



WOOL RESEARCH ASSOCIATION

(Approved Body of Ministry of Textiles, Govt. of India)

60TH
ANNUAL REPORT
AND ACCOUNTS

YEAR
2024 - 2025

Gentle on nature.
Strong in innovation.



WOOL RESEARCH ASSOCIATION

(Approved Body of Ministry of Textiles, Govt. of India, New Delhi)

**P.O. Sandoz Baug, Kolshet Road,
Thane – 400 607 (Maharashtra)**



**60th ANNUAL REPORT AND ACCOUNTS
FOR THE YEAR 2024-25**

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**GOVERNING COUNCIL MEMBERS OF WRA
(APRIL, 2024 TO MARCH, 2026)**

CHAIRMAN EMERITUS	:	SHRI. RAVIKANT KAPUR GRENTEx & CO. PVT. LTD.
PRESIDENT	:	SHRI. AVDHoot. A. BAMBARDEKAR MUMBAI
VICE PRESIDENT	:	SHRI. AKHIL KHANNA AMRITSAR SWADESHI WOOLLEN MILLS

MEMBERS (ELECTED)

1. SHRI. S. L. POKHARNA	:	RAYMOND LIFESTYLE LIMITED
2. SHRI. RAJESH RANKA	:	MODERN WOOLLENS LIMITED
3. SHRI. A. K. CHURIWAL	:	BSL LIMITED
4. SHRI. RAJEEV KAPUR	:	KAPOTEX INDUSTRIES PVT. LTD.
5. SHRI. RAKESH MEHRA	:	BANSWARA SYNTEX LTD.
6. SHRI. BHARAT B. THAKER	:	THAKER FELTS PVT. LTD.
7. SHRI. KUNAL TOSHKHANI	:	RAYMOND LIFESTYLE LIMITED

MEMBERS (EX. OFFICIO), (WOOL RESEARCH ASSOCIATION)

1. SHRI. H. K. CHATTERJEE	:	DIRECTOR GENERAL
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SPECIAL INVITEES

1. MR. JYOTIRANJAN PARIDA	:	WOOLMARK SERVICES INDIA PVT LTD.
2. SECRETARY GENERAL	:	I. W. M. F., (EX. OFFICIO)
3. SHRI. POSHAK PATEL	:	MANAGING DIRECTOR, GUSHEEL, AHMEDABAD
4. DR. S. K. CHAUDHURI	:	FARIDABAD, HARYANA
5. DR. A. M. MIR	:	CASHMERE MARKETING AGENCIES, SRINAGAR
6. SHRI. Y. K. KUSUMGAR	:	PRESIDENT, KUSUMGAR CORPORATES, MUMBAI
7. SHRI. RAJEEV POPLI	:	WOOLTEX ASSOCIATES, MUMBAI
8. SHRI. G. BANERJEE	:	SHREE RAM TEXTILE MILLS PVT LTD., MUMBAI
9. SHRI. VINEET SOOD	:	CENTEX INTERNATIONAL PVT. LTD. LUDHIANA
10. SHRI. AKHILESH KUMAR	:	ORDNANCE CLOTHING FACTORY, SHAHJAHANPUR

TECHNICAL CUM RESEARCH ADVISORY COMMITTEE (TRAC) MEMBERS OF WRA (APRIL, 2024 TO MARCH, 2026)

CHAIRMAN : SHRI. H. K. CHATTERJEE

MEMBERS

DR. R. V. ADIVAREKAR	:	I.C.T., MUMBAI
SHRI. G. S. BHATI	:	CENTRAL WOOL DEVELOPMENT BOARD, JODHPUR
DR. ARUN KUMAR TOMAR	:	C.S.W.R.I., AVIKANAGAR
DR. S. K. CHAUDHURI	:	INTERNATIONAL INSPECTION INITIATIVE, FARIDABAD
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SHRI. R. INDU SHEKAR	:	SCIENTIST 'E', DEBEL, BENGALURU
DR. RAJEEV KUMAR VARSHNEY	:	DIRECTOR, IICT, BHADOHI
DR. A. M. MIR	:	CASHMERE MARKETING AGENCIES, J&K
DR. J. PAMPAPATHI	:	M.D., K.S & W.D. CORPN. LTD., BENGALURU
SECETARY GENERAL	:	INDIAN WOOLLEN MILLS FEDERATION, MUMBAI
SCIENTIST 'G'	:	DST, GOVT. OF INDIA, NEW DELHI
SHRI. RAMESH C. KHANNA	:	SUNIL INDUSTRIES LTD., MUMBAI
SHRI. RAJEEV SHARMA	:	SHIKHAR HANDLOOM WEAVERS SOCIETY, H.P.
DR. N. S. GANGAKHEDKAR	:	COMPUTE SPECTRA COLOUR PVT LTD., MUMBAI
SHRI. SEKATIA GHOSH	:	JAYASHREE TEXTILES, KOLKATTA
SHRI. SUBODH DAGA	:	JAYASHREE TEXTILES, KOLKATTA
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SHRI. VIJAY THAKUR	:	H.P. STATE COOP WOOL LTD., SHIMLA
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SHRI. ADIL BHAI	:	MAHILA MANDAL, BALMER
SHRI. ALIK SINHA	:	BSL LTD., BHILWARA
DR. M. K. TALUKDAR	:	KUSUMGAR CORPORATE, MUMBAI
DR. DILIP KUMAR DUREHA	:	L.N.I.P.E, GWALIOR
DR. VIKAS B. THAKARE	:	JD, DEFENCE RES. & DEV. ESTABLISHMENT, GWALIOR
DR. R. S. CHAUHAN	:	IDST SCIENTIST, DRDE, GWALIOR
DR. MILIND KHANDWE	:	THE BHOR CHEMICALS & PLASTICS PVT LTD.
MR. ADITYA SHARMA	:	PPDC- MSME -TECHNOLOGY DEVELOPMENT CENTRE
MR. ANJANI PRASAD	:	ARCHROMA INDIA PVT LTD.
MR. ANUP RAKSHIT	:	INDIAN TECHNICAL TEXTILE ASSOCIATION
SHRI. A. A. BOMBARDEKAR	:	MUMBAI
SHRI. VINAYAK S. KASHID	:	DR. BALASAHEB SAWANT KONKAN KRISHI VIDYAPEETH
SHRI. UMASANKAR MAHAPATRA	:	PULCRA CHEMICALS INDIA PVT. LTD.
SHRI. MANMOHAN SINGH	:	GRASIM INDUSTRIES LIMITED
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DR. MAHADEB DATTA	:	NATIONAL JUTE BOARD, WEST BENGAL
SHRI. VAIBHAV DALVI	:	WELSPUN WORLD, MUMBAI
SHRI. D. J. GOHAIN	:	TEXTILE EXCELLENCE
SHRI. RAJEEV HICHKAD	:	RAYMOND LIFESTYLE LIMITED
SHRI. RAVIKANT KAPUR	:	CHAIRMAN EMERITUS, WRA (EX-OFFICIO)
DR. MRINAL CHOUDHARI	:	ADDITIONAL DIRECTOR, WRA (EX-OFFICIO)
MS. SEEMA PATEL	:	ADDITIONAL DIRECTOR, WRA (EX-OFFICIO)

NOTICE

NOTICE

NOTICE IS HEREBY GIVEN THAT the 60th Annual General Meeting of The Wool Research Association will be held on **Tuesday, 16th September, 2025, at 11:30 a.m. at Anantha Banquets, Manpada, Thane West – 400610**, to transact the following business:

1. To welcome members and invitees and to read out the notice.
2. To confirm the minutes of the last Annual General Meeting held on Thursday, 29th August 2024.
3. To receive and adopt the Annual Report and Accounts of the Association thereon for the year ended 31st March, 2025.
4. To appoint Auditors for the year 2025-26 and fix their remuneration by passing the following resolution.
“Resolved that M/s. J.P.J ASSOCIATES LLP, Chartered Accountants, D/401, Shantidwar C & D Wing CHS., Shantivan, Borivali (East), Mumbai – 400 066, the retiring Auditors, being eligible for re-appointment, be and hereby appointed as the Auditors of Wool Research Association for the year 2025-26 on remuneration of Rs. 85,000/- plus GST”.
5. Any other matters with the permission of the chair.

BY ORDER OF THE GOVERNING COUNCIL

(H.K. CHATTERJEE)
DIRECTOR GENERAL

Dated : 28th August, 2025

1.0 OVERVIEW

1.1 INFRASTRUCTURE

Wool Research Association (WRA) is well - equipped with the state - of - art infrastructure for research and other technical activities as expected from a TRA. The organization has its sprawling campus of over 13 acres of land at Thane. It has its accommodation, where the following infrastructure has been created over the last five decades of its existence.

1. Accredited Textile Physical Laboratory
2. Accredited Textile Chemical Laboratory
3. Research & Development Division
4. Eco-testing Laboratory
5. Textile Technology Laboratory
6. Pilot Plant

7. Library
8. Training facilities with classrooms, teaching aids, etc.
9. Auditorium & conference room with audio system
10. Computers, LCD projectors, Overhead projectors
11. Information & Technology Co-ordination Centre
12. Administrative & Accounts Department
13. Center of Excellence – Sportech

WRA has been registered with the Department of Science and Industrial Research (DSIR); the registration is valid up to March 2027.

1.2 CENTRE OF EXCELLENCE FOR SPORTECH

Under the aegis of the Ministry of Textiles' Technology Mission on Technical Textiles, WRA has established a Centre of Excellence (CoE) in Sportech. This initiative includes the creation of a state-of-the-art testing facility and incubation centre, with parallel efforts directed toward securing international accreditations and fostering strategic collaborations. WRA has consistently supported the user industry by offering advanced testing services and developing cost-effective, high-performance

products tailored to Indian conditions - ensuring no compromise on functionality or athletic performance.

WRA is proposing the setting up of Next Gen AI Empowered Innovation Centre for Advanced Sportech Segment of Technical Textiles encompassing of Product Demonstration, Dissemination of Knowledge, and Display Gallery under National Technical Textile Mission (NTTM) scheme.

2.0 TYPE OF ACTIVITIES

WRA undertakes a wide spectrum of activities to support the textile sector, with a special emphasis on innovation, industry collaboration, and capacity building. Its core functions include:

2.1 RESEARCH AND DEVELOPMENT

WRA is a leading institution engaged in extensive R&D across both natural and synthetic textiles, with a particular emphasis on wool and wool-blended materials. Its research spans functional finishes, sustainable processing methods, and innovative applications. WRA is also exploring cutting-edge technologies such as technical textiles, nanotechnology, phase change materials, flame-retardant textiles, smart textiles, and supercritical fluid processing. Through its Centre of Excellence in Sportech, WRA focuses on advancing sports textiles via research, prototype development, and market analysis. The association has pioneered

projects including novel denim fabrics, wool-jute blended home furnishings, coarser wool-based building insulation materials and mulch mats, digital printing advancements for woolen fabrics, and specialized agro-textile packaging. WRA actively collaborates with government bodies and industry partners on commercialization, technology transfer, and modernization initiatives. Additionally, it supports the textile industry through technical feasibility studies, turnkey project execution, and audits aimed at improving operational efficiency and fostering the adoption of advanced practices.

