

Cashmere shedding and combing

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Of the 25 million goats in Iran 5 millions are cashmere producing goats that are located in eastern provinces. Main breeds of cashmere producing goats are Raeini, Nadoushan, Birjandi, Abadeh and Abasabadi kept in Kerman, Yazd, South Khorasan, Fars and Razavi Khorasan provinces respectively (Figures 1 and 2).



Figure 1. Main cashmere goat breeds of Iran: Raeini (first row), Nadoush (second row) and Birjandi (third row).

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Figure 2. A herd of Raeini goats in Kerman province.

Iran together with Afghanistan is the third largest producer and exporter of cashmere in the world, after China and Mongolia.

Cashmere shedding and time of shearing

The fleece of cashmere goats grows from specialized follicles in the skin. Primary and secondary follicles bear coarse hair and fine cashmere respectively.

- *Secondary follicles shed their fine cashmere at the end of winter and beginning of spring.*
- *As a result of follicle inactivity a sequential, bilateral-symmetric pattern of cashmere shedding initiated on the neck and proceeded in wave posteriorly towards the rump with up to a 5–6 weeks delay*

between the two sites (Figures 3 and 4).



Figures 3 and 4. Cashmere shedding in Raeini goat.

- *In order to harvest the maximum weight of cashmere, the optimal time for a single shearing of cashmere goats would be at the end of the winter season before follicle inactivity becomes substantial or before onset of*

due to the cold weather and very limited feed availability. Thus, it is important from the point of the welfare of the goats that some hair is left on the animal after cashmere harvesting as this hair provides an essential protective layer against adverse weather conditions. The use of either machine or hand shearing at this point in time which removes the entire fleece pose a serious threat and can not be recommended under such conditions.

On the other hand, the current practice of cashmere farmers to shear their goats in mid-spring using double blade knives (Figure 5) is wasting valuable cashmere:



Figure 5. Double blade knives (Docard) is used to shear the goats.

- *The shearing is usually carried out long after the onset of the shedding period. As a result a considerable portion of shed fibers is not collected and wasted.*
- *Optimal harvesting time varies widely per individual goats depending on age, and general health status.*

Combing goats to avoid cashmere loss

- *The use of combs or the collection of clumps of cashmere retained in the fleece after the onset of shedding would reduce cashmere loss during the shedding season. The unshed cashmere could be sheared in mid-spring when adverse weather conditions are over.*

Two types of combs are available: a long and a short comb. The large comb used is made of 15 metal rods, which are curved round and have a radius of 13 mm with the tips being rounded to form a sharpened end (Figure 6). Adjustments are made by means of a metal slide which moves the teeth either closer together or further apart. The small comb used is made of 26 metal rods, with a length of 25 mm and 5 mm distance between the rods and a diameter of 1 mm.



Figure 6. Long and short combs.

- *In order to facilitate combing, goats are tethered in a standing position for combing which is done in short, pulling strokes.*
- *At each combing session goats are combed until all loose down fibers are collected.*
- *If an insufficient quantity of fibers is obtained from the first couple of strokes it is assumed that the goat is not yet shedding and it is left until the next visit.*
- *Results of a combing study indicated that the short comb provides a more efficient harvesting method by removing a higher amount of down.*