

ORIGIN OF THE CASHMERE SWEATER

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I. INTRODUCTION



The purpose of this study was to explore the ethnozoological aspects of agriculture in hostile environments and to investigate how a goat byproduct can be converted into a first class garment such as cashmere. Changthangi or Pashmina goats can tolerate high altitude and the harsh environment of the Himalayan desert by growing an undercoat of fine hair which serves as insulation to keep them warm. This is the origin of cashmere wool.

The primary author was given the current assignment to investigate the agriculture practices of the Tibetan Plateau including China, Nepal, Ladakh (India) and plateaus of Tibet. The research showed that the animals found in these regions such as yak, sheep and goats play a critical role in allowing humans to exist in a harsh environment. The elevation of these regions is upwards of 3,300m (11,000 ft.) which causes a lack of oxygen, cold temperatures ranging from -20°C (-4°F) to -40°C (-40°F), strong winds, meager rainfall and lack of vegetation. This report will focus on the domestic Changthangi (Changa or Pashmina) breed which produces wool that is known for its firmness, warmth, durability, lightness, softness and ability to absorb dyes and moisture.

II. MATERIALS AND METHODS

Husbandry - Nomadic herders live in tents and in the summer move the goats to locations having vegetation for the more mature animals. Often the ground is covered with snow which the goats paw at to get access to the sparse vegetation. In the winter, dried surface grass, under-sand herbs and shrubs are consumed. The goats are placed in stone lined paddocks at night. The kids remain with the herders all day and are fed on mother's milk and barley which is planted each year and sometimes yields grain. During the day the kids are sometimes placed in holes with some fabric to protect them from the wind. Adult castrated males are often used as pack animals when the herders are moving to a new location. Some herders have a house built with natural occurring materials and it houses both herders and sick animals. If a kid wanders off, the female herder will cry until the kid is found and returned to the flock. Goats and sheep are often intermixed. Mortality rate for the first year is 54% and is caused by respiratory illnesses, wild animals and due to exposure to the cold climate. The adult goat color may be white which is most valuable, brownish red, fawn, gray and black. They have small horns with the male's being slightly larger. Adult body weight is 16-17 kg (35.3 -37.5 lb.).

Goat hair - The finest fibers have a diameter of 12-15 microns, fine fibers under 16.5 microns, medium fibers 16.5-17.5 microns and coarse fibers up to 18 microns. On an equal weight basis cashmere has 3 times the insulating value compared to wool. Most goats have two types of hair called guard hair and pashmina. The pashmina (inner hair which is the source of cashmere) grows on the neck, body, hind quarter, face and legs. Some goats have it over almost their entire body. This fine hair protects the animal from cold temperatures. The hair is removed with an iron comb in late spring when the goat is shedding. The pashmina yield per goat ranges from 310g to 520g. The higher values are for males and the yield increases with age.

Mixed hair - Due to demand for the hair and a limited supply a reduced quality material is often produced by mixing goat hair and combining it with hair from other animals (e.g. silk, camel).

III. RESULTS AND DISCUSSION

Goat meat and slaughter of goats – In the past these goats were slaughtered for food. Since the hair is a greater source of income than meat usually only animals that are in bad health are slaughtered. The average carcass characteristics of the pashmina goat are shown in Table 1.

Table 1. Average Carcass Characteristics of Pashmina Goat

Sex	Slaughter Weight kg (lb)	Carcass Weight kg (lb)	Dressing Percentage (%)
Male	36 (79)	15 (33)	43%
Female	28 (62)	12 (26)	43%
Overall	31 (68)	13 (29)	43%

Economics of raising goats for their hair - In spite of the fact that the cashmere material is very expensive with some garments costing in the thousands of dollars the herders only receive a modest income. For example, the profit from a goat is ~15 U.S. dollars/ year and annual income for a household (average of 3 adults and 2 children) is 220-425 U.S. dollars. The net return (total value of returns on goat less the total cost divided by total cost) for pashmina goat is 35-40%.

IV. CONCLUSION

Agricultural life at high altitudes is a struggle and requires special adaptations in people and animals in order to survive. The high desirability of cashmere enables the economic feasibility of pashmina production. Pashmina goats play an important role in the livelihoods of herdsman in the Tibetan plateau and the surrounding regions.

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