Ogaden area of the Somali Region. The breed is also known by various names in eastern Africa and other countries including Blackhead Persian and sometimes as Blackhead Ogaden sheep. It is widely distributed within 42–48 °E longitudes and 3–9 °N latitudes.

The Blackhead Somali is distinguished by the black color of the head. The body is predominantly white but other colors may be observed. The hair is short, stiff and shiny. Both rams and ewes are hornless, though males can sometimes have rudimentary horns. The forehead is convex and the nose tends to be of the Roman type. The ears are short and pointed with an outward-forward inclination. Most animals have a well-developed dewlap which sometimes extends from the chin to the chest with considerable fat deposits. The tail is a fat rump type with a very distinct fat depot having a thin tip sticking straight backward and sometimes hanging down.

There is some undocumented evidence which indicates that there are some Somali clans in the Ogaden who specialize in stud breeding. These clans apply some sort of selection, favoring larger body size and fatter tail and rump. The adult weight of Blackhead Somali ewes is between 30 and 35 kg. The Blackhead Somali sheep are also hardy and well adapted to the dry, drought-prone environments of the Somali and southern tip of Oromia regions. The altitude in the Somali

region is below 1000 m and mostly below 500 m. The climate is dry and arid with erratic rainfall and a mean annual precipitation ranging between 200 and 400 mm. The vegetation is similar to that found in the Afar Region.

2.3.4. Horro sheep

The natural habitats of Horro sheep are the western and southwestern parts of the country. The Horro sheep is widely distributed in areas covering western Shoa to East and West Wollega, Illubabor and Jimma zones of Oromia Region. These areas lie between 35 and 38 °E longitudes and 6 and 10 °N latitudes. Altitude of the area ranges 1400–2000 m.a.s.l.. Mean annual precipitation is between 1000 and 1400 mm. The vegetation of the habitat ranges from broadleaf savannas to woodland and open wooded grassland to forest types.

The predominant color of Horro sheep is a solid tan (light brown). Other colors observed are creamy white, dark brown, and sometimes black and spotted. The body is covered with short, shiny hair. The face profile is straight with a somewhat convex appearance in males. Both rams and ewes are hornless.



Figure 2.5. Blackhead Somali sheep at Jijiga.



Figure 2.6. Blackhead Somali ewe flock at Haramaya University.



Figure 2.7. Horro sheep at Bako Agricultural Research Center.

Horro sheep have a relatively long neck without a dewlap but most have fat deposits below the lower jaw and in the brisket. Wattles are rarely present. The fat tail is triangular with a relatively narrow base and pointed end which hangs downward sometimes with a slight twist, mostly reaching just below the hocks. The rams usually have a mane between the head and brisket and above the neck and shoulder.

Horro sheep are larger than most other indigenous sheep having a mean height of 73 cm and 68 cm at the shoulders for adult rams and ewes, respectively. Horro sheep weigh 2.8–2.9 kg, 13–15 kg and 25–33.5 kg at birth, weaning (90 days), and one year of age, respectively. Ewe mature weight is about 38.2 kg. Twin births are common, sometimes reaching 60% in older (multiparous) ewes. Horro sheep are not only larger in size compared with other indigenous breeds but also seem to be more prolific.

2.3.5. Menz sheep

The natural habitat of Menz sheep is North Shoa and parts of Wollo Zone of the Amhara Region. These areas lie within 39–40 °E longitudes and 10–11 °N latitudes. Altitude in most cases is above 2500 m.a.s.l. with a cold, harsh climate that occasionally has frost, particularly between November and January. The mean annual precipitation is between 900 and 1360 mm and the rainfall pattern is bimodal.

Menz sheep are the most prominent coarse wool bearing sheep in Ethiopia. The body is compact and mostly covered with coarse hair with a woolly undercoat. The people in the area use the coarse wool to make a cloak, locally called “*Bernos*,” and rugs. The coat color is black or dark brown, perhaps with white spots on the head, neck and legs. Other colors such as light brown, roan and white also exist.

The head has a straight profile and is free of any wool cover. Rams mostly have twisted horns while ewes are usually hornless. Menz sheep have small ears with a downward-forward inclination. This breed has no dewlap and wattles are very rare. The tail is short and fat and has a broad base, ending halfway to the hocks with a slight twist at the end. Menz sheep are not known to be a docile breed.

