

Design Resource

Ponduru Khadi Making, Andhra Pradesh

Handloom Fabric - Srikakulam

by

Prof. Bibhudutta Baral and Parvathi Pooja

NID, Bengaluru

Source:

<https://www.dsource.in/resource/ponduru-khadi-making-andhra-pradesh>



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3. Tools and Raw Materials
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Introduction

Clothes or Clothing are the standard terms used to denote materials worn on the body, particularly by the human race to protect themselves from weather, rough surfaces, insect bites, and other environmental conditions. Tracing to history, Clothing has always been a feature of nearly all human societies. The differences persisted only on the amount and type of Clothing adopted by each community. It was invented on the basis of body type, social, and geographic reasons. The clothes we prefer underlines a range of social and cultural roles, such as individual, occupational and gender distinction. Likewise, it also reflects on age, religion, modesty, and social status. They draw not only on individuals but are often seen as markers of particular groups, communities, towns, and even countries.

History of Clothing in India

History of Clothing in India traces back to the 5th millennium BC in the Indus Valley civilization. Bone needles and wooden spindles have been unearthed in excavations at the site, along with indications on cotton being spun, woven, and dyed, leaving behind specific applicable techniques even today. Clothing in India varies based on ethnicity, tradition, geography, and climate of the people from each region of India. Historically, male and female clothing has evolved from simple Loincloths (dhotis, langots) to elaborate costumes.

Many weaving techniques were employed in ancient India, many of which survive to the present day. Famous among these weaving styles were the Jamdani, Kasika Vastras of Varanasi, butidar, and the Ilkal saree. These were traded to foreign lands, and hence Indian Fabrics are in great demand to date. Trade with the Arabs, who were middlemen in the spice trade between India and Europe, supplied Indian textiles to Europe, where royal families favored it in the 17th–18th century. Later with India's British rule and the following oppression after the Bengal Partition, it sparked a strong nationwide Swadeshi movement. One of the movement's fundamental aims was to attain self-sufficiency and promote Indian goods while boycotting British goods. It is at this time, the Indian origin natural fiber named Khadi gained importance.

Khadi

Under Swadeshi Movement, with nationalist leaders' efforts and large support of natives, the campaign brought Khadi production to the limelight. Khadi, also called Khaddar, is an eco-friendly fabric as it exhibits fast decomposition property, unlike other imported materials. It has no health hazards, as it allows the skin to breathe and doesn't obstruct sunlight from entering while being soft on the skin. In 1918, Mahatma Gandhi started his movement for Khadi to repose for the poor masses to be independent and self-reliant in this sector. He aimed to elevate spinning and weaving to an ideology that establishes self-government. He requested every village to plant and harvest its raw materials for yarn that meets their needs. He closely observed that farmers are left idle

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for about three to four months due to the dry season or low rainfall, so spinning is the best occupation. Gandhi saw this as the end of dependency on imported items and the best possible way to develop the masses' skills. Through this, he wished to lop the gap between the rich and the poor by developing a mechanism that acknowledges hand-labor importance.

After Independence, the Indian government established the All India Khadi and Village Industries Board, which in 1957 came to be known as the Khadi Village and Industries Commission (KVIC). There are many places in India, which are making khadi fabric. Well known among them is the Ponduru Khadi from the Srikakulam district of Andhra Pradesh.



Sri. D. Venkata Ramana, Secretary of AFKK Sangham, Ponduru.



AFKK Sangham, administrative Information board.



Awards received by AFKK Sangham.



Inauguration board of khadi Bandar.

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Retail Shop of AFKK Sangam, Ponduru.



Reseller shop located in Ponduru.



Man with a small shop selling Khadi fabrics.



The transparency level of fine Khadi.

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Fine Khadi fabric of different colors.

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Mahatma Gandhi statue at the entrance of AFKK Sangam.



Hand-loomed Khadi.

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Group of Artisans from Ponduru, who is involved in making Khadi.



Mrs. J. Kanthamma Senior Khadi artisan aged 70.



Mrs. K. Sarojini who is involved in making a cotton thread.



Mr. AakasamPide Raju observing the flow of threads in the weaving machine.