2.2 TESTING AND EVALUATION

WRA maintains NABL accredited laboratories - including physical, chemical, and eco testing labs—compliant with ISO/IEC 17025 standards with a total of 699 accredited parameters. WRA offers comprehensive testing and evaluation services for textile and allied substrates to a wide spectrum of clients, including industries, export-oriented units, and government organizations. WRA offers specialized services in colourimetric and fastness assessments, physical and chemical testing, ensuring compliance with both domestic and international quality standards. WRA houses an

advanced setup for detecting restricted substances, quantification of free and released formaldehyde, and heavy metal analysis.

WRA also extends technical support to decentralized sectors such as the carpet industry, small and medium enterprises (SMEs), and cottage/rural industries, assisting them in improving product quality and market competitiveness. The COE-Sportech segment offers specialized testing for sports textiles, composite materials, and protective gear under high-tech testing regimes.

2.0 TYPE OF ACTIVITIES

2.3 TRAINING & EDUCATION

Training and education form a cornerstone of WRA's institutional mandate. WRA conducts a wide array of training programs aimed at upskilling workers, students, and professionals in the textile sector. These include certification in wool testing, dyeing techniques, colour matching, carpet weaving, spinning, and knitting. In addition to regular vocational and technical education, WRA offers specialized

training in advanced textile technologies and supports capacity building in emerging areas such as Sportech. These initiatives are designed to bridge knowledge gaps, foster innovation, and strengthen the human resource base of the Indian textile industry. It collaborates with institutions such as VJTI, ICT, DKTE and NIFT for internships, curriculum development, and student project support.



3. PILOT PLANT (INCUBATION CENTER – CoE SPORTECH)

Pilot plant (Incubation Center – CoE Sportech) is equipped with yarn manufacturing facilities for spinning worsted yarn, friction spun yarn, and blends of wool with other natural and synthetic fibers.

3.1 STATE OF THE ART FACILITY IN PILOT PLANT

- A. Fibre to Sliver Formation
 1. Carding Machine
 2. Gill Box
 3. Combing Machine
- B. Yarn Formation
 1. Roving frame
 2. Ring frame
 3. Sliver to yarn ring frame
 4. Friction Spinning System (DREF 2)
 5. Winding machine (Cheese)
 6. Two for one Twister
- C. Fabric Formation
 1. Sectional Warping Machine
 2. Weaving Machine (Rapier Loom)
 3. Circular Knitting Machine (Single/Terry & Double jersey machine)
 4. Direct Warping machine
 5. Warp Knitting Machine (Tricot)
 6. Warp Knitting Machine (Raschel)

Knitting Facility also includes hand knitting machine, semi-automatic flat-bed knitting machine. Miniature handlooms for developing woven fabric samples.
- D. Coating & Laminating Facility
 1. Hot melt Coating and laminating machine
 2. Fabric rolling machine (Fabric preparation for coating/lamination: fabric from fold to roll, roll to roll)

- E. Braiding & Twisting Facility
 1. Heavy Duty Ring Twisting Machine
 2. Braiding machine
 3. Precision winding machine
- F. Other Machines
 1. Compression Moulding Machine
 2. Shoe stitching machine
 3. Industrial Sewing Machine
 4. Ultrasonic Sealing Machine
 5. RF sealing machine
 6. Hank to cone winding machine
 7. Heating oven
 8. Cold storage chamber
 9. Degassing unit
 10. Zero grade granite surface table
 11. Vacuum pump

These machines are being utilized for product development related to sport textiles and other technical textiles. Apart from the above, pilot plant is also equipped with a carpet manufacturing facility for hand knotted and tufted carpet making.

3.2 PRODUCTS DEVELOPED UNDER PILOT PLANT FACILITY

- UV Repellent Sport Nets
- Tubular Nets
- Sport Fabrics for T Shirt application in Nylon & Polyester
- Stretchable fabric
- Terry Fabric (Corduroy fabric, Micro polar fleece fabric)
- Seat Cover Fabrics
- Curtains
- Fabric for lamination
- Flag fabric
- Agro packaging Products (Plant Net, Support nets, Root Ball net, Packing Sacks)
- Wool based Denim Fabrics
- Home Furnishing Fabric
- Jute/Wool Based Hand Knotted & Hand Tufted Carpets
- Fabric for lamination
- Flag fabric
- Home Furnishing Fabric
- Jute/Wool Based Hand Knotted & Hand Tufted Carpets

4. LABORATORIES

4.1 ECO LABORATORY

Eco Laboratory is well equipped to take up complete testing of Dyes, Pigments and Finished Textile Products for all the tests as per international Standards and has been providing the testing services to the textile and pharmaceutical industry.

Eco Lab Testing Facilities:

- Gas Chromatography Mass Spectrophotometer-Triple Quad (GCMS-MS) for Restricted Substances Limit Testing and Qualitative analysis for identification of chemical compound through library.
- Particle Size Analyser - Dry and Liquid sample for the quantification of size distribution of samples in terms of D10, D50 and D90.
- Differential scanning calorimetry (DSC) for Melting point and Glass Transition Temperature analysis.
- Thermal Gravimetric Analysis (TGA) weight changes and Decomposition Study.
- HPLC with DAD detector for % Assay, Free Formaldehyde analysis and Chromium VI.
- COD Digester and Analyser for COD analysis
- Induced coupled plasma-Optical Emission Spectroscopy (ICP-OES) with Microwave Digester for Heavy metal analysis.
- UV-Visible Spectrophotometer for Absorbance, Transmittance analysis and quantification of Free and Released Formaldehyde.
- FTIR-ATR/Kbr for qualitative analysis and structural and functional identification.
- Viscometer Brookfield for viscosity analysis of samples.
- Turbidimeter for analysis of turbidity in samples.
- Moth Proofing (ISO 3998 - Bio Assay).
- Moth Proofing (TM-27 - Chemical Assay).

4.2 TEXTILE CHEMICAL & COLOUR DEPARTMENT

Textile Chemical & Colour Department is involved in R&D and testing related to textile wet processing- textile pre-treatment, dyeing & finishing, advanced textile technology like Plasma treatment, ultrasonic treatment, functional finishing, coating, colour difference measurement, quality control, yellowness & whiteness index measurement. It is also involved in colour recipe prediction service for all customer specific requirements.

Colour Department is equipped with:

- Colour spectrophotometer for the analysis of L*, a* and b* Value, Delta E Value, Opacity, Whiteness Index, Yellow index
- Surface Tension
- Bench Top Spectrophotometer (i7, X-Rite)
- Robotic auto Dispensing System (Colour Focus 72, Dye Focus/ Daelim Starlet)
- Infra colour Dyeing machine
- Laboratory Jigger dyeing machine and HTHP top dyeing machine

Textile Chemical Department is equipped with:

- Ultra sonicator equipment
- Rotary Vacuum Evaporator
- Laboratory Pad-Dry-Cure machine with IR Pre-heater
- Laboratory coating Machine
- Planetary ball milling machine
- Mixer mill machine

TEXTILE TESTING LABORATORY

- Textile Testing and Analysis (2024-2025)

Detail	2023 -24	2024-25
No. of Client Request received	7589	8047
No. of Samples Tested	35529	41329
Client Base	1821	2000
Revenue Generation (in lakhs)	431.21	504.78
NABL accreditation parameters	634	699

5. RESEARCH PROJECTS

5.1 SANCTIONED R&D PROJECTS

5.1.1 Department of Micro, Small & Medium Enterprises and Textiles (MSME & T), Government of West Bengal

(i) Project Title: Product Development on Hand Made Carpets (Knotted & Tufted), Floor Coverings and Home Textile Products Using Wool, Silk, Jute & Other Natural Allied Fibers under West Bengal MSME

Objectives of the project:

- ▶ Product Development in the area of Hand Made Carpets (Knotted & Tufted), floor coverings, and home textile products using wool, silk, jute & other natural allied fibers.
- ▶ Dyeing with natural/synthetic dyes and applying functional finishes to obtain desired properties.
- ▶ Hands-on training to the local women (25 Nos) on the Hand Made Carpets (Knotted & Tufted), floor coverings, and home textile product manufacturing using developed yarn and dyeing & finish application method to improve the skill and empower the local women workforce.
- ▶ Marketing and promotion of the developed products

The first installment is awaited to initiate the project.

5.1.2 NTTM GREAT Scheme

(i) Project Title: Smart Fabrics of Tomorrow: Nanofibers - Infused Textiles for Energy Generation and Sensing

Industry Incubatee: Nanospin Nanotechnologies LLP

Objectives Of the Project:

- ▶ Utilizing materials engineering techniques to develop new piezoelectric polymer-Mxene and Graphene nanocomposite materials with improved Energy Harvesting functionalities.
- ▶ Employing advanced nanoscale characterization methods to investigate and take advantage of the unique properties of these new materials.
- ▶ The possibility of powering "LED" straight from the harvester. Because of its built-in energy transduction capacity, PVDF provides strain-tolerant direct energy conversion without the requirement for bias voltages or external conditioning, making it an ideal material for this application.
- ▶ Manufacturing high-performance nanogenerators that can be incorporated into commercial floor mats and tile-based products, using insights gained from modeling the properties of the materials and devices.

5.2 ONGOING R&D PROJECTS

5.2.1 Central Wool Development Board (CWDB)

Project 1: Sustainable Enhancement of Aesthetic Values of Woolens by Digital Printing

Objectives of the Project

- ▶ Developing a pre-coating system for digital printing on wool for controlled absorption, minimum spreading & sharp print pattern.
- ▶ Formulating Acid dye, Reactive Dye & Pigment Ink systems for digital printing on Ink-Jet Printing systems

- ▶ Developing print-dry, print-dry-steam or print-dry-cure process as per the colourant component
- ▶ Devising a wash-off sequence as per the ink system for fault-free printing

Progress of the Project

- Herbal oils, such as Shankapushpi and Karanja, were extracted through steam distillation and formulated into nano-emulsions.
- These nano-emulsions enhanced wool fabric

5. RESEARCH PROJECTS

absorbency and pretreatment effectiveness. Stability tests indicated particle size decrease over time, with good thermal stability up to approximately 56–58°C and a slightly acidic pH of around 6.1.