The mean height at the shoulders is 64 cm and 58 cm for adult rams and ewes, respectively. Menz sheep weigh about 2.3, 11 and 26–30 kg at birth, weaning (90 days) and one year of age, respectively. Ewe mature weight is estimated to be about 35 kg. Twin births are common, sometimes up to 60%.



Figure 2.8. Menz sheep in Debre Birhan area.



Figure 2.9. Menz ewes — Mehal Meda area, North Shoa.

2.3.6. Washera (Dangla) sheep

The Washera (Dangla) sheep is found predominantly in West and East Gojam zones of the Amhara Region extending to the south of Lake Tana. Washera sheep weigh about 2.8, 13.8 and 22.7 kg at birth, weaning and six months of age, respectively. The growth rate after weaning is comparable and even better than some other indigenous breeds. This indicates the potential of this breed for commercial mutton production for the local and export markets. Washera sheep have high twinning rates.

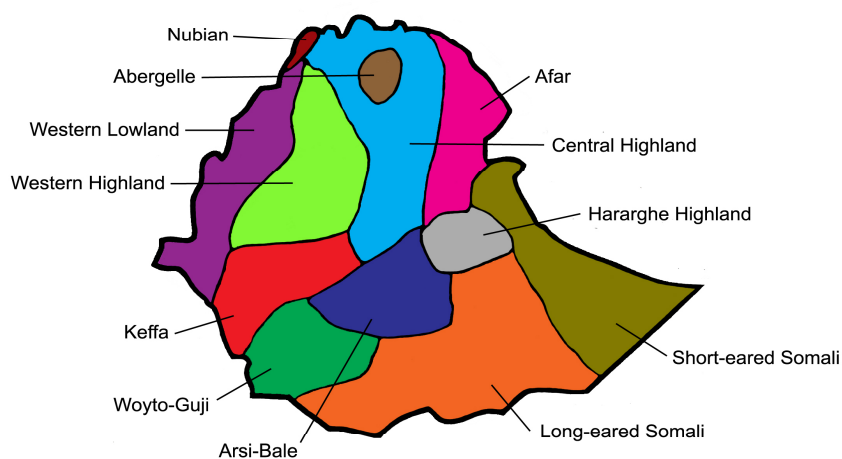


Figure 2.10. Washera (Dangla) sheep.

2.4. Ethiopian Goat Breeds and Their Characteristics

According to recent estimates, the goat population in Ethiopia is about 23.3 million. A large proportion is found in the lowlands of the country, raised in large flocks by pastoralists. Nearly 10 million goats (42% of the total) are found in the highlands.

Figure 2.11 shows the distribution of goat types in Ethiopia. Some of the most important goat breeds and their characteristics are presented in the discussion that follows.



Source: Adapted from FARM Africa et al. 1996

Figure 2.11. Geographic distribution of Ethiopian goats.

2.4.1. Abergelle goats

The Abergelle goat is believed to be a relative of the Afar and Worre goats. It is found along the Tekeze River and some parts of Alamata of the Tigray Region, and Wag Hamra (Sekota) and East Gondar zones of the Amhara Region. Abergelle goats are stocky, compact and well-built. The goats have a straight to concave facial profile. Both males and females have horns and in most cases the horns in males are much bigger and spiral shaped. The coat of most goats is plain and patchy. Spotted coat colors are common. The hair is short and smooth in both sexes and males have beards and ruffs. Mean height at the shoulders is 71.4 cm and 65 cm for adult bucks and does, respectively. Abergelle goats are milked for domestic consumption. Their skin is also used to make aprons, containers, etc.



Figure 2.12. Abergelle male (left) and female goats.

2.4.2. Afar goats

The Afar goat is also referred to as the Adal and Danakil goat. Its natural habitat is the Afar Region but it can also be found in northern and western Hararghe zones of the Oromia Region. Its distribution extends to the Afar area of Eritrea and northern Djibouti. Afar goats are well adapted to arid environments where they are watered every three or four days. These goats are hardy and used to long distance trekking in search of feed and water.

The Afar goat has a concave facial profile, narrow face and forward-pointed ears. The breed is also characterized as being leggy. Both males and females are horned, though females have smaller horns. The coat color is variable with a fine, short appearance. Most males have beards while wattles could appear in both males and females. Mean height at the shoulders is 64.5 and 60 cm for adult bucks and does, respectively. Afar goats are milked for domestic use or sale. The goats are maintained for meat, milk and skin production and for social affairs as they are commonly given away as dowry.



