

འབྲུག་གི་ཁ་གསལ་དང་ལཱ་རིམ་གྱི་བཟོ་ཐབས།

## BHUTAN STANDARD

### Production Process of Local Cotton Yarn



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BHUTAN STANDARDS BUREAU  
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## Final Draft Standards for Public Comments

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## **BTS xxx: 2022**

### **FOREWORD**

This Bhutan Standard for Production Process of Local Cotton Yarn was drafted by Textile and Handicraft Working Group on cotton and adopted by Bhutan Standards Bureau after the draft finalized by the Textile and Handicraft Technical Committee TC 06 and approved by the Bhutan Standards Bureau Board (BSB Board) in xxx 2022 .

This standard is subject to systematic review after five years to keep pace with the market trends, industrial and technological developments. Any suggestions and further information may be directed to the concerned Technical Committee.

# འབྲུག་གི་ཁ་གསལ་དང་ལཱ་རིམ་གྱི་བཟོ་བྱ་བའི་ཐབས་ཤིག

## Production Process of Local Cotton Yarn

### 1 Introduction

Cotton was once cultivated throughout the humid sub-tropical regions in Bhutan such as Zhemgang, Mongar, SamdrupJongkhar, and Pema Gatshel dzongkhags. It was traded for salt, or paid as tax, the best remembered tax cloth being *Kamthama* fabrics, the textiles made from cotton.

Currently, *mo-ngan* /*mowan* or cotton as they call it in Tshanglha is the organic cotton that Chongshing, Chhimoong and Dungmin Gewogs under Pemagatshel Dzongkhag cultivate. The fabrics made from cotton are called *Mondae* in Tshanglha and *Kamthama* in Dzongkha.

Cotton cultivation has diminished over the past few decades due to increased availability of commercial Indian yarns as well as machine made fabrics. Despite that, the cotton growing communities have been producing cotton yarns by employing both locally fabricated tools as well as mechanized equipment with support from organizations such as Agency for Promotion of Indigenous Crafts (APIC), Royal Textile Academy(RTA) and Tarayana Foundation.

This document captures the standard guideline on cotton production until its finished product. This will not only help document the age old practice of cultivating and producing local cotton but also assist organizations and individuals pursuing research or carrying out business in this field.

### 2 Scope

This guideline specifies the production process of locally grown cotton yarns in Bhutan.

### 3 Normative References

No normative references are cited.

### 4 Terms and Definition

For the purpose of this standard, the following definitions shall apply.

- 4.1. **Mowan/ mo-ngan:**Term referred to cotton.
- 4.2. **Kamthama:**Term referred to finished cotton weave in Dzongkha.
- 4.3. **Tshanglha/Shar chop:**Language spoken in eastern Bhutan
- 4.4. **Mondae:** Term referred to finished cotton weave.
- 4.5. **Yang-Shaba:**Term referred to Indigo leaves.
- 4.6. **Zim-Shaba:** Term referred to Symplocos leaves.
- 4.7. **Lani-roo:** Term referred to Madder plants.
- 4.8. **Jung:** Term referred to turmeric.
- 4.9. **Ba-Tsha:**Term referred to natural Aluminum sulphate.
- 4.10. **Le- Khang:**traditional tool used for carding.
- 4.11. **Son-Dari:**traditional tool to spin the yarn from sliver.
- 4.12. **Je-Nang:**traditional tool to make hank.
- 4.13. **Shing-Chong:** Wooden tub used for dyeing purposes.
- 4.14. **Krishing:**Traditional tool used for ginning

- 4.15. **Cheyma Zamay**:Term referred to clearing of land for cultivation.
- 4.16. **Cheyma Gogpay**:Term referred to burning of dried bushes after clearing.
- 4.17. **Yaphay**:Term referred to sowing of seeds
- 4.18. **Bakpay** :Term referred to digging
- 4.19. **Shara Phutpay**: Term referred to weeding
- 4.20. **Mowan/mo-ngan Phutpay**:Term referred to harvesting of cotton
- 4.21. **Ngapka Pholay**:Term referred to drying in sun
- 4.22. **Mowan/mo-ngan Rigpay**:Term referred to ginning of cotton.
- 4.23. **Mowan/mo-ngan Gaphay**:Term referred to carding of cotton
- 4.24. **Mowan/mo-ngan Bu-Chespay**:Term referred to making sliver
- 4.25. **Mowan/mo-ngan Shelay**:Term referred to spinning of cotton
- 4.26. **Dangnang Choetpay**:Term referred to making hank
- 4.27. **Lachu/ Chuja-alay**:Term referred to dewatering the hank yarns by stretching
- 4.28. **Tsho-Jurbay**:Term referred to dyeing
- 4.29. **Tsi-Philay**:Term referred to starching
- 4.30. **Kutpang- Lomay**:Term referred to unwinding of yarns.
- 4.31. **Khamung-Namay**:Term referred to weaving
- 4.32. **Khamung –Renmay**:Process of warp preparation.
- 4.33. **Ginning**:process of segregating cotton lint from seeds
- 4.34. **Carding**:process that disentangles, cleans and inter mixes fibres to produce a continuous web.
- 4.35. **Spinning**:process of conversion of fibres into yarn.
- 4.36. **Dyeing**:application of dyes or pigments on textile materials such as fibres, yarns, and fabrics with the goal of achieving color with desired color fastness.
- 4.37. **Starching**:process of immersing the yarn in a starch solution to improve the strength of the yarn which helps to stand the stress of weaving.
- 4.38. **Weaving**:process of combining warp and weft components to make a woven structure on a back-strap loom.
- 4.39. **Unwinding**:process of making hank into yarn balls or bobbins.
- 4.40. **Broadcast seeding**: Process of seeding that involves scattering of seeds by hand

*Note: The terms used above are all in Tshanglha except for specified one.*

## 5 Processes

5.1 Cultivation of organic cotton follows crop calendar. It begins with preparation of the land, sowing, weeding, and harvesting. The crop calendar is as follows;

5.1.1 Clear (Cheyma Zamay) the land towards the end of February and keep it for one month.

5.1.2 Burning of dried bushes (Cheyma Gogpay) and clearing the land to fertilize the soil. This is done in April.

5.1.3 Broadcasting seed (Yaphay) is done in the last week of April after the soil has settled and cooled.

5.1.4 Digging (Bakpay) is carried out right after sowing.

5.2 Weeding (Shara Phutpay) is carried out four to five times periodically once the seedling forms until it is ready to harvest.

5.3 Thinning is carried out during first weeding to have uniform spacing for proper growth.

5.4 Harvesting (Mowan/Mo-Ngan Phutpay) -Cottons are harvested two to three times from the same plant in a year. The harvesting is carried out in the month of September, October and November.

5.5 Drying (Ngapka Pholay) -The cottons are dried in sun for 2-3 days until the moisture content is removed. If it is not dried properly then the ginning process becomes difficult deteriorating cotton quality.

5.6 Ginning (Mowan/Mo-Ngan Rigpay)– Cotton lint is segregated from the seed using locally made tool called Krishing which is a traditional method. The electric operated ginning machines are also used for the same purpose.

5.7 Carding (Mowan/Mo-Ngan Gaphay) is done by locally made tool called Le- Khang which is a traditional method. The electric operated carding machines are also used.

5.8 Sliver Making (Mowan Bu-Chespay) is a bunch of fibres that is generally used to spin yarn. A sliver is made by carding or combing the fibres which is then drawn into strips by hand.

5.9 Spinning (Mowan Shelay)-The sliver are spun on the spindle wheel to make yarns.The spun yarns are single ply.

5.10 Hank (Dangnang Choetpay)-Spun yarns are made into hanks by using a tool called Je-Nang.

5.11 Stretching (Lachu/ Chuja-alay)–Hanks are soaked in warm water, and then wrung and stretched on a wooden pole to even out the yarn as well as remove the dirt.

5.12 Dyeing (Tsho-Jurbay)–Dye materials such as indigo,madder,turmeric and symplocos are used to dye cotton yarn. The traditional colors obtained from the above dye materials are blue,green,yellow and reddish orange.A wooden tub called Shing-Chong is used traditionally to store dye solution.

5.13 Starching (Tsi-Philay)-The yarns are starched in the solution of maize flour to improve the strength of the yarn which helps to stand the stress of weaving.

5.14 Unwinding(Kutpang Lomay)- The yarns are made into bobbin or yarn ball from the hank, for weaving.

5.15Warp preparation (Khamung –Renmay) The preparation of yarn to be transferred on to a backstrap loom for weaving.

5.16 Weaving (Khamung-Namay)–. The process of combining warp and weft components to make a woven structure on a back-strap loom.

6 Flowchart



## 7 Grading

- 7.1 Grade 1
- 7.2 Grade 2
- 7.3 Grade 3

*Note: The yield from the first harvest is considered the best although the yield is comparatively less than the second and third harvest. The bolls from the first harvest are bigger and seeds are saved for their next cultivation. These seeds also give faster yield. The second harvest gives more yield and are considered as good quality. The quality of third harvest is of average quality as it contains foreign matter.*

## 8 Tools and Equipment

### 8.1 Traditional handmade tools

#### 8.1.1 Krishing (For Ginning)



Seeds      Cotton      Krishing

#### 8.1.2 Le-Khang (For Carding)



Le-Khang

**8.1.3 Son-Dari**



**8.1.4 Je-Nang**



**8.1.5 Shing-Chong**



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