- Wool fabrics were pretreated with biopolymer-based coatings (using CMC, chitosan, and Sodium alginate) to enhance adhesion.
- Four ink types were developed: Reactive, Acid, Pigment, and Basic inks, each optimized for dye concentration, biopolymer concentration, and plasticizer levels.
- Reactive inks demonstrated the best balance of viscosity, pH (~6.8), solid content (~13%), and biodegradability (78%). Acid inks had lower biodegradability (22%) but offered good fastness properties. Pigment inks showed moderate biodegradability (35%) and high light fastness. Basic inks had poor fastness and high zinc contamination (2274 mg/kg), requiring reformulation.
- Viscosity and Surface Tension: Formulated inks were within acceptable inkjet printing ranges.
- Biodegradability: Reactive > Basic ≈ Pigment > Acid.
- Metal Content: Reactive and Acid inks were free from toxic metals, Pigment inks contained trace safe levels, but Basic inks showed very high zinc levels.
- Thermal and UV Stability: Pigment and Acid inks exhibited better UV absorption and thermal stability.
- Reactive inks showed excellent wash (4–5), light (3–5), and rub (4–5) fastness across wool fabrics. Acid inks also performed well with good wash (3–4), light (4–5), and rub fastness (4–5). Pigment inks had good light fastness (up to 5) but lower wash fastness (3–4). Basic inks performed poorly across all fastness tests.
- Incorporation of CMC at 1.5% significantly enhanced fastness for Reactive, Acid, and Pigment inks.



Formulated Digital Printing Inks



Digitally Printed Woolen Shawls



Digitally Printed Woolen Stoles

5. RESEARCH PROJECTS

5.2 ONGOING R&D PROJECTS

Project 2: Utilization of Indian Coarse Wool as insulating Material for Building Construction as a Green Building Material and Comparison of such coarse wool-based developed products against conventional materials like glass wool/rock wool.

Objectives of the Project

- ▶ To explore the possibility of utilizing coarse Wool for building Insulation as a Green building Material
- ▶ To further explore the possibility of coarse wool for building as an acoustic
- ▶ Comparison of the above wool-based products against conventional materials like glass wool/rock wool.

Progress of the Project

- Developed prototype sampling of indigenous coarse wool-based nonwoven material for Building Insulation using needle punched, needle punched & thermal bonded – combination & thermal bonded.
- Optimization of developed product testing vis-à-vis existing insulation products like rock-wool, glass-wool, etc.
- Three numbers of buildings constructed for the measurement of performance & evaluation of developed indigenous coarse wool-based nonwoven material for Building Insulation.
- Installation of developed insulation panels along with data loggers in prototypes in 03 nos. of constructed buildings, along with existing insulation products like rock-wool, glass-wool, etc.
- Data analysis of field trials at Ramdevnagar, Bhuj, is ongoing.



Installation of developed wool panel

5. RESEARCH PROJECTS

5.2 ONGOING R&D PROJECTS

Project 3: Development of sustainable and Biodegradable Mulching for agro-textile application using Deccani wool fibre with added functionality using Plant micronutrients.

Objectives of the Project

- ▶ Development of sustainable and biodegradable mulch for agro-textile application using Deccani wool fibre.
- ▶ To enhance the durability of the natural fibre-based mulch by adding natural biopolymers such as chitosan, alginate, and starch.
- ▶ Incorporation of micronutrients in developed mulch for crop and soil enrichment.
- ▶ Field trial of the developed wool fibre-based mulch for selected fruit and vegetable crops to study the effect of the developed Mulching material on Phenology and Agronomic traits of the crop.
- ▶ To study the life span of developed mulching in terms of biodegradability and soil enrichment in comparison with the existing polyethylene-based material.

Progress of the Project

- Successfully conducted the field study with groundnuts and green chilli crop at Dr. Annasaheb Shinde College of Agricultural Engineering & Technology, Mahatma Phule Krishi Vidyapeeth, Rahuri.
- Second Season field study with ground nuts and green chilli is going on with Dr. Annasaheb Shinde College of Agricultural Engineering & Technology, Mahatma Phule Krishi Vidyapeeth, Rahuri.
- Successfully conducted the field study with rice and maize crops at the Agronomy and Agrometerology Department, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli Camp, Maharashtra.
- Field study with green gram crop at the Agronomy and Agrometerology Department, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli Camp, Maharashtra is going on.



Harvested ground nuts under
100% Coarser Wool mulch



Green Chilli crop with 100 % Wool
Mulch, No Mulch, and Synthetic Mulch.



Rice Crop with 100% Coarse
Wool Mulch



Maize Crop with 100% Coarser
Wool Mulch

5. RESEARCH PROJECTS

5.2 ONGOING R&D PROJECTS

Project 4: Design & Development of Wool (Special fibres & blends) based Novel Denim Fabric with Multifunctional Properties such as Moisture Management, Anti-microbial, etc., using Eco-friendly finishing techniques.

Objectives of the Project

- ▶ To produce Wool (Special fibres & blends)

novel denim fabric by utilizing pure wool and special yarns

- ▶ To impart suitable finishing treatment such as Moisture management, anti-microbial, etc. using eco-friendly finishing techniques.
- ▶ To evaluate the performance of the developed denim fabric.

Progress of the Project

Project Deliverables	Achievement
Development of twelve different types of special wool blend yarn developed at Mahadev woollen mills, Sundar Nagar Himachal Pradesh	<ul style="list-style-type: none"> • Wool/Yak (70/30) Three types of count 1/62, 2/42, 2/62 Nm • Wool/Camel (70/30) Three types of count 1/62, 2/42, 2/62 Nm • Wool/Camel ((70/30) Three types of count 1/62, 2/42, 2/62 Nm • Wool/Pashmina (90/10) Three types of count 1/62, 2/42, 2/62 Nm • Wool/Lycra (96/04) 2/56 Nm count Wool/Lycra (96/04) 2/68 Nm Count stretchable yarn developed at Bansal spinning Mills Ludhiana • Stretchable special wool blend 100% Wool, Wool/Yak (70/30) Wool/Camel (70/30) Wool/Camel ((70/30), Wool/Pashmina (90/10) developed at M/s Dhvani Cooperation Pvt. Ltd. Surat, Gujarat
Four different types of non-stretchable heavyweight and lightweight GSM Denim fabric developed using special wool yarns.	<ul style="list-style-type: none"> • Heavyweight 100 % Wool based denim Fabric developed using 7 Ne indigo dyed cotton as warp and 8 Ne 100% wool yarn as weft on air jet machine for jacket, jeans, caps • Heavyweight 100 % pashmina-based denim Fabric developed using 7 Ne indigo dyed cotton as warp and 7 Ne 100% pashmina yarn as weft on air jet machine for jeans, caps • Heavyweight 100 % camel-based denim Fabric developed using 8 Ne indigo dyed cotton as warp and 6 Ne 100% camel yarn as weft on air jet machine for shirt • Heavyweight 100 % Angora based denim Fabric developed using 8 Ne indigo dyed cotton as warp and 7 Ne 100% camel yarn as weft on air jet machine for jeans, caps • Lightweight Wool/Yak (70/30) blend-based denim fabric developed using 42 Nm Indigo dyed cotton yarn as warp and 2/42 Nm Wool/Yak (70/30) yarn as weft on air jet machine • Lightweight Wool/Pashmina (90/10) blend-based denim fabric developed using 42 Nm Indigo dyed cotton yarn as warp and 2/42 Nm Wool/Pashmina (90/10) yarn as weft on air jet machine • Lightweight Wool/Camel (70/30) blend-based denim fabric developed using 42 Nm Indigo dyed cotton yarn as warp and 2/42 Nm Wool/Camel (70/30) yarn as weft on air jet machine • Lightweight Wool/Angora (70/30) blend-based denim fabric developed using 42 Nm Indigo dyed cotton yarn as warp and 2/42 Nm Wool/Angora (70/30) yarn as weft on air jet machine • Two different types of lightweight Stretchable woven denim of 200 GSM each developed using 42 Nm indigo dyed cotton yarn as warp and 2/56 Nm Wool/Lycra as weft for shirts, ladies wear

5. RESEARCH PROJECTS

5.2 ONGOING R&D PROJECTS

Commercialization

Bulk industrial scale trials were conducted at different Industries under the project and mentioned in the below table. Bulk trials were also conducted to develop wool and special

wool denim fabrics at Raymond UCO Pvt. Ltd., Yavatmal. Raymond UCO Pvt. Ltd., Yavatmal is interested to commercialize the project outcome.

Sr. No	Name of the Company	Type of Product/Technology/Process Developed
1	Raymond UCO Denim Private Limited	Indian Wool Based Denim Fabric with multifunctional properties
2	Mahadev Woollen Mills	Development of Indian Wool yarn and other Special Blends
3	Vinatex Twisters Private Limited	Twisting of Indian Wool Yarn
4	NIFT Tea college of Knitwear Fashion	Weft Knitted Denim Fabrics
5	MMP Filtration, Ahmedabad	Indian Denim Wool Fabric (Stretchable and Non-Stretchable)
6	Dhwani Corporation	Twisting of Indian Wool Yarn/Spandex

Project 5: Development, Application and Benchmarking of Eco-friendly Moth Repellent and Moth Proofing finish for Woolen textiles.

Objectives of the Project

- ▶ To develop ecofriendly moth proofing finish for woolens, the exercise is for replacing the toxic insecticides to provide a safer moth proofing agent to the wool processors.
- ▶ To give treatment of developed moth proofing finish on woolens. The evaluation would involve the testing for moth resistance against the potential moth species to determine the minimum effective concentration.
- ▶ Studies on the fastness properties, wet fastness and fastness to dry cleaning would be carried out to determine the permanency of the treatment.
- ▶ To do benchmarking of developed product.

Progress of the Project

- Experimental data collection of moth repellency on wool and woolen blends by applying herbal microencapsulated essential oils.

- A total of 27 different microencapsulated essential oils were applied to woolen fabrics of varying GSM (from lower to higher) to evaluate their moth-repellent efficacy using bioassay methods.
- All 27 different microencapsulated essential oils were applied to wool-cotton blended fabrics and evaluated through bioassay to determine their effectiveness in providing moth repellency on woolen blends.
- Optimization of the padding and exhaust methods was carried out by altering the finishing processes in order to evaluate the validity and effectiveness of each application technique is completed.
- Standardization of the formulation was successfully achieved by using varying concentrations of microencapsulated essential oils. This process included evaluating wash fastness properties and collecting experimental data to enhance wash durability, with an emphasis on

5. RESEARCH PROJECTS

5.2 ONGOING R&D PROJECTS

anchoring the microencapsulated oil to the fabric to improve moth repellency.

- Benchmarking of the selected highly moth-repellent essential oils was conducted against commercially available mothproofing agents such as Permethrin and Mitin FF. Additionally, a new moth-repellent formulation was developed using optimal bi-combinations and tri-combinations of essential oils, demonstrating comparable efficacy to commercial products. Experimental data was collected to validate the performance of these combinations.
- As part of our ongoing study on wool infestation and pest management, an industrial visit was conducted to Geetanjali Woolens for the inspection of wool stock suspected to be affected by moth infestation. During the visit, both raw and processed wool storage areas were examined. Several samples showing signs of significant damage caused by

wool-degrading insects were collected for further analysis.

- In parallel, the Central Sheep and Wool Research Institute (CSWRI) is undertaking the cultivation and identification of the moth species responsible for the wool damage. This collaborative effort aims to accurately identify the species involved, understand their life cycle in wool storage conditions, and support the development of effective moth-proofing and preventive strategies for long-term storage of wool fibres.
- International protocol for moth repellency in Woolen fabrics, Wool Blended garments and Carpets are under process.
- Final Project Report writing is going on.
- Patent Filing process ongoing.
- Communicated and discussed with the industry partner regarding the commercialization as well as promotion of the product and establish a chain link through existing clients of the industry partner and clients of moth repellency testing at WRA.