Figure 2.13. Afar female goats.

2.4.3. Arsi-Bale goats

The Arsi-Bale goats are widely distributed covering the whole of Arsi, Bale and western Hararghe zones of the Oromia Region, and the high altitude areas of Sidama Zone of the Southern Region. Arsi-Bale goats are also found in most areas of the Rift Valley from Lake Abaya to south Shoa Zone. They are mostly kept in small flocks in mixed farming areas.



FARM-Africa, 1996.

Figure 2.14. Arsi-Bale male goat.



Figure 2.15. Arsi-Bale female goats; Adami Tulu Research Center, Oromia.

The Arsi-Bale goat has a straight facial profile. Males have curved and backward-pointed horns. Females mostly have shorter horns. Some males have ruffs while most have beards. Wattles are also present in some males and females. The coat color varies considerably with white as the most common color in males, and brown in females. Goats at higher altitudes have longer hair. Arsi-Bale goats have fairly long ears, and some of them have pendulous ears. Mean height at the shoulders is 73.2 cm and 66.1 cm for adult bucks and does, respectively. Arsi-Bale goats are reared for meat, milk and skin production. Manure is also a valuable product used to fertilize backyard farms.



2.4.4. Begayit (Barka) goats

It is believed that the Begayit, also known as Barka in Eritrea, was derived from Nubian type goats. These goats are mainly found in western Tigray. Begayit goats have a predominantly Roman type facial profile. They are tall with mean height at the shoulders being 74.3 cm for adult bucks and 67.9 cm for does.

The coat color of Begayit goats is mainly white with brown patches. Their hair is particularly long around the thighs. Both sexes have horns that are straight or curved and oriented backwards. Males have beards and ruffs. Begayit goats have relatively large udders and are milked.



FARM-Africa, 1996.

Figure 2.16. Begayit (Barka) male (top) and female goats

2.4.5. Central Highland goats

Central Highland goats are related to Western Highland and Keffa goats. These goats are mainly found in the Central highlands, west of the Rift Valley, Wollo, Gondar and Shoa.

The Central Highland goats have a predominantly straight facial profile. All male goats have curved or straight horns which are oriented backwards. The coat color varies, the predominant color being red-brown, and the hair is smooth. Males have beards and ruffs. In some cases, wattles are also present.

The mean height at the shoulders is 76.3 cm for adult bucks and 67.9 cm for does. Skin is an exportable commodity while manure is used to fertilize backyard farms.

2.4.6. Hararghe Highland goats

Hararghe Highland goats are believed to have been derived from Short-eared Somali goats. These goats are small in size. The coat color is white, brown or black and the hair is short and shiny.

The goats have a straight-to-concave facial profile. Both males and females are horned but there could also be a high proportion of polled goats among the flock. Horns could be straight or curved. Most male goats have beards but no ruffs. Some goats have wattles. Mean height at the shoulders is 71.5 cm and 62.5 cm for adult bucks and does, respectively. Hararghe Highland goats are kept for meat, milk, skin production and for social functions.



Photos: DAGRIS, 2004.

Figure 2.17. Central Highland goats



Photo: FARM-Africa (1996)

Figure 2.18. Hararghe Highland goats.

2.4.7. Keffa goats

The Keffa goat is related to the Western Highland goat. They are widely distributed in the highlands and lowlands of Keffa and South Shoa zones of the southern region. Keffa goats are relatively short and have a straight facial profile. Mean height at the shoulders is 75.6 cm and 66.7 cm for adult bucks and does, respectively. Most males have straight and backward-oriented horns. Keffa goats have a coarse, hairy coat, the dominant colors being black or brown. Males have beards and ruffs. Wattles are also observed in some goats. Goat meat is frequently eaten in areas where these goats are kept. They are also used for some social functions.



FAFM-Africa, 1996.



Figure 2.19. Keffa male (left) and female goats.

2.4.8. Somali goats

The Short- and Long-eared Somali goats are related. The Short-eared Somali goats are widely distributed in northern and eastern Ogaden, Dire Dawa. The Long-eared Somali goats are found in all parts of the Ogaden, lowlands of Bale and Borana zones of Oromia and in some parts of Sidama zone of the Southern Region.

