

## Animal Fibres : Wool and Silk

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### 3.1 Introduction

Wool has been taken off animals and woven from ancient times. At present, the wool is obtained from good quality sheep. The best wool is obtained from the sheep of Merino species. This sheep is white in colour and is imported from Spain.

Silk was discovered in China nearly 3500 years ago. Chinese were the only people who knew how to make silk. Despite all the secrecy, Indians learnt how to make silk.

In this chapter, we shall know how wool and silk are produced.

### 3.2 Wool

The wool fibre is obtained from the hair of sheep. Wool is a kind of long and thick hair which can be changed into a thread.

The clothes made of wool are warm, light and comfortable. Wool is flexible so it maintains its shape.

**Sources of Wool :** Most of the wool is obtained from sheep which are found in all the temperate regions of the world.

A Merino sheep provides nearly 13.5 kg wool at one time. Its wool is of high quality. The best wool is obtained from the lamb (sheep's kid).

Some wool is obtained from goat and camel also.



Shearing of wool

The wool obtained from goat are Angora, Mohair and Cashmere.

### 3.3 Wool : From Sheep to cloth

The process from shearing of hair to weaving of cloth is completed in the following steps :

**(i) Shearing :** The fleece of the sheep along with a thin layer of skin is removed from its body. This process is called shearing. Generally, in a year, a sheep is sheared only once. Earlier, the hair were sheared by a hand-held machine but today, electric machines are used to shear nearly 200 sheep in a day.

**(ii) Grading :** Before the thread is made from hair, it is graded. The buyers carefully check the colour, quality and toughness of the fibre.

**(iii) Washing :** For further processing, these hair are sent to mills. Here, these are sorted as per their



Washing wool

thickness and a heap is made. Then, every heap of wool is washed to remove grease, dust and dirt. Then it is wrung with the help of rollers.

**(iv) Dyeing :** After this, the wool is dyed in different colours. At this time, the wool is appropriately oiled so as to maintain its flexibility.



Wringing and straightening of wool

**(v) Making of Thread :** Now, the threads are straightened and sorted and are then rolled to make threads.

**(vi) Weaving :** These threads are used to weave clothes, blankets, dhurries, carpets etc. If the weaving is dense, then the cloth is strong and is called worsted. If the weaving is thin or rare, the cloth is light and weak.



Weaving

**Kinds of Wool :** On the basis of origin, three kinds of wool are produced. The wool which has never been used before is called virgin wool. Reprocessed wool is the one which has been woven earlier but not sold or spun after that. Reused wool is the wool which has been worn earlier and spun after that.

### Interesting Fact

Angora rabbit provides very fine and soft wool.

### 3.4 Silk

Silk is obtained from silkworms. Silken clothes have lustre and shine. Silk fibres are strong, flexible and so smooth that dirt and dust do not stick on them. Silk is royal cloth.



Silkworm

**Source of Silk :** Silk is obtained by rearing of silkworms. The eggs of silkworms are kept in the incubator at a proper temperature. Small and black silkworms come out of these eggs, which are called **larva** or **caterpillar**. These are made to feed on mulberry leaves, where they grow very fast and become **pupa**. Now, they stop eating. Then they are kept in a special basket where they weave a **cocoon** around them.

### 3.5 From Cocoon to Cloth

If the cocoon woven by a silkworm is left as it is, then the pupa develops into an adult insect. Farmers leave some cocoons so that some insects may develop and they get some eggs. But to get the silk from the cocoons, rest of the pupae are killed and the silk is got from cocoons. This process is called reeling.

In this process, the cocoons are put in hot water and taken as ends of six threads, and then rolled in the form of a single thread. This is called **raw silk**.



Taking out fibres from cocoons

Now, the silk is washed, dried and intertwisted to make thick threads. Then, these are put into a soap solution to remove natural wax. Then, these are dye to make cloth.

**Types of Silk :** Some silkworms produce white silk while some produce yellow silk.

Clothes such as satin and chiffon too are made from silk.



Women doing embroidery

### 3.6 Occupational Hazards

The people who work in the sorting department, they sometimes got infected by a bacterium, anthrax, which causes a fatal blood disease called Sorter's Disease.

In the rolling department, wool fibres are also inhaled while one is breathing, which causes asthma and skin infection.

#### Interesting Fact

- Best silk is obtained from *Bombax mori* cocoon.
- Wild silkworm produces Tassar silk. The other thick silk is Moonga silk. Tassar and moonga silk are comparatively cheaper.

People engaged in sericulture lift dead insects with bare hands. That's why they are affected by skin infections. While putting cocoons in boiling water, their skin get blisters and it becomes hard.

#### Highlights

- Wool is a kind of long, thick hair.
- Woollen clothes are warm, light and comfortable.
- A Merino sheep provides nearly 13.5 kg wool in a year.
- The process from shearing of wool to their weaving is completed in 6 steps.
- Three kinds of wool are produced.
- Wool and silk are main animals fibres.
- Some wool is obtained from goats and camels too.
- Silk is obtained from the cocoons of silkworms.
- Silk obtained from cocoons is white or yellow in colour.

### Exercise



#### A. Tick (✓) the correct options :

1. Wool is obtained from :

- |              |                          |           |                          |
|--------------|--------------------------|-----------|--------------------------|
| (a) bear     | <input type="checkbox"/> | (b) horse | <input type="checkbox"/> |
| (c) elephant | <input type="checkbox"/> | (d) sheep | <input type="checkbox"/> |

2. Before weaving into threads, sheep's hair are :

- |             |                          |                  |                          |
|-------------|--------------------------|------------------|--------------------------|
| (a) washed  | <input type="checkbox"/> | (b) graded       | <input type="checkbox"/> |
| (c) sheared | <input type="checkbox"/> | (d) All of these | <input type="checkbox"/> |

3. Silk clothes are :

(a) heavy

(b) light

(c) heavier than cotton

(d) depends on kind of silk

4. While dyeing, it is put on wool.

(a) Gum

(b) Tea

(c) Oil

(d) All of these

**B. Fill in the blanks :**

1. A sheep is sheared \_\_\_\_\_ in a year.
2. Wool is washed to take out \_\_\_\_\_ and \_\_\_\_\_.
3. Clothes made of \_\_\_\_\_ are light and warm.
4. \_\_\_\_\_ wool is obtained from goats.
5. While washing and dyeing, \_\_\_\_\_ is put on wool.

**C. Very Short Answer Questions :**

1. Best wool is obtained from which sheep?
2. How many times can wool be sheared by electric machines?
3. What kind of cloth is silk?
4. How much wool does a Merino sheep provide at a time?
5. Where does the silkworm get its food from?

**D. Short Answer Questions :**

1. How is worsted cloth obtained?
2. Write the sources of silk.
3. Which are the two main kinds of silk?
4. Why does the wool maintain its shape?
5. Define grading.

**E. Long Answer Questions :**

1. Briefly comment on shearing and dyeing.
2. Explain the main sources of wool.
3. Explain 'From sheep to weaving of clothes' in detail.
4. What is silk and how are clothes made from cocoons?



**Project Work**

- Collect different kinds of cloths and identify which are made of natural fibres and which are from synthetic fibres.