5.2 ONGOING R&D PROJECTS

5.2.2 National Jute Board (NJB), Govt. of India

(i) Development of Cost-Effective Handmade Carpets & Floor Coverings, Home Furnishings & Knitwears using Jute (Treated Woolenised or Untreated) & other natural fibers with value-added Eco-Friendly Finishes such as Flame Retardancy, Mosquito Repellent, Anti-Bacterial /Antimicrobial Properties, etc.

Objectives of the Project

- ▶ To develop woven/knitted fabrics (union blends or otherwise) using Jute (treated

woolenised or untreated) with other natural fibers for home furnishings, handmade carpets, and floor coverings.

- ▶ To impart value-added multi-functional and eco-friendly finishing, such as Flame Retardancy, Mosquito Repellence, and Anti-Bacterial/Antimicrobial Properties, etc, on the developed product for Floor coverings, home furnishings & knitwear applications as per requirement.
- ▶ To study and evaluate the performance of the different developed products.
- ▶ To study the techno-commercial feasibility of the developed products.

5. RESEARCH PROJECTS

5.2 ONGOING R&D PROJECTS

Progress of the Project

Project Deliverables	Achievement
Development of Woolenised Jute fibre	Various trials had been taken to find out the best combination of woolenised, bleached, and softened jute yarn
Development of yarn using blends of woolenised jute, crimping wool/acrylic or other natural fibers such as bamboo, hemp etc	Yarn spinning of Intimate Blends of Woolenised Jute /Wool yarn at Navaratanmal Ashok Kumar Surana Woollen Pvt. Ltd., Bikaner in 07 different Blends was completed in the proportions as mentioned below: a) Woolenized, Bleached & Softened Jute + Wool Yarn Blend % age - 75/25 b) Woolenized, Bleached & Softened Jute + Wool Yarn Blend % age - 60/40 c) Woolenized, Bleached & Softened Jute + Wool Yarn Blend % age - 50/50 d) Woolenized, Bleached & Softened Jute + Wool Yarn Blend % age - 40/60 e) Woolenized, Bleached & Softened Jute + Wool Yarn Blend % age - 30/70 f) Woolenized, Bleached & Softened Jute + Wool Yarn Blend % age - 25/75 g) Woolenized, Bleached & Softened Jute + Wool Yarn Blend % age - 20/80
Development of Woolenised Jute/Wool Blended (WJWB) (40/60) Zero count yarn	For floor covering applications, Woolenised Jute/Wool Blended (WJWB) (40/60) Zero count yarn was developed.
Development of Cost-Effective Handmade Carpets & Floor Coverings using woolenised jute/wool blended yarn	Various hand-knotted, hand-tufted, and shaggy carpets were developed suitable to be use as floor coverings.
Development of Home Furnishing Fabrics from 100% Jute and Jute in blends with other Natural yarns	Sample development had been done with various industry partners, as well as in the WRA facility.
Development of Woolenised Jute/Wool Blended (WJWB) based Knitwears (Shawl, Cap, Stole, etc.)	Sample development had been done and showed similar properties when compared to wool-based knitwear.
Development of eco-friendly finishing formulations such as with mosquito repellent, anti-bacterial /antimicrobial properties	Microencapsulation of 11 types of essential oils, including Citronella Oil, Eucalyptus Oil, Lemongrass Oil, Cedarwood Oil, Basil Oil, Eucalyptus, Citrodora Oils, Lavandin Oil Grasso, Spearmint Oil, Clove Oil, Thyme Oil & Peppermint Oil, has been completed.

5. RESEARCH PROJECTS

Project Deliverables	Achievement
Development of flame-retardant jute-based fabrics & floor coverings for home textile applications	An eco-friendly organophosphorous compound was used to add flame retardancy in retardant jute-based fabrics & floor coverings for home textile application at different concentrations and found an LOI % value of more than 25 in each case.
Testing and analysis of existing and developed products	Developed products show similar properties when it compared to wool.
Bulk Scale Trials	Bulk scale trials, Woolenization, Bleaching & Softening of Jute fibre were successfully conducted at VC Vishal Carpets, Bhadohi.

- Apart from lab scale development, hand tufted and hand knotted carpets are developed in Bulk size (6.5 ft x 4.5 ft) at VC Vishal Carpets Bhadohi.

Proposed Standard to BIS

- Draft manuscript for Specifications for Woolenized Jute & Wool Blended Carpet Hand Tufted Carpets has been submitted.

- Draft manuscript for Specifications for Woolenized Jute & Wool Blended Carpet Hand Knotted Carpets has been submitted.

Commercialization

Bulk Industrial Scale Trials were conducted at different Industries under the project. The outcome of the project is commercialized in the following industries:

Sr. No	Name of the Company	Type of Product/Technology/Process Developed
1	VC Vishal Carpets, Bhadohi	Woolenized Jute & Wool Blended Handmade Carpets, Knotted, Tufted & Floor Coverings
2	M/S Innoleague Technologies India Pvt. Ltd., Mumbai	Microencapsulated Eco-friendly Mosquito Repellent, Anti-Bacterial /Antimicrobial Products for Jute products
3	Global Woollen Industries, Bikaner	Woolenized Jute & Wool Blended Carpet Yarn
4	RR Rugs Pvt. Ltd., Bhadohi	Woolenized Jute & Wool Blended Carpet Hand-knotted, Tufted Carpets & frames & fabrics
5	Carpet Karts, Bhadohi	Woolenized Jute & Wool Blended Carpet Hand-knotted, Tufted Carpets
6	Carpet Training Centre, Distt. - Chandrapur (MAVIM-WRA)	Woolenized Jute & Wool Blended Carpet Hand Knotted, Tufted Carpets & frames
7	AKS Designers, Andheri	Jute, Wool & other Natural fiber-based Blended Home furnishing fabrics

5. RESEARCH PROJECTS

5.2 ONGOING R&D PROJECTS

5.2.3 NTTM- (Research and Development)

(i) Development of eco-friendly natural fibres based sustainable agro-textiles for packaging of agro products with protection against rodents, microorganisms including bacteria, fungi and viruses, and UV repellent properties

Objectives of the Project

- ▶ To develop eco-friendly, natural fibre-based sustainable agro-packaging material for agro-products using warp knitted technology.
- ▶ To develop elastic as well as non-elastic nets for agro products.
- ▶ Synthesis and application of microencapsulated finishes for rodent repellence, anti-microbial/anti-bacterial, UV repellent finish on the developed nets for better durability.
- ▶ To validate the performance of the developed fabric as per International and national standards.
- ▶ To conduct field trials of the developed natural fibre-based agro packaging products & nets for the crops in different Agro-climatic zones.

Progress of the Project

- Direct & indirect type of packaging for agro products are developed using sustainable natural fibres, which include Support nets, Plant nets, Leno bags, Tubular packing nets for fruit & vegetables, Nets for covering pallets, lower and vegetable support mesh, Packing sacks for vegetables & Root ball elastic knotless nets.
- Developed Bio-Based Finishing Formulation of Arka-Banyan, Marigold, and Chirata for Anti-Microbial Protection of Agro Packaging Textiles.
- Developed Bentonite Clay Enriched with Micronutrient Application for Root-Ball Net
- Developed Plant Zipper Net Using Natural & Biodegradable Material.

- Developed Natural Eco-friendly Oil-based Microencapsulated Technology for providing Anti-rodent, UV repellent, and Anti-microbial properties.
- Developed Tri-functional Single Step Finish Formulation inclusive of Anti-rodent, UV-resistant, and Anti-microbial properties.
- Development ongoing for Plug and Play Sensor Modules for Measurement of Parameters such as Temperature, Moisture, and Relative Humidity of Agro packaging to enhance the storage conditions and optimize the usage of Agri-goods.
- Study completed for biodegradability testing of the developed agro packaging textiles.

Product Highlights

▪ Development of Support Nets

1. Jute-based hand-knotting supports nets are developed (12-inch diameter, 6 ply yarn)
2. Coir-based hand-knotted support net fabric is developed (Angango coir, 2 ply yarn)
3. Cotton-based Knotless support net fabric has been developed. (1 inch mesh size)
4. Viscose-based Knotless support net fabric is developed (1-inch mesh size)
5. Recycled cotton-based Knotless support nets were developed (2/20 Ne Count)
6. Cotton Bamboo-based Knotless support net was developed (2/20 Ne)

▪ Development of Plant Nets

1. Cotton-based hand-knotted plant nets are developed (2-inch mesh size)
2. Cotton-based Knotless plant nets are in development (1-inch mesh size)
3. Bamboo-based Knotless plant nets are developed (1-inch mesh size)
4. Viscose-based Knotless plant nets are developed (1-inch mesh size)
5. Bamboo-based Knotless plant nets are developed (2-inch mesh size)
6. Viscose-based Knotless plant nets are developed (2-inch mesh size)

5. RESEARCH PROJECTS

5.2 ONGOING R&D PROJECTS

- **Development of leno bags**
 1. Cotton mesh-based Leno bags are developed (10"x19", 12"x26", 22"x38", 32"x50")
 2. Bamboo mesh-based Leno bags are developed (10"x19", 12"x26", 22"x38", 32"x50")
 3. Jute-based Leno bag fabric is developed (Woven Leno material)
 - **Development of tubular packing nets for fruit & vegetables**
 1. Cotton-based tubular nets are developed (Raschel Warp Knitting)
 2. Bamboo-based tubular nets are developed (Raschel Warp Knitting)
 3. Bamboo Excel-based tubular nets are developed (Raschel Warp Knitting)
 4. Recycled polyester-based tubular nets are developed (Raschel Warp Knitting)
 5. Recycled cotton yarn-based tubular nets are developed (Raschel Warp Knitting)
 6. Cotton, Bamboo yarn-based tubular nets are developed (Raschel Warp Knitting)
 - **Development of nets for covering pallets**
cotton-based hand-knotted pallet packing nets are developed (3 ft. x 4ft.)
 1. Cotton-based based heavier mesh, knotless pallet packaging net is developed (1/4th Inch)
 2. Cotton-based based heavier mesh, Knotless pallet packaging net is developed (2 Inch)
 3. Viscose-based based heavier mesh, Knotless pallet packaging net is developed (2 Inch)
 4. Viscose-based based heavier mesh, Knotless pallet packaging net is developed (2 Inch)
 - **Development of root ball nets**
 1. Jute-based Root-ball Net fabric is developed (Woven Leno material)
 2. Cotton-based Root-ball Net fabric is in development (1 cm mesh size)
 - **Development of the flower and vegetable support net**
 1. Cotton-based hand-knotted support nets are developed (6ft x 5ft.)
 2. Cotton-based Knotless support nets are developed. (1 inch mesh size)
 3. Viscose-based Knotless support nets are developed (1-inch mesh size)
 4. Bamboo-Cotton-based Knotless support nets are developed (1-inch mesh size)
 5. Cotton-based Knotless support nets are developed. (3-inch mesh size)
 6. Viscose-based Knotless support nets are developed (3-inch mesh size)
 7. Bamboo-Cotton-based Knotless support nets are developed (3-inch mesh size)
 - **Development of packing sacks for vegetables**
 Cotton-based packaging fabric is developed
 Jute-cotton-based packaging fabric is developed
 1. Jute-Cotton-Hemp-based packaging fabric is developed
 2. Jute-Hemp-Tencel-based packaging fabric is developed
 3. Jute-Cotton-Linen-based packaging fabric is developed
 4. Jute-Wool-based packaging fabric is developed
 5. Bamboo-Cotton packaging Fabric is in development
 6. Flax-Cotton packaging fabric is in development
 - (ii) **Development of High-Performance Woven Protective Gloves and Seamless Knitted Gloves for Industrial Uses**
 Total project: 121 Lakhs (WRA as laboratory partner)
 WRA's share: 30 Lakhs
- Objectives of the Project**
- ▶ To design and develop high-performance cut-stitch gloves.
 - ▶ To engineer seamless gloves using Indigenous developed Shear Thickening Fluid