The Short-eared Somali goats are smaller than the Long-eared ones. Mean height at shoulders for adult Short-eared Somali bucks and does is 64.9 cm and 61.8 cm, respectively. The corresponding figures for Long-eared Somali adult male and female goats are 75.8 cm and 69.4 cm, respectively.



Figure 2.20. Somali bucks at Haramaya University.



Figure 2.21. Somali does at Hawassa University.

Both types have a straight facial profile and a short, smooth coat which is mainly white. Horns are present in both males and females and the horns are curved and oriented backwards. Males also have beards but only the Long-eared Somali bucks have ruffs. Short-eared Somali goats have shorter and slightly forward pointed ears while the Long-eared Somali goats have horizontally oriented and semi-pendulous ears.

Both the Short- and Long-eared Somali goats are milked extensively. Goat meat is also favored in these areas compared to mutton. Both types are reared for meat, milk, various social affairs and skin production.

2.4.9. Western Highland goats

Western Highland goats are known to be related to the Central Highland and Keffa goats. These types of goats are widely found in the Highlands of South Gondar, Gojam, Wollega and West Shoa.

The western Highland goat is relatively tall and has a concave facial profile. The body is mostly covered with coarse hair, forming a long coat. Mean height at the shoulders is 80.7 cm and 70.8 cm for adult bucks and does, respectively.

The most observed color is plain followed by patchy and spotted color patterns. Although both males and females have horns, there are also some polled animals. Horns are mostly straight and backward-oriented. Males also have beards and ruffs. Polledness and presence of wattles is also observed among some goats. Goat milk is not consumed in these areas.



Photos: FARM-Africa (1996)

Figure 2.22. Western Highland male (left) and female goats.

2.4.10. Western Lowland goats

The Western Lowland goats are also called Gumuz. These are thought to be closely related to the Central and Western Highland goats. The Western Lowland goats are widely distributed along the areas bordering the Sudan (Metekel, Assosa and Gambela).

Identifying features of Western Lowland goats are their relatively short stature and straight facial profile. The dominant color is white followed by fawn, black and grey. White patchy colors are also commonly observed. Mean height at the shoulders is 67.2 cm and 63.5 cm for adult bucks and does, respectively.

Both males and females have straight and backward-oriented horns. Most males also have beards and ruffs. Polledness and presence of wattles is also observed in some goats. Goats are milked in the pastoral and agro-pastoral areas.



FARM-Africa, 1996

Figure 2.23. Western Lowland male (left) and female goats.

2.4.11. Woyto-Guji goats

Woyto-Guji goats are known to be related to the Arsi-Bale types. These goats inhabit a wide area extending from South Omo to southern Sidama and Wolayita. Woyto-Guji goats are also found in trypanosomiasis affected areas in and along the Gelo valley to the south of Lake Abaya and other adjacent areas.

The body is covered with shiny and smooth hair of various colors. The predominant coat colors are reddish-brown appearing in a patchy pattern with black or brown stripes running along the back, on the underside or on the front of the legs.



Photo: FARM-Africa, 1996



Figure 2.24. Male (left) and female Woyto-Guji goats.

The Woyto-Guji goat is a medium-sized goat. The head is small with a mostly straight-to-concave facial profile. Most males and females are horned and there are some polled animals. Horns are mostly oriented backward or upward and sometimes laterally. Males have beards and ruffs, and some goats have wattles.

Goats in these areas are kept for milk, meat, skins and manure production. They are also important for some social functions.

2.5. Important Exotic Sheep Breeds

There are many types of sheep in the world kept for a variety of purposes. Only some of the important breeds that can play a role in the development of Ethiopian breed productivity are selectively described.

Some of these breeds have been imported into Ethiopia at some time in the past in an attempt to improve meat and fiber production of the indigenous breeds, particularly the Menz sheep.

2.5.1. Awassi sheep

Awassi sheep are widely distributed in the Middle East with a range covering Israel, southwest Iran, southern Iraq, Syria and northeast Arabia. These are fat-tailed sheep known mainly for their meat and coarse wool along with dairy potential.

The average, traditionally maintained mature ewe weight is between 40 and 50 kg. Rams have



Figure 2.25. Awassi Ewes at Amedguya Sheep Breeding Center, Amhara Region.

large horns and ewes are polled.