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Place

Ponduru a town situated 30 km away from the district of Srikakulam in Andhra Pradesh. Ponduru Khadi is a rare product of remarkable excellence, made out of a unique variety of indigenous Organic Cotton. This variety is named after the village Ponduru. This place is now famously known as Khadi Village. This khadi is spun out of two fibers, namely, Punasa cotton and Hill cotton (both white and red). These cotton are grown mainly along the Eastern Ghats of the Vizianagaram District in Andhra Pradesh. As the fiber is best suited for spinning with a limit of up to 120 counts, they are not allowed to be shaped on mill machinery. This is one of the only places in India where still the single spindle charkha is underuse. The name of the fabric went to such an extent that Mahatma Gandhi gave a personal visit to the village and preferred to have Ponduru Khadi for him throughout his life.

The Andhra Fine Khadi Karmikabhivruddhi Sangham (AFKKS) in Ponduru, founded in 1949 by the weavers themselves, is now run under the backing of the Khadi and Village Industries Commission (KVIC). The AFKKS acts as a mediator between cotton farmers, spinners, and weavers in the area, as the product is also exported to foreign countries.



Office entrance of Andhra Fine Khadi Karmikabhivruddhi (AFKK) Sangham, Ponduru.



Khadi cotton lungi.

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Tools and Raw Materials

Tools and raw materials used for Khadi making are:

- **Raw Cotton:** The primary raw material used in making the fabric.
- **Fish Jawbone:** Used in ginning of the cotton. This process of fluffing the fiber makes it loose and easy for further processing.
- **Metal Rod:** Used to remove the cottonseeds from the cotton fibers.
- **Dry Banana Stem:** It is used to hold the cotton sliver during the yarn making.
- **Carding Bow:** It is used in the carding of the cotton. Carding is the process of disentangling the fibers and aligning the fibers for slivering.
- **Conical Stick:** It is used to roll the carded cotton into a sliver.
- **Charkha:** It is used to spin the cotton sliver into yarn.
- **Hank Winding Tool:** It is used in winding the yarn onto the frame to make them into hanks of cotton.
- **Bobbins:** It is used to wind the yarn onto the bobbin, which is used in the weaving process.
- **Dyeing Colours:** It is used to add colour to the yarn to make it look attractive.
- **Loom:** It is used for the weaving of the yarns into a fabric.

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Cotton Bolls are used as a basic raw material in making Khadi.



A customized tool is used to clean the Cotton Bolls with the fish jaw bone attached to the tool.



Flat wooden piece and a metal rod are used to remove the seed from cotton.



A customized bow is used to fluff up the cotton.

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Wooden Mani Palagai is used as a base layer to fluff the cotton.



Metal rod is used to rolling up the fluffed cotton.



Thread Spinning Wheel is used to obtain thread from cotton fluff.



Customized spindle holder is used for holding the spindles to extract the thread from cotton fluff.

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Spindles are used as axis point between thread warping wheel and cotton fluff.



Banana stem leaf is used to hold the cotton fluff.



Coconut leaf basket is used as a supporting layer while extracting the yarn.



A customized spinner is used to convert thread into yarn.

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A customized tool is used to segregate yarns in sequential rows.



Warping beam is used in the warping process.



A customized setup is made for the warping process.



Sticks are used to construct customized warping setup.

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A vessel is used to make dyeing colour for the dyeing process.



Indigo blue rock is used as an ingredient to obtain a blue colour.



Sodium is used as a blender in the dyeing process.



Long sleeve gloves are used to secure hands in the process of dyeing.

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Turmeric powder is used for getting a natural yellow colour.



A special kind of stone is used to make a mixture in the dyeing process.



Nutmeg leaf is used for getting natural colour.



Myrobalan powder is used as a blender to obtain natural colour.

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A customized setup is made for extracting water from dyed cloths.



Charkha is used to wind yarns on to the pirns.



Pirns wound with the cotton yarns used for the weaving process.



Flying Shuttle is used to carry the thread across the loom weft yarn while weaving.

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Pirns soaked in starch water.



Handloom Pit is used for weaving fabric.



Charcoal iron box is used to iron the fabric.



Cloth measuring meter is used to measure the length of the fabric.

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Making Process



Preparing Cotton



Carding



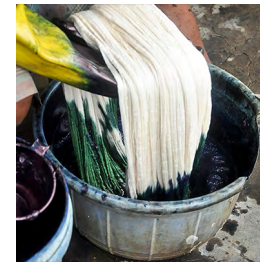
Yarn Spinning



Hand Ginning



Charkha Spinning



Dyeing

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Warping



Weaving

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Preparing Cotton

The Punasa cotton used for Ponduru Khadi is of very short staple length. Hence its production also differs from other kinds of khadi. First, the collected cotton is cleaned by using the jawbone of the Valuga fish found specifically in the Godavari, removing dirt and other impurities. The alignment of the jawbone on a stick is made in such a way that left and right-hand users can use it.