5. RESEARCH PROJECTS

5.2 ONGOING R&D PROJECTS

- ▶ To develop RFL free coating for improving the performance of the gloves

Progress of the Project

- Recycled para-aramid fibres were blended with cotton in different blend proportions of 90/10, 30/70, 50/50, 70/30 and spun into yarn of 29.5 tex. A 100% cotton yarn of similar fineness was also spun for comparative purposes. The developed yarns were then knitted into seamless gloves of 250 g/m².
- The gloves were tested for their performance properties such as cut-resistance, abrasion, limited fame spread, and contact heat resistance as per applicable EN & ISO standards. The gloves made from 70/30 recycled para-aramid and

cotton showed better performance properties with level C cut resistance, level 4 limited fame spread and level 1 contact heat resistance.

- The knitted gloves were also analysed for air permeability, q max (Peak heat flux), and the Moisture vapor transmission rate (MVTR). The addition of cotton up to 30% in the gloves improved the q max and MVTR values without compromising the cut resistance properties.
- The longitudinal structural study of recycled para-aramid fibres using SEM showed flat and twisted structure with fibre breakage due to fibrillation and stress created during recycling compared cylindrical shape of virgin para-aramid fibre.

5.3 REVENUE-GENERATING ACTIVITIES

Revenue for Year 2024-2025		
Textile Testing Laboratory & Eco Lab	:	Rs. 504.78 Lakhs
Incubation Activities	:	Rs. 49.70 Lakhs
Consultancy & Training	:	Rs. 1.80 Lakhs

6. OUTREACH ACTIVITIES

6.1 MoUs (INDUSTRIES & INSTITUTIONS)

- Ramkrishna Mission Ashram, Sargachi, Behrampore, Murshidabad, West Bengal for joint R&D projects on 21st June 2024.
- Department of Textile Engineering, OTR, Bhubhaneshwar, for joint R&D activities on 23rd August 2024.
- Texoedge Innovation Pvt.Ltd for joint R&D projects, product development, testing on 30th September 2024.
- School of Arts and Design, Woxsen University (SDAD-WoU), Telangana for R&D activities on 4th October 2024.

6.2 CONSULTANCY

- Technical Consultancy to LAHDC to establish Pashmina Dehairing plant at Leh - visits to a running Dehairing Plant for the inspection and trial run of Indian Pashmina are completed.
- IICT, Srinagar has selected WRA for providing technical consultancy for getting NABL Accreditation of laboratory.
- WRA is providing technical consultancy to the Government of Chhattisgarh for investment potential in textile, technical textile & apparel manufacturing in Chhattisgarh.
- WRA is providing technical consultancy for setting up a state-of-the-art Laboratory for Pashmina Testing & Certification in Ladakh to Industries & Commerce department (I&C), Ladakh UT.

6.3 INCUBATION ACTIVITIES

- ▶ Horizontal Braiding machine with 48 carriers made operational, and the following samples have been developed:
 - Polyester sleeve single braided-without core
 - Double Braided (braid on braid) polyester sleeve
 - High tenacity Polyester Cord with Polyester Core
 - High tenacity Polyester Cord with Coarse Wool Core
- ▶ Developed tubular nets for Garware Technical Fibers Ltd. for Oil Boom Applications.
- ▶ Developed Polyester fabric for Home Furnishings Application for Nebco Textiles.
- ▶ Developed terry type fabric on circular knitting machine.
- ▶ Trials on DREF Spinning Machine for Jute-Wool Core-Sheath Yarns:
A series of 12 yarn samples was successfully developed using the DREF spinning system,

exploring core-sheath structures with varying proportions of jute (core) and wool (sheath). The yarns were spun in a count range of 1390 to 2104 tex, with jute core content ranging from 37% to 61% and wool sheath content ranging from 39% to 63%.

Braiding & Twisting Section:

- ▶ A new heavy-duty ring-twisting machine of 24 spindles is installed and operational. An order of 3.5 tons of nylon twisted twines received for the heavy-duty ring twisting machine for development work.
- ▶ Precision Winding machine was used for initial trials for preparing bobbins for the Horizontal Braiding machine. Polyester & Nylon yarn was used for the development work.
- ▶ Development of Nylon filament twine (Article no. # 18) by using nylon 1260D/3/3
- ▶ Development of Nylon filament twine (Article no. # 30) by using nylon 1680D/4/3

6. OUTREACH ACTIVITIES

- ▶ Development of Braided rope by using nylon 1680D sheath and 20 nos. of 1680D/4/3

Tricot Warp Knitting Machine:

- ▶ Developed Warp Knitted Fabric for home furnishing with poly yarn 1/50/36
- ▶ Developed warp knitted fabric by using poly yarn 1/50/36 for the lamination process
- ▶ Developed warp-knit fabric by single poly yarn 1/50/36 for automotive uses
- ▶ Developed warp-knitted fabric by using recycled polyester yarn 75D for packaging

Raschel Warp Knitting Machine:

- ▶ Developed a tubular net using Excel / Cotton / Bamboo yarn for fruit and vegetable packaging
- ▶ Developed an oil boom net by using high tenacity polyester yarn

Circular Knitting Machine Terry Type:

- ▶ Developed corduroy fabric by using Tex yarn 75 D in cord and 150 D in plain body fleece fabric using poly yarn 75 D.
- ▶ Developed polyester plain china cord foam laminating fabric by using tex yarn 75 D in cord and 150 D in plain body
- ▶ Developed polyester mattee fabric by using Tex 150 D yarn in the body
- ▶ Developed a Single jersey fabric by using Dtex 78/68 Nylon S&Z twist yarn
- ▶ Developed Plain jersey fabric by using Dtex 78/68/2 Nylon for apparel wear.
- ▶ Developed a Thermo grey jersey fabric by using Dtex 75 yarn for thermal stability

Direct Warping machine:

- ▶ Warp beams of 50 Denier Bright Polyester and 75 Denier texturized polyester. Multifilament yarn was used for Tricot warp knitting machine. 500 D polyester yarn was used for preparing beams for Raschel warp knitting machines.

Double Rapier Loom:

Development of woven fabric by using different counts and blends of yarn. The following are the various types of yarn that were used to develop woven fabric for packaging on a rapier loom.

- ▶ Cotton
- ▶ Wool
- ▶ Camel
- ▶ Yak
- ▶ Pashmina
- ▶ Wool Lycra wrapped yarn
- ▶ Merino wool
- ▶ Wool yak blend
- ▶ Wool pashmina blend
- ▶ Wool camel blend

Sectional Warping machine – Developed warp beams in different materials for weaving.

Handloom:

- ▶ Development of woven fabric made of cotton used in apparel
- ▶ Development of woven denim fabric for apparel

TFO Twisting machine:

- ▶ Development of twisted bamboo yarn of S&Z twist for medical textile uses

6.4 SKILL DEVELOPMENT

WRA in association with **Govt. of Maharashtra (through its entity MAVIM)**, is successfully running Hand Made Carpet Production cum training centre at Four (04) centres at Pombhurna & Mul taluka, Brahmpuri & Saoli, Dist. Chandrapur, Maharashtra, where around 240 nos. of women have been trained and are working with the Centre to earn their wages

through the commercial production of exportable handmade carpet manufacturing activities. The objective of the above setup is to skill the personnel from rural backgrounds in handmade carpet manufacturing and to augment their family income by providing earning opportunities at their doorstep to prevent migration and improve their livelihood.

6. OUTREACH ACTIVITIES

6.5 PAPERS PRESENTED/PUBLISHED

- 1 Deshpande, A., Shetty, S., Yadav, A. & Basuk, M. (2024). Fabrication and characterization of stretchable & non-stretchable wool blended denim fabric. In Proceedings of the 62nd Joint Technological Conference (JTC). Northern India Textile Research Association (NITRA). Basuk, M., & Deshpande, A. (2024). Denim Fabric: Construction, Thermophysiological Comfort and Future Trends. IJIRAE: AM Publications. <https://doi.org/10.26562/IJIRAE.2024.V110.3.02>
- 2 Yadav, A., Deshpande, A., Shetty, S., & Basuk, M. (2024). A comprehensive review of jute fibre: Historical significance, classification, properties, processing techniques, and its applications. International Journal for Scientific Research and Development, 12(4), Article 0087.
- 3 Yadav, A., & Basuk, M. (2024). Sustainable packaging of agro-products in agro textile: A review. Colourage, (2), 27–34.
- 4 Shetty, S., Yadav, A. & Basuk, M. (2024). Enhancing agro packaging textiles: Innovations and functional formulations for improved agricultural productivity and sustainability. International Journal of Scientific Research in Science, Engineering and Technology, 11(5), 201–207. <https://doi.org/10.32628/IJSRSET411324>
- 5 Basuk, M., & Yadav, A. (2024). Eco-Friendly Natural Fibers Based Sustainable Agro-Textiles for Packaging of Agro-Products. In M. Shahid, A. Mallick, & S. Debnath (Eds.), Advances in Renewable Natural Materials for Textile Sustainability (1st ed., pp. xx–xx). CRC Press. <https://doi.org/10.1201/9781003459774-2>
- 6 Vankundre, V., & Tyagi, S. (2024). Evolutionary significance and sustainable applications of coarser grade wool fibers: A review. Current Trends in Fashion Technology & Textile Engineering, 9(1), Article 555751. <https://doi.org/10.19080/CTFTTE.2024.09.5.555751>
- 7 Guruswamy, K. P., Kumar, N., Shanmugam, N., Raja, A. S. M., Rajkumar, K., Hussian, A., & Patel, S. (2024). Sustainable approach for development of cut-resistance seamless gloves using recycled para-aramid/cotton blends. Cleaner Engineering and Technology, 23, Article 100859. <https://doi.org/10.1016/j.clet.2024.100859>
- 8 Yadav, A., Basuk, M., Misra, K. K., & Datta, M. (2024). Flame retardant jute-based fabrics & floor coverings for home textile application. Current Trends in Fashion Technology & Textile Engineering, 9(2), Article 555760. <https://doi.org/10.19080/CTFTTE.2024.09.5.555760>

6.6 PATENTS APPLIED

- Filed complete specification of the “Development of Biodegradable Mulching Using Coarser Wool Fibre for Agricultural Applications” on February 17, 2025.
- Filed complete specification of the “Digital Printing Ink Composition for Wool-Based Fabrics” on October 11, 2024.