Awassi rams and ewes were imported in 1980, 1984 and 1994 from Israel to be crossed with the Menz sheep at Amedguya and Debre Birhan sheep breeding and multiplication centers. Reports show that 87.5, 75 and 50% crosses were distributed to farmers through the extension program of the then Ministry of Agriculture.

Farmers seemed to prefer Awassi crosses over crosses with fine wool-bearing exotic sheep like the Hampshire and Corriedale. The reason for farmers' preference is presumed to be the phenotypic similarity of Awassi crosses to the local sheep along with their larger size and ability to produce substantial amounts of carpet type wool which was very useful for local cottage industries.



Figure 2.26. Awassi Rams at Amedguya Sheep Breeding Center, Amhara Region.

2.5.2. Corriedale sheep

The Corriedale breed originated in New Zealand and is a cross between Lincoln and Merino with a later addition of the Leicester breed into the crossing. The intent was to develop a dual purpose breed that could produce medium wool as well as a good quality carcass.

Corriedale sheep were used in Debre Birhan and Amedguya sheep breeding ranches for many years from the 1970's through the early 1990's to produce crossbred Corriedale/Menz animals for distribution. The crosses, particularly the 75 and 87.5% Corriedale rams, were distributed to many parts of the country.



Photos: Courtesy – Graham Meadows
Photography; 1999-2000 Hosesons Web
Designs & New Zealand Sheep Breeders'
Association



Figure 2.27. Corriedale ram (left) and ewe with twin lambs.

2.5.3. Dorper sheep

The Dorper is a meat breed developed in South Africa. It is a crossbred between the Dorset Horn and Blackhead Persian breeds. Dorper sheep are also widely distributed in some African countries such as Botswana, Zimbabwe, Zambia and Kenya.

Dorper sheep can also be found in North America and other countries around the world. The body of Dorper sheep, except the belly and the face, is covered with a mixture of hair and some coarse wool. Dorpers have a black head and neck with a white body, but there are also solid white Dorper sheep.

Both rams and ewes are polled. Dorper sheep are relatively big and ewes under a favorable environment weigh about 60 kg. Dorper sheep are fast-growing with good conformation for meat production. The breed is well adapted to dry environments and is well-suited to a wide range of production systems.



Photos: Henry du Plooy, Select Genes Ltd, Republic of South Africa



Figure 2.28. Dorper ram (left) and ewe with lamb.



Photos: P. J. Cilliers (Jnr), Select Genes Ltd, Republic of South Africa (1999)



Figure 2.29. White Dorpers.

2.5.4. Hampshire sheep

The Hampshire breed was established in 1815 in the United Kingdom. Hampshire sheep are famous for early maturity and carcass quality. A fully grown ram weighs about 90 kg and a ewe, 63 kg. Under good management, lambs will gain 0.45 kg daily from birth to four months, reaching a weight of about 40 kg at four months. They are also known to produce good wool with an average staple length of 9 cm. The breed is widely used for crossbreeding throughout the world to produce top quality lambs for meat production.



Photo: From: Ponting, K. (1980)

Figure 2.30. Hampshire Down ram.

This breed was crossed with Menz sheep at Debre Birhan and Amedguya Sheep Breeding and Multiplication Centers in the 1970's, 1980's and early 1990's. Crossbred animals appeared to have no adaptability problems. However, in all cases, farmers complained that the Hampshire crosses produced poor quality skins. This has not been substantiated through studies. Hampshire crosses are reported to still exist in some parts of Wollo, and the north-central highlands. All pure and crossbred Hampshire sheep were sold out from both sheep breeding centers in the late 1990's.

2.6. Important Exotic Goat Breeds

There are also many types of meat and dairy goat breeds in the world. Only some of the important breeds that have been introduced to Ethiopia earlier or with merits of high value for future use are described. Most of the breeds introduced to date have been dairy goats with the main purpose of crossing with local goats to improve milk production in areas where goat milk is known to be consumed.

2.6.1. Anglo-Nubian goats

The Anglo-Nubian is a dual purpose breed known for both meat and milk production. The breed was developed through the crossing of Jamnapari (Indian) and Zairaiby (Egypt) breeds with Nubian and Damascus ancestry. Anglo-Nubians are polled, have a convex facial profile and lopped ears. The breed is well-adapted to tropical environments and was introduced to Ethiopia through FARM-Africa for upgrading Hararghe Highland goats for milk production.