To get started, Cotton Bolls are taken.

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A customized tool made up of Fish Jaw is used to clean the cotton bolls.



The customized tool is made for both right hand and left-hand users as per their convenience.



Cotton Bolls are cleaned by pulling the cotton bolls outwards using a customized tool.



Both sides of cotton bolls are cleaned by using a customized tool.

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Cleaned cotton bolls are placed in a plastic bowl.

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Hand Ginning

The seeds of the cotton are removed by hand using a rolling stick. The cotton boll is placed between the rolling board and the stick, and the stick is rolled over the cotton bolls forcing the seeds to come out of it. The cotton obtained after removing the seeds is sent to the carding process.



Cleaned cotton bolls are gathered.



Cleaned cotton bolls are placed on a wooden piece, and a metal rod is rolled swiping the cotton bolls.



Cotton bolls are tapered with a metal rod.



Seeds in the cotton bolls are separated through tapering it using a metal rod.

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Carding

Carding is a process that untangles and cleans fibers to produce a continuous sliver fit for further processing. Carding is done using a bow like a handheld tool that is tied with a nylon string. The string of the bow is plucked, holding the bow closer to cotton, these vibrations help untwine the cotton fiber. Once carding is done, the collected mass is arranged into layers and then rolled to form a thick roll of cotton called Slivers.



A fish wire is tied at both corners of the customized bow.

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Cleaned cotton bolls are gathered and flattened by using hands.



Flattened cotton bolls are placed on a wooden Mani Palagai.



Artisan uses the customized bow to separate the fibers.

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Separated fibers are recombined in opposite directions.



Fibers magically fluff up and align themselves in the direction of the string.



The fluffed cotton is shaped in a rectangular shape for further process.

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A metal rod is taken and placed on the fluffed cotton.



The fluffed cotton is rolled around the metal rod, and the rod is removed.



Fiber tube.

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Charkha Spinning

This slivered cotton is placed in between a folded dried banana plantain skin for spinning. Later spinning is done on the cotton rolls using a charkha. With the wheel of the charkha rotated after placing the sliver, the fibers pushed to form a yarn, which is coiled on to a bobbin attached to the other end of the charkha.



The fiber tube is lightly sandwiched in a banana stem leaf.



Twisting process.



Artisan uses a twisting method to make a thread.

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Artisan spinning the thread on the spinning wheel.



Artisan extracting thread in spindles using thread spinning wheel.

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Spindles wrapped with extracted cotton threads.

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Design Resource

Ponduru Khadi Making, Andhra Pradesh

Handloom Fabric - Srikakulam

by

Prof. Bibhudutta Baral and Parvathi Pooja
NID, Bengaluru

Source:

<https://www.dsource.in/resource/ponduru-khadi-making-andhra-pradesh/making-process/yarn-spinning>

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Yarn Spinning

The yarn produced is of 80-100 counts. Giving a twist to threads during the spinning process strengthens the thread. Some old yarn is purposely left on to the spinning bobbin so that it is easy to make yarn from the slivers. The yarn obtained is wound on a square frame of a particular size, rotating the particular frame number of times in one direction; one is able to wound particular meters of yarn on to it. Then this yarn is removed and bundled for weaving purpose. The bundle is known as hank.



Customized spinner used to convert thread into yarn.



Initial process of converting threads into yarns from spindles.



The process is stopped after 100 meters of threads are wrapped.



Wrapped threads are compressed together.

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Compressed threads are pleated.



Twirled yarn.



Pleated threads are twirled repeatedly.

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Yarns are untwisted for further process.

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Yarns are attached to a charkha.



Yarns are wrapped around bobbin cone using charkha.



Bobbin Cones with cotton threads wrapped around.

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Dyeing

The dyeing step takes place after the yarn is processed in the hank form. It can be of two types, natural and chemical-based dyeing. Natural dyes are obtained from the bark of trees, insects, flowers, minerals, rust, and other natural materials. A subcategory under this is vegetable dyes, a type derived from plant matter only. Among the fibers, cotton is the most colour resistant; hence mordant like alum is used to hue the hank. Big tanks or vessels are used for dyeing. Vat dyeing is the simplest form of dyeing where the material is immersed in dye and gradually brought to boil. After different methods are used to fasten the process of colour absorption like frequent agitation, the use of robust salts or acids, prolonged soaking, etc. Then these yarn are tightly wringed and made to dry in the shade or in the sun.