7. WRA IN NEWS

1. WRA hosted a delegation of 40 farmers and entrepreneurs from the wool production sector primarily from Victoria and New South Wales, Australia on 28th January, 2025. The delegation witnessed the Technical Infrastructure facilities of WRA and gained insights into its research and operations.



2. Shri H. K. Chatterjee, Director General and Dr. Mrinal Choudhari, Joint Director, WRA attended a crucial meeting with the Hon'ble Chief Minister of Chhattisgarh Shri. Vishnu Deo Sai and Smt. Ritu Sain (IAS), OSD & Investment Commissioner, C.S.I.D.C. Ltd., Govt. of Chhattisgarh to discuss the upcoming collaboration with Chhattisgarh Government through Chhattisgarh State Industrial Development Corporation. (C.S.I.D.C. Ltd.) on 23rd January, 2025 at Hotel Grant Hyatt, BKC, Mumbai. The Director General actively participated in the discussions, highlighting potential areas of investment. They also reiterated the importance of industry - government collaboration in driving economic growth and job creation in Chhattisgarh. He appraised about WRA's activities in the area of Skill development.



3. A plantation drive was carried out in the premises of WRA on the occasion of the 78th Independence Day. The event was graced by esteemed leaders, including Shri Ravikant Kapur, Chairman Emeritus, WRA; Shri H. K. Chatterjee, President, WRA; Shri K. K. Misra, Director, WRA; and Shri Tushar Garg, Director Commercial, Raymond Limited.



7. WRA IN NEWS

4. WRA proudly hosted Industry Meet, bringing together a distinguished gathering of the Textile Commissioner & Additional Textile Commissioner-Minister of Textiles Government of India, dignitaries, industry leaders, Vice-Chancellor, Maharashtra Agricultural Universities and esteemed EC members at Hotel Satkar Residency, Thane. The event was marked by vibrant and interactive discussions that highlighted the future of textile innovation. Exclusive display was of cutting-edge developments in Sportech and Wool-related technologies comprising unique testing & Product Incubation capabilities along with, was put up to demonstrate our (WRA's) commitment to excellence in textile research and development.



Textile Machinery Manufacturer's Association (TMMA) visited the Wool Research Association on 7th October 2024 to explore R&D opportunities.

8. NETWORKING BY WRA

8.1 VISITS/MEETINGS ATTENDED BY WRA TEAM

- WRA team attended a meeting with Mr. Sumit Goenka held on 3rd April, 2024, for reusing their Garment Manufacturing machinery from a Technical Textiles point of view.
- WRA team attended a meeting with Conserve India for the Upcycling of Pashmina Waste held on 11th April, 2024, through an online mode.
- WRA team attended a meeting with Mr. Vinayak S. Kashid (Chief Coordinating Officer (COO) Green Life Crop Care LPP) held on 12th April, 2024, for signing of MOU and discussion of future collaborations and have been introduced to Mr. Vijay Kulkarni for International University Collaborations.
- WRA team attended a meeting with UKSL, New Delhi, on 15th April, 2024, for the discussion and review of the proposal presentation for the Capacity Building Conclaves for the Sportech Sector.
- WRA team attended meeting with Mr. Sayandeep, Assistant Professor at National Institute of Fashion Technology (NIFT), Navi Mumbai visited Wool Research Association along with students on Friday 19th April, 2024, to get professional knowledge and understanding of quality testing of textile and apparels and also enhance the knowledge of students in terms of different types and methods used for testing specific material.
- WRA team attended a meeting with Mr. Harshal Ramteke, H.O.D. of Sasmira's Institute of Man-Made Textiles, Worli, Mumbai visited Wool Research Association along with students on 20th April, 2024 to understand quality testing of textile and apparel.
- WRA team attended a meeting with Mr. Javed (owner of Imfa Agro Pvt. Ltd.) and Mr. Faizan for ongoing development work of agro-packaging nets under the NTTM project on 20th April, 2024.
- WRA team attended a meeting with Mr. Gautam Kumtakar (Managing Director of Gokak Textile Limited) and Umesh Nikte (HOD Marketing) for Collaborative work with WRA on 26th April, 2024.
- WRA team attended a meeting with Siddheshwar Techtessile Private Limited, to discuss the GREAT Scheme and further collaborative project opportunities in coating on 27th April, 2024.
- WRA team attended the 3rd meeting of stakeholder consultation on "Adaptation of National Guidelines on Responsible Business Conduct for Readymade Garment Sector" on 30th April, 2024 in Bandra.
- WRA team attended a meeting with the company Qualisys Motion Capture System with Mr. Pavel Bogachko, Mr. Chiranjibi, and their Team in the virtual mode on 6th May, 2024, to discuss the Gait lab Specification to be added in the Demonstration Centre.
- WRA team attended a meeting with the representatives from Qualisys Motion Capture System with Mr. Chiranjibi and Mr. Trapit Jain in WRA on 10th May, 2024, to discuss the Gait Lab requirement of WRA and to check the location and space for setting up the Gait Lab in the Demonstration Proposal.
- WRA team attended a meeting with Mr. Sanjay Charak (Deputy Director and Office in-charge, Regional Office of Textile Commissioner, Amritsar, Ministry of Textile, Govt of India) on 13th May, 2024, (Virtual mode) for application and to explore the use of coarser wool fibers from Himachal Pradesh in the field of technical textiles.
- WRA team attended a meeting with Mr. Vinayak Kashid on 13th May, 2024 (Virtual mode) for discussion and finalization of the four Agricultural Projects and Garment Proposal to be submitted to the Ministry of Agriculture and Tribal Development Department, Maharashtra.

8. NETWORKING BY WRA

8.1 VISITS/MEETINGS

- WRA team attended a meeting with Mr. Prashant Mandke from SICAM Industries on 15th May, 2024, in WRA for discussion of the Wood Pulp Project for the Design of Equipment.
- WRA team attended a meeting with Shri Mahadeb Datta from the National Jute Board in WRA on 15th May, 2024 about the progress of the ongoing R&D project of the National Jute Board.
- WRA team attended a meeting with Mr. Deepak Khanolkar and discussed project costing for the demonstration center on 18th May, 2024.
- WRA team attended a meeting with Conserve India for the Upcycling of Pashmina Waste held on 25th May, 2024, through an online mode.
- WRA team attended a meeting with Mr. Trapit Jain from Measurite Technologies LLP to discuss and finalize the GAIT Quotation on 29th May, 2024.
- WRA team attended a meeting with Professor Dr. Subhas Bhalekar, College of Agriculture, Pune, and Mr. Vinayak Kashid for conducting field trials of developed Agro packaging products (virtual mode) on 29th May, 2024.
- WRA team attended a meeting with the ERRL lab regarding the testing of the mulch samples for the biodegradation on 30th May, 2024 through online mode.
- WRA team attended the Demonstration Centre meeting on 1st June, 2024 with Mr. Deepak Khanolkar for discussion of the presentation of the Demonstration Centre for their inputs.
- WRA team attended the 26th meeting of Textiles Division Council, TXDC on 04th June, 2024 in Hybrid Mode, Samvaad (Green room).
- WRA team attended a meeting with Ms. Anita Ahuja, Mr. Shubham Prakash, and Ms. Sonal Chaudhary from Conserve India on 7th June, 2024, to discuss about NDA sent by Conserve India as well as the draft proposal to be sent to them.
- WRA team attended a meeting with Mr. Bhima Kale and Dr. Satyajit Karandikar from Karandikars Pvt Ltd. on 7th June, 2024 to discuss their testing requirement and their interest in new development for super absorbency.
- WRA team attended a meeting with Mr. Chiranjibi and Mr. Trapit Jain from Qualisys on 11th June, 2024 to discuss setting up gait analysis in the Demonstration Centre. They also demonstrated how IIT Delhi has designed and utilized its Gait Lab for effective analysis.
- WRA team attended the 21st meeting of Textile Specialty Chemicals and Dyestuffs Sectional Committee TXD 07 scheduled on 11th June, 2024 (online mode).
- WRA team attended the 35th Meeting of Chemical Methods of Tests, Sectional Committee, TXD 05 scheduled on Wednesday, 12th June, 2024.
- WRA team attended the 35th BIS Meeting for chemical methods of tests on 12th June, 2024, to review and discuss with the stakeholders about the various methods of identification of textile fibers and which methods should be used further for the analysis.
- WRA team attended a meeting with Sanjay Dodiya, Senior Manager Innovation, Aditya Birla Management Corporation Pvt. Ltd. on 13th June, 2024 for an alternative super wash process for wool fiber and to explore possible outcomes.
- WRA team attended the 2nd Meeting of BIS Expert Panel on Sportech [TXD 37] - To prepare a preliminary Draft Standard on Sports Apparel on 13th June, 2024.
- WRA team attended meeting with Mr. Deepak Pachkude from Rishabh Metals & Chemicals Pvt. Ltd. on 22nd June, 2024.