There has also been a crossbreeding study of Anglo-Nubian with Somali goats at the Awassa College of Agriculture. Crossbred kids weighed about 3.2 kg and 14.8 kg at birth and nine months of age, respectively. The breed performs well both as a purebred and a crossbred for meat and milk production.



Figure 2.31. Anglo-Nubian bucks at Haramaya University.

2.6.2. Beetal goats

Beetal goats were developed from the Jamnapari breed and are found in the states of Punjab, Haryana and other Indian states. The temperature of the areas where this breed is found ranges from 17 to 32°C (degree Celsius) with an average annual rainfall of 700 mm.

Beetal goats have a convex facial profile with a typical Roman nose. Ears are long, curled and drooping. The length of the ears is about 25 cm. Horns are thick and medium sized and carried horizontally with backward and upward orientation. The breed has a short, lustrous coat cover with variable colors dominated by brown or black. White spots of differing sizes are also common.



Photo: Acharya. R. M., 1982

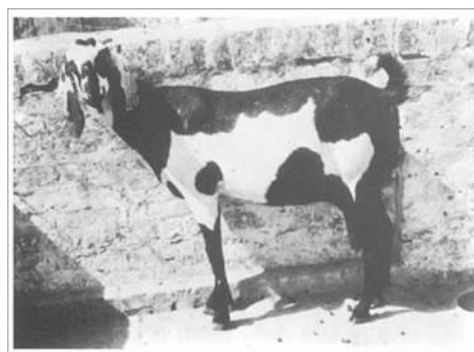


Figure 2.32. Beetal buck (left) and doe.

Beetal goats weigh 2.8, 12.2 and 21.8 kg at birth, 6 and 12 months of age, respectively. Mature weights of male and female goats are about 59 and 35 kg, respectively. Wither height for mature males is about 92 cm while that for mature females is about 77 cm. Age at first kidding is about 560 days at the farm level. Multiple births typically occur at a rate of 60%. Beetal goats give about 195 liters of milk in about 6 months of lactation.

2.6.3. Boer goats

The Boer goat was developed in South Africa through crossing Africander, South African Common, indigenous Bantus, European, Angora, and Indian blood. Boer goats are medium to large, 75–80 cm in height at the shoulders. Male and female Boer goats weigh up to 130 and 80 kg, respectively, with most animals weighing between 75 and 90 kg and 50 and 60 kg for males and females, respectively. The coat color is white with red or brown on the head and neck. The hair is short and shiny. Boer goats have horns and large drooping ears.

Lewis Creek Boer Goats, Greg & Thecia Patterson



Courtesy: T4 Ranch, W.E. and Carolyn Whitehead, 2004

Figure 2.33. Boer buck (left) and doe.

The Boer goat is a meat breed but milk and skin are also important products. The breed has good meat conformation, possessing superior rib, body length and muscling. Carcass yield ranges 48–60%. Boer goats are also known to be fertile with up to 50% of births being twins. Kids weigh 3–5 kg at birth and can reach 40–50 kg at six months of age.

Some preliminary work has been done in Ethiopia to improve local goats through the use of Boer goat semen. Arsi-Bale goats were inseminated with Boer goat semen at Hawassa University to produce F1 crosses. Somali goats were also inseminated with Boer goat semen at Haramaya University to produce crossbreds. Although results have not yet been analyzed, the crossbreds seem to perform well provided that appropriate management and health care is provided.

2.6.4. Damascus or Shami goats

Damascus goats are among the known dairy goat breeds of eastern Mediterranean countries and Iraq. This breed belongs to the Nubian group. It is believed that Nubian and Jamnapari goats of India might have the same ancestry. The dairy characteristic of this breed has been particularly developed through breed improvement programs in Syria and Cyprus.

Damascus goats are tall with a pronounced Roman-type nose. Ears are pendulous reaching 25–30 cm in length. The breed is normally polled. Horns, if present, are moderate in length and diameter with a back and downward orientation and have a homonymous twist in males while they are sickle-shaped in females.



Luis Iniguez, ICARDA, 2006.



Figure 2.34. Damascus goats (buck and doe).

Mature body weight ranges 50–90 kg and 35–65 kg for males and females, respectively. Damascus goats weigh 3–4.2 kg at birth and 19 kg at weaning. Height at the withers for mature males ranges 75–89 cm, and for mature females 60–76 cm. Age at first kidding ranges 15–24 months. Multiple births occur in about 70% of the births. Milk production ranges 250–558 kg in lactation periods ranging from 155 to 300 days.

2.6.5. Jamnapari goats

Jamnapari is an Indian breed indigenous to the State of Uttar Pradesh. It is widely distributed within Uttar Pradesh and adjacent areas of Madhya Pradesh State. The area where this breed is found is climatically characterized by temperatures ranging between 19 and 32°C with a mean annual precipitation of 765 mm.

This breed was used in the development of Boer and Anglo-Nubian goat breeds. Jamnapari goats have a convex nose line with a tuft of hair. The ears are long and drooping, with a mean ear length of about 27 cm. Horns are short and flat. The breed has a short coat with a relatively thick growth of hair around the rump. Typical coat color is white with small tan patches on the head and neck.

<http://www.fao.org/dadis/>

Photo: by Dr. Pramod Kumar Rout



Figure 2.35a. Jamnapari buck.



Photo: Dr Abdul Wahab Qureshi

Figure 2.35b. Jamnapari does and kids.

Body weight is about 45 and 38 kg for mature bucks and does, respectively, while the corresponding height at withers is 78 and 75 cm.

Jamnapari goats weigh about 4 kg, 15.6 kg and 29.7 kg at birth, 6 months and 12 months of age, respectively. They also have about 30% multiple births under farmers' conditions. Jamnapari goats produce about 200 liters of milk in about 190 days of lactation.

2.6.6. Saanen goats

Saanen goats are one of the most prominent dairy breeds developed in Switzerland. Saanen goats have been used for crossbreeding to develop other dairy subtypes and as a result German, British, Dutch, Israel, Australian and American Saanen breeds have been developed. In Ethiopia, there were attempts in the early 1970's to cross Saanen with Afar and Highland goat types. However, the program was not sustainable since the effort was not supported by appropriate extension packages including health, feed and management.



Figure 2.36. Saanen Does.

Oklahoma State University: Handbook of Australian Livestock, Australian Meat & Livestock Corporation, 1989, 3rd Edition, USA

Saanen goats are characterized by their white, short coat hair. The face is straight; Saanens have short and pointed ears. Mature body weight for pure Saanen males and females is 75 and 50 kg, respectively, while milk production ranges 500–900 kg in 250–300 milking days.

2.6.7. Toggenburg goats

The Toggenburg breed is also a Swiss dairy goat breed originating in the Toggenburg valley. The breed has mostly long hair. The Toggenburg breed was developed through the crossing of Appenzel goats with Chamoisee. The identifying characteristics of this breed are its fawn-to-light grey-base color, the white stripes on the head running from the muzzle to the eyes and polls, and its white ears and legs. Mature body weight is 65 and 45 kg for males and females, respectively. Height at withers is 75–85 cm for males and 70–80 cm for females.

This breed has also been introduced to Ethiopia for crossing to produce grade dairy goats by crossbreeding with Somali goats.



Figure 2.37. Toggenburg does.

Oklahoma State University: Handbook of Australian Livestock, Australian Meat & Livestock Corporation, 1989, 3rd Edition, USA

Transferable Messages

1. Origin and migration routes of today's sheep and goats are known.
2. Ethiopia's sheep and goats are not yet fully characterized. However, there are many types/breeds of sheep and goats in the country that could be used for the production of meat, milk and fiber.
3. Some of the major sheep and goat types/breeds of Ethiopia and their geographical distribution within the country are roughly known.
4. Some of the most important exotic sheep and goat breeds in tropical countries, known for their meat, milk and fiber, and which could be used for crossbreeding with the indigenous, are known.
5. Important parameters to be considered in any sheep or goat production enterprises are known.

Exercises

1. Where is the origin of sheep and goats?
2. Name at least five important or major sheep and goat breeds of Ethiopia:

Sheep: _____ Goats: _____

3. Name sheep and goat breeds/types found in your area:

Sheep: _____ Goats: _____

4. List the three most important products of sheep and goats:

Sheep: _____ Goats: _____

5. For a species of your choice (sheep or goat), list at least five important traits of economic importance:

Species:

- a.
- b.
- c.
- d.
- e.

6. Why do we need to crossbreed indigenous animals with exotics?

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