A required amount of wet yarn is taken.



The required dyeing colour is mixed in normal water.



Wet yarn is dipped into the dye mixed container.



Cotton yarn is immersed in the dye solution.

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Yarn is twisted for better absorption of colour.



The dyed yarn is twisted firmly to remove the water.



Artisan shakes out the yarn and makes sure the yarn is dry.

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Yarns are kept to dry under room temperature.

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Warping

Warping is a step that determines the length and quality of the loom, converting the hank yarn into an even form, suitable for uncomplicated weaving. Warping is done on a huge drum, where the yarn from the bobbin is tied to the manually tethered yarn on the huge drum. The drum is then rotated manually to wound the yarn of the desired length. Once the length is achieved, the entire warped yarn is moved for sizing. Application of starch to the yarn to bring in the lubrication and prevent the cracking of warp is called sizing. Sizing is done to give temporary strength to withstand the rigor of weaving while keeping the characteristics and properties of cotton yarn intact. The starch based adhesives are drawn from different sources like the natural adhesives come from rice, maize, wheat flour, or potato while the artificial ones are mostly acid-based, oxidized, or ethylated. After the application of the sizing paste, special brushes are used to spread and dry the starch on the yarn. After sizing, all the yarns are aligned and separated from each other in order for smooth weaving operation.



Cotton bobbin cones are sent to the warping machine.

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Threads from the cotton bobbin cones are attached to the warping machine.



Several thread cones are attached to the warping machine.



When the warping machine is spun, threads from the thread cones are wrapped on the warping machine.

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Nails help to avoid misalignments of threads on the warping machine.



Artisan is making alignment setup for the warping process.



A customized setup is made for the warping process.

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A bamboo stick is added in between the cotton threads.



According to the length decided by the artisan, bamboo sticks are repeatedly added at a certain distance.



Cotton threads are tied on a wooden log and stretched.



Threads are equally spaced in the warping process.

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Artisan pulls back the thread and stretches it from one end for checking breakages.

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Bamboo sticks are inserted in between and wrapped around and tied.



Threads, along with bamboo sticks, are rolled back for the next process.

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Weaving

Next comes the weaving process, which starts with a stage called warping. Frame and pit looms are the preferred ones for khadi weaving. The final fabric produced is sent for quality assurance and packaging.



Warped yarns are loaded into the loom for the weaving process.



Initial adjustments are made before the process of weaving begins.



Artisan pulls the cord to move the Flying shuttle in respective directions.



Weaving is formed by pulling the wooden frame towards the weaver.

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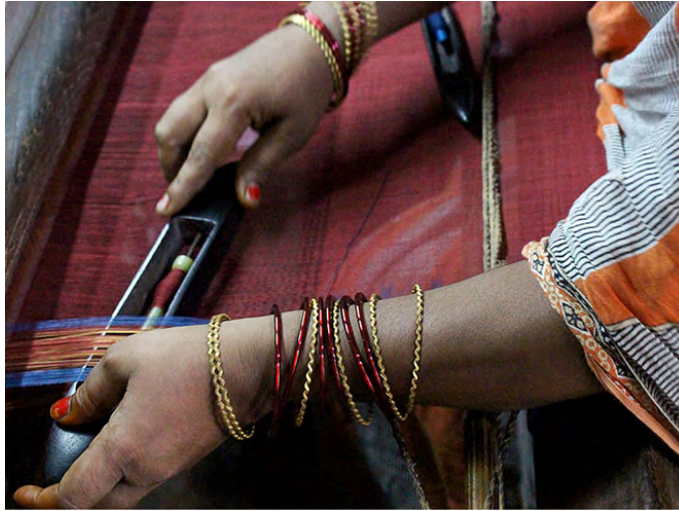
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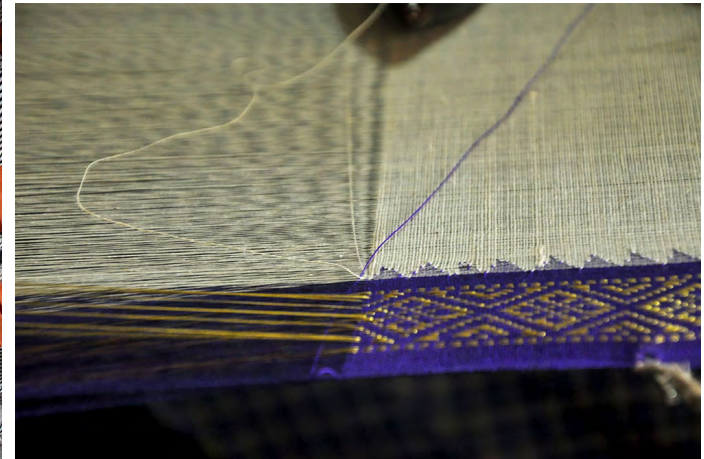
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The weavers use several numbers of flying shuttle and one shuttle for each different colour.



The flying shuttle is sent across the wooden frame to process the weft.



Generally, border designs are made using bright colours.

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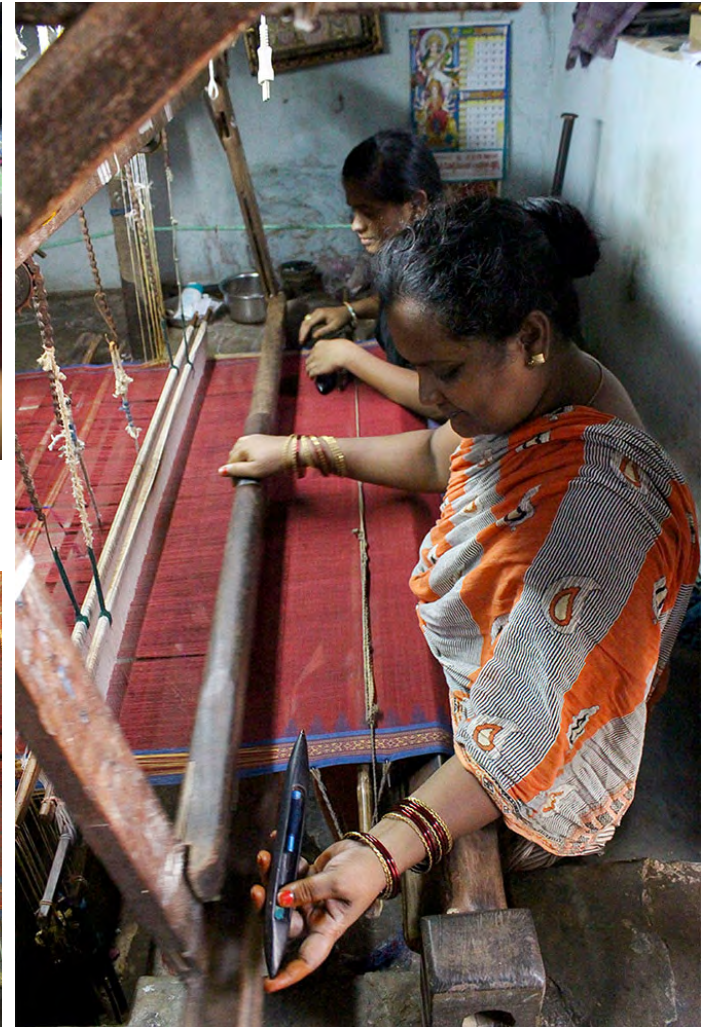
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Different flying shuttles are used to make border designs.



Final product.



Multiple artisans are involved in the weaving process to make effective production.

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Weaved fabrics are measured using a cloth measuring meter.



Measured readings are noted on a piece of paper and kept inside the measured cloth.



Serial numbers are given to the fabric for easy identification.



Fabric is pressed to reduce wrinkles.

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Fabrics are stacked after pressing.

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Products

With Ponduru Khadi, yardage, sari, dhoti, etc., are made. Their market price varies according to the yarn count. Usually, yardage of 1.25 meters width and length as required starts from INR 500 to INR 1600 per meter and sometimes even more. Saris of 6 meters in length and 1.25 meters width of 100 counts cost around INR 2500 to INR 150000.



Pure Khadi shirt material of different colours.

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Traditional khadi Lungi and Saree.



Hand-loomed Khadi cotton lungi with brown border.



Fine Khadi lungi with octagonal star embossed border.



Khadi saree with contrast colour border.

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Hand-loomed cotton saree from Ponduru, Andhra Pradesh.

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Video



Ponduru Khadi Making - Part 1



Ponduru Khadi Making - Part 2

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