8. NETWORKING BY WRA

8.1 VISITS/MEETINGS

- WRA team attended meeting with Mr. Shivanand Patil from Siddheshwar Techtessile Pvt. Ltd., Kolhapur, Maharashtra on 24th June, 2024.
- WRA team attended meeting with Mr. Ganesh Kashekar from GOTS on 25th June, 2024.
- WRA team attended meeting with Mr. Milind Khandwe and Mr. Kapil Khandwe from Bhore Chemicals Nashik, Maharashtra on 25th June, 2024.
- WRA team attended meeting with S. Seshathri from Best Corporation Pvt.Ltd. for Artificial Turf on 26th June, 2024.
- WRA team attended meeting with Mr. G.S. Bhati, Executive Director, CWDB regarding to discuss about the on-going CWDB products on 28th June, 2024 (virtual mode).
- WRA team attended an online meeting on 1st July, 2024 with Prof. Yash Shukla at CEPT Ahmedabad to discuss the testing-related queries.
- WRA team attended the 15th EMC Review Meeting for the ongoing Jute project under the JPDS Scheme on 2nd July, 2024.
- WRA team attended the Demonstration Centre meeting on 3rd July, 2024 with Mr. Deepak Khanolkar for the finalization of the presentation of the Demonstration Centre and signing of the NDA.
- WRA team attended a meeting to explore the utilization of coarser wool fibers from Himachal Pradesh and develop a further action plan for the proposal on 5th July, 2024 (Virtual Mode).
- WRA team attended a meeting with Mahmood Ahmed Shah, Director of Handicraft for Jammu and Kashmir, and Ms. Anita Ahuja, Mr. Shubham Prakash & Ms. Sonal Chaudhary from Conserve India on 8th July, 2024 (Virtual Mode) to discuss the Wool Sector Sustainability draft proposal.
- WRA team attended a meeting with Dr. Sachin Dingre, Ms. Rutuja Chavan, and Ms. Swapnali Labde from MPKV Rahuri University on 10th July, 2024 (virtual mode) to review the field trials conducted with Wool Mulch, and to discuss the findings from the phenological study after the harvesting of Groundnut and Green chilies crops.
- WRA team attended an online meeting on 11th July, 2024 with Shri. Ashok Chavan, District Coordinating Officer, MAVIM, Raigad, for setting up a garment cluster at Roha, Distt. Raigad.
- WRA team attended WRA's review meeting under Chairmanship of Hon'ble HMOT at BTRA on 13th July, 2024.
- WRA team attended meeting with Ms. Anita Ahuja, Mr. Shubham Prakash & Ms. Sonal Chaudhary from Conserve India on 15th July, 2024 (virtual mode) to discuss about the Upcycling of Pashmina Wool waste Project Proposal and planning of visit to Kashmir for the same.
- WRA team attended project review meeting held under the Chairmanship of Executive Director, CWDB followed by review meeting held on 27th July, 2024 in Chairmanship of HMOT Shri. Giriraj Singh along with demonstration of prototypes/products developed under the Project at Trade Centre, Jodhpur.
- WRA team attended meeting with Dr. Sandeep Patil, Indian Institute of Technology, Kanpur on 31st July, 2024, regarding the Electrospinning Process for the NTTM submitted project Development of nanofiber filter membrane using Electrospinning Filter Media for removal of Microfiber and Micro plastics.
- WRA team attended meeting with Mr. Javed and Mr. Faizan of Imfa Agro Pvt. Ltd. on 5th August, 2024 in WRA for development of Agro packaging products with different yarn under NTTM Project.

8. NETWORKING BY WRA

8.1 VISITS/MEETINGS

- WRA team attended 6th Technical Committee meeting of Hosiery Sectional Committee, TXD 10 on 06th August, 2024 through video conferencing (Webex)
- WRA team attended meeting with LA Technologies on 9th August, 2024 through online mode regarding the development of sensor modules for the measurement of moisture, temperature, relative humidity of Agri goods in Agro packaging products.
- WRA team attended the A meeting with Mr. Sanjay Patil from Woodworks Pvt Ltd., Virar Maharashtra, for project display models for the CWDB Jodhpur Office, on 12th August, 2024 (Virtual Mode).
- WRA team attended the meeting with Dr. Shital Kumar Mukane, M.D. of Punyashloka Ahilyadevi Sheli Mendhi Vikas Mahananda, and Dr. Viraj Borase on 22nd August, 2024 Virtual Mode.
- WRA team attended meeting with Mr. Nirav Mehta from Nanosafe Solutions Pvt. Ltd. visited WRA on 24th August, 2024 for discussion on Joint Development and Commercialization agreement for functional formulation of Agro packaging material under NTTM project.
- WRA team visited Tehsildar and Animal Husbandry Commissioner at Nashik regarding Mulch Project Discussion and availability of coarse wool for project work on 30th August, 2024.
- WRA team attended meeting with Deshpande Startups for better utilization of Deccani Wool on 3rd September, 2024 (virtual mode).
- WRA team attended the meeting with Mr. Sanjay Charak, Deputy Director & Officer-in-Charge of Regional Office, Ministry of Textile Govt. of India Amritsar Punjab, regarding the upcycling of HP wool on 3rd September, 2024 (virtual mode).
- WRA team attended the meeting with Cambium GmbH, Berlin, Germany, along with Mr. Akhil Khanna for the development of enzymes for the woolen industry on 13th September, 2024 (virtual mode).
- WRA team attended a meeting on 1st October, 2024, with Mr. Nirav Mehta, Chief Strategy Officer of Nanosafe Solutions Ltd., to discuss the commercialization of our product.
- WRA team attended a meeting with Mr. Nirav Mehta, Chief Strategy Officer of Nanosafe Solutions Ltd., on 3rd October, 2024, regarding tri-functional formulations for the ongoing Project of NTTM.
- WRA team attended the Quarterly Review meeting in hybrid mode on 04th October, 2024 on the NTTM Project Title "Development of eco-friendly natural fibres based sustainable agro-textiles for packaging of agro products with protection against rodents, microorganisms, including bacteria, fungi, viruses, and UV repellent properties"
- WRA team attended a meeting with Ms. Tanuja to discuss and submit the final specification of the digital printing formulation patent on 5th October, 2024.
- WRA team attended a meeting with Mr. N. D. Mhatre, Director General (Technical), ITAMMA, India, along with Ganesh Rajagopal, Karthik Rajagopalan, CFO, SAMBUQ Mumbai, and the team to discuss about possibility of collaborative work for the Indian wool on 8th October, 2024.
- WRA team attended the meeting with Mr. Sanjay Charak, Deputy Director & Officer-in-Charge of the Regional Office, Ministry of Textiles Govt. of India Amritsar Punjab, Awega Team and Humans of Hemp Team, regarding the upcycling of HP wool on 8th October, 2024 (virtual mode).

8. NETWORKING BY WRA

8.1 VISITS/MEETINGS

- WRA team attended a review meeting with Mr. G.S. Bhati and Team, Executive Director, CWDB regarding to discuss about the on-going CWDB projects on 17th October, 2024 (virtual mode).
- WRA team attended a review meeting on ongoing project "Development of Cost-Effective Handmade Carpets & Floor Coverings, Home Furnishings & Knitwears using Jute (Treated Woolenised or Untreated) & other natural fibres with value-added Eco-Friendly Finishes such as with Flame Retardancy, Mosquito Repellent, Anti-Bacterial/ Antimicrobial Properties etc." held by Expert & Monitoring Committee (EMC) Chaired by the Jute Commissioner on 17th October, 2024 through hybrid mode.
- WRA team attended 36th Meeting of Chemical Methods of Tests, Sectional Committee, TXD 05 held on Tuesday, 22nd October, 2024 (virtual meeting) New Delhi, India.
- WRA team Meeting with Mr. Siva (LA Technologies) for Smart technology-based Sustainable Sportswear on 22nd and 26th October, 2024 in hybrid mode.
- WRA team attended "Online Meeting of 'Consultative Group of Experts (CGE)' held on 28th October, 2024 (Monday) from 3.00 PM to 4:30 PM for the ongoing CPCB's Project titled "Preparation of best available techniques reference/ (BREF / COINDs comprehensive industry document) for Textile Sector".
- WRA team attended a meeting at the District Collector's Office, Chandrapur, regarding the briefing on the progress of Carpet centres under the chairmanship of Shri. Vinay Gowda GC, District Collector, Chandrapur, on 30th October, 2024.
- WRA team attended a meeting with Mr. Siva (LA Technologies) for Smart technology-based Sustainable Sportswear on 4th November and 12th November, 2024, in hybrid mode.
- WRA team attended a meeting with Monu Sharma (Quality head), E-Pack Prefab Ltd., Greater Noida, on 8th November, 2024 to make prefabricated panels using wool-based building material.
- WRA team attended the 22nd meeting of Textiles Speciality Chemicals and Dyestuffs Sectional Committee, TXD 07, held on 12th November, 2024.
- WRA team attended a meeting with Mr. Siva (LA Technologies) for Smart technology-based Sustainable Sportswear on 21st November, 2024, in hybrid mode.
- WRA team attended the 01st Meeting of Smart Textiles Sectional Committee, TXD 41 held on 25th November, 2024 at Holiday Inn, Saki Naka, Mumbai.
- WRA team attended the meeting with Ulli Kasten from Emtech Electronic GmbH and Mr. Deepak Pachkude and team from Rishabh Metal and Chemical Mumbai on 30th November, 2024 at the WRA conference Room.
- WRA team attended the meeting with Madhavi Nair (Thermax Chemical) on 4th December, 2024, and discussed the chemicals that will be developed for wool processing.
- WRA team attended a meeting with Mr. Siva (LA Technologies) for Smart technology-based Sustainable Sportswear on 05th December, 2024, in hybrid mode.
- WRA team visited M/s Obeetee, Gopiganj (U.P.) (A leading manufacturer of handmade carpet) and met Mr. Sudhir Rai, Vice President, Mr. Pradeep Singh, Head Hand Knotted Carpet, and other authorities to seek the possibility of a tie-up for the ongoing carpet centers at Chandrapur on 18th December, 2024.

8. NETWORKING BY WRA

8.1 VISITS/MEETINGS

- WRA team M/s Vishal Carpets, Bhadohi (A leading manufacturer of handmade carpet), to enhance the quantum of their ongoing work at carpet centers, Chandrapur, on 20th December, 2024.
- WRA team attended a hands-on training workshop for hand-tufted carpet at M/s Grentex, Mumbai, on 3rd & 4th January, 2025.
- WRA team visited Archroma India Ltd. and met the Archroma team for collaborative research endeavors on 6th February, 2025 at Andheri Sakinaka.
- WRA team attended Bharat Tex 2025, India's largest global textile event, from 14th to 17th February, 2025 at Bharat Mandapam, New Delhi, where WRA's developments were displayed for visitors.
- WRA team visited carpet centers, Chandrapur, to attend and meet, Mr. Sudhir Rai, Vice President, and Mr. Pradeep Singh, Head Hand Knotted Carpet, from M/s Obeetee on 6th March, 2025.
- WRA team visited MAVIM Mahotsav, Vashi, Navi Mumbai, on 25th March, 2025 to interact with the MAVIM officials to discuss new proposals to be submitted through MAVIM.

8.2 SEMINAR/ WORKSHOPS/CONFERENCES ATTENDED BY THE WRA TEAM

- WRA team attended the National Symposium on Advancements in Composites, Specialty Fibers, and Chemicals organized by NTTM on 9th May, 2024 at Delhi.
- WRA team attended the "Way Forward for HP Wool" workshop organized by the Regional Office of office of Textile Commissioner, Amritsar, from 14th to 19th June, 2024.
- WRA team attended "Problem Solving through 7 Quality Circle (QC) Tools" organized by CII on 21st June, 2024 in Noida.
- WRA team attended "Mandatory Training Programme for Technical Committee Members" held on 19th - 21st August, 2024 at BIS Noida.
- WRA team attended "Viksit Bharat-Technical Textiles for Sustainable Growth & Development," an exhibition and conference under the aegis of NTTM, Ministry of Textiles, jointly with Federation of India Chambers of Commerce (FICCI) and Indian Technical Textile Association (ITTA), held at Delhi on 6th & 7th September, 2024.
- WRA team attended the National Conference on Jute Geotextiles in Civil Engineering: Sustainable Solutions for Future" in Bangalore, Karnataka, on 13th September, 2024.
- WRA team attended FICCI's 15th Annual Conference TAG-2024 on 20th September, 2024 at Nariman Point.
- WRA team was invited as a special dignitary for the 5th ZDHC South Asia Regional Conference on 25th September, 2024 at Chennai.
- WRA team visited the India Prefab Expo & Summit for the commercialization of products developed under CWDB projects held at Yashobhoomi, Dwarka, New Delhi, on 5th October, 2024
- WRA team attended the 62nd Joint Technological Conference at NITRA Ghaziabad, UP, and presented the paper on Design and Development of Lightweight Cricket Pads Using Non-Newtonian Fluids dated 24th to 25th October, 2024.

8. NETWORKING BY WRA

8.2 SEMINAR/ WORKSHOPS/CONFERENCES ATTENDED BY THE WRA TEAM

- WRA team attended the 62nd Joint Technological Conference at NITRA Ghaziabad, UP, and presented the paper on Fabrication and Characterization of Stretchable & Non- Non-Non-Stretchable Wool Blended Denim Fabric dated 24th to 25th October, 2024
- WRA team attended an International Conference on Automation and Robotics in Textile & Apparel Industry on 15th November, 2024, in Mumbai.
- WRA team attended the International Conference on “Automation and Robotics in Textile & Apparel Industry” on 15th November, 2024 at Hotel the Lalit, Mumbai, organised by The Textile Association (India), Mumbai Unit.
- WRA team attended ZDHC Technical Conference: Bonding with Sustainable Chemistry, held on 22nd November, 2024 at Holiday Inn, Saki Naka, Mumbai.
- WRA team attended Prof. M.D.Teli Endowment Lecture at ICT Mumbai on 22nd November, 2024.
- WRA team attended the Agro Vision workshop and National Agricultural Exhibition at Nagpur on 23rd November, 2024.
- WRA team attended AGM of SDC held at TAI office, Dadar on 29th November, 2024.
- WRA team attended a conference on "NbS for sustainability & Climate change" organized by NTTM and IJIRA on 1st and 2nd December, 2024, in Guwahati.
- WRA team attended the LCA Conclave at SASMIRA, Worli, on 9th January, 2025.
- WRA team attended the Chhattisgarh Investor Conclave at Mumbai, at Hotel Grant WRA team Bandra, on 23rd January, 2025.
- WRA team attended workshop on “Wool as Building Insulation material” on 7th February, 2025 at Bangalore International Centre (BIC), Bangalore in a event named “Living Lightly Festival –organized by Centre for Pastoralism (CFP)” dedicated to Indian wool utilisation as a sustainable solution, where Mr. Shishir Tyagi delivered a lecture on “Utilization of Indian Coarse Wool as Insulating Material for Building Construction as a Green Building Material.

8.3 VISIT OF INDUSTRY PERSONNEL / EDUCATIONAL INSTITUTES / FOREIGN DELEGATES

- Mr. Moolji, MD, Arshad Electronics Pvt Ltd. visited WRA to discuss with the WRA team on 3rd March, 2024 to discuss collaborative projects with WRA.
- A team from the Aditya Birla group visited the incubation centre of WRA on 28th March, 2024 to discuss further R&D opportunities.
- Shri Mahadeb Dutta, Joint Director, National Jute Board visited WRA team on 15th May, 2024, for reviewing the ongoing project.
- Mr. Umasankar Mahapatra, Managing Director, Pulcra Chemicals India Pvt. Ltd., visited WRA on 6th May, 2024 for discussion to explore the possibility of collaboration on R&D work.
- Mr. Sanjay Dodiya, Senior Manager, Innovation Cell, Aditya Birla Management Corporation Pvt Ltd., visited WRA to discuss with the WRA team on 18th June, 2024 for technical consultancy for their Jayashree Textile Plant.
- Mr. Seshathri, President, Best Corporation Pvt Ltd., Tirupur, India, visited WRA to discuss with the WRA team on 26th June, 2024 for technical Consultancy for their new upcoming plant at Tirupur.

8. NETWORKING BY WRA

- Mr. Sai Navneethan, Regional Head Sustainable Products South Asia Market, Ramsons, visited WRA to discuss with the WRA team on 19th July, 2024 for new machine development.
- Mr. Sachin Kumar Arora, Executive Director, Textile Machinery Manufacturers Association (India), visited WRA to discuss with the WRA team on 10th October, 2024 for new machine development.
- Dr. Swapneshu Baser from Deven Supercriticals Pvt. Ltd. Visited WRA team on 6th December, 2024 for discussion to explore the possibility of waterless dyeing (using supercritical CO₂ dyeing) techniques for wool and other high-performance fibres.
- Mr. Dharmesh Bavishi from SKFL visited WRA to discuss with the WRA team on 7th January, 2025 for technical Consultancy for their plant at Palsana, Surat.

8.4 WORK DONE BY THE PROJECT TEAM

- WRA team visited building prototypes using developed panels of wool fibre at Ramdev Nagar, Bhuj, under the CWDB ongoing project on 25th April, 2024.
- WRA team visited the Dr. Balasaheb Sawant Konkan Krishi Research Centre for the field trials to be taken on the chilli, chickoo, mango, rice, etc., for the Mulching Project on 26th April, 2024.
- WRA team visited the Dr. Balasaheb Sawant Konkan Krishi Research Centre for the field trials to be taken on the chilli, chickoo, mango, rice, etc., for the Mulching Project on 26th April, 2024.
- WRA team (Scientific Consultant- NJB project) attended Training program conducted on "Woollenized Jute Diversified Products – Woolenization Process of Jute, Softener Application & Antimicrobial Finish and Dyeing with Natural Colours" by Wool Research Association at Sevavrata, Ramkrishna Mission Ashram, Sargachi, Murshidabad, West Bengal on 1st & 2nd May, 2024 under R & D Project Sponsored by National Jute Board, Kolkata.
- WRA team (Scientific Consultant- NJB project) visited at Reliance Jute mills, Bhatpara, West Bengal on 3rd May, 2024 for commercialization of woolenization, bleaching, and softening of Jute fibre.
- WRA team on 3rd May, 2024 visited Mahatma Phule Krishi Vidyapeeth College of Agriculture in Pune and had an insightful discussion on conducting Field trials of Mulcha Mat and Testing of Agro packaging products with Dr. Prashant Kumar Patil, Vice Chancellor, Dr. Sunil Masalkar Associate Dean & Professor Dr. Subhas Bhalekar on conducting field trials of Developed R&D products.
- WRA team visited Perkin Elmer, Thane (W) with Mr. Bhargav Bhatt (Area Sales Manager) for an overview of the Thermogravimetric Analyser TGA-9 to understand the application and demonstration on 28th May, 2024.
- WRA team visited DKTE Nonwoven, Ichalkaranji, to take trials of nonwoven from coarser wool for building material on 30th May, 2024.
- WRA team visited Virar to meet and discuss with Mr. Rajesh Patil and Mr. Vinayak Kashid about the Garment Proposal and Agricultural Proposals on 1st June, 2024.
- WRA team visited SASMIRA for a meeting with Dr. Mathur for Best Available Techniques (BAT) documentation on 3rd June, 2024.

8. NETWORKING BY WRA

8.4 WORK DONE BY THE PROJECT TEAM

- WRA team visited the ERRL Lab on 6th June, 2024, to discuss the progress of the biodegradation study of the developed mulch samples and review the results obtained so far.
- WRA team visited to ERRL Lab on 6th June, 2024 for a communication discussion and "Know how -Biodegradability testing and scope for future project".
- WRA team visited & met with representatives of Textile Manufacturers Association, Amritsar, for the dissemination of R&D findings of WRA work on 14th June, 2024, organised by the Regional Office of Textile Commissioner, Amritsar.
- WRA team attended a seminar cum workshop titled 'Scope of HP wool-a way forward' organised by RO TXC, Amritsar, at Palampur on 16th June, 2024.
- WRA team has demonstrated the products developed using Indian wool and presented the WRA's activities in the woollen sector and alternative usage of Indian wool, including Technical Textiles.
- WRA team visited the DKTE non-woven CoE for the Development of Mulching material using Coarser wool by the Needle Punching method, from 25th June to 28th June, 2024.
- WRA team visited Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth from 26th June, to 28th June, 2024 for communication, discussion, and an MoU agreement with DBSKKV.
- WRA team delivered lecture on 16th July, 2024 titled "Sportech- Product, Technology & Evaluation of Performance" during - Eight-Day Professional Development Programme on "Sustainable Approaches in Fashion and Textile Systems" held during 15th–22th July, 2024 on digital mode (Zoom), organized by Amity School of Fashion Technology, Amity University Chhattisgarh.
- WRA team visited the Punyashlok Ahilyadevi Sheli Mendhi Vikas Mahamandal, Mendhi Farm Rd, Gokhalenagar, Pune, Maharashtra on 23rd July, 2024.
- WRA team visited ZDHC India Office, Hiranandani Park, Powai, to attend the first meeting of the POSH Act- Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) on 26th July, 2024.
- WRA team visited Zenith Silk Mills Private Limited, Surat, and met consultant Ashish Vaidya on 31st July, 2024 to communicate about development in finish formulation for Agro packaging bags, pallet packaging nets, and woven packaging bags.
- WRA team visited Hunnarshala Foundation, Bhuj, from 11th to 14th August, 2024 to review prototype progress and meet with Mr. Anil Pansuriya, Business development head of Inner Engineering Products & Pvt Ltd. at Ahmedabad.
- WRA team visited the Regional Agricultural Research Station, Karjat District, Raigad, for the soil analysis and testing of biodegraded mulching mat material on 22nd August, 2024.
- WRA team visited Jai Syntax Ltd., Azad Nagar, Thane, to submit a Kutch sheep wool sample for opening on 28th August, 2024.
- WRA team visited the Indian Textile Accessories & Machinery Manufacturers Association, Mumbai, to meet Mr. N. D. Mhatre (Director General Technical) for a discussion on the development of a hybrid platform for Aatma Nirbhar Bharat -Wool Village on 4th September, 2024.
- WRA team visited Vishal Carpets on 15th September, 2024, for commercialisation and

8. NETWORKING BY WRA

8.4 WORK DONE BY THE PROJECT TEAM

- bulk trials of woolenised jute-based handmade floor coverings.
- WRA team visited RR Rugs on 15th September, 2024, for bulk trials of micro capsules on home furnishing fabrics and carpets.
 - WRA team visited Vishal Carpets Bhadohi for a discussion of project bulk trials on 16th September, 2024.
 - WRA team visited Lucky Exports Bhadohi for the commercialisation of Woolenised Jute Wool Blend Yarn (WJWB Yarn) on 16th September, 2024.
 - WRA team visited M/s Dynamic Wooltex, Jaipur, for product development under the CWDB ongoing project.
 - WRA team visited DKTE COE of Nonwoven in Ichalkaranji from 6th to 10th October, 2024, to meet Mr. Shirish Vanbhatte for final product development planning and wool opening.
 - WRA team visited Dapoli for a field trial study review on 8th-9th October, 2024.
 - WRA team visited Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth for a review meeting for the ongoing Field study of Developed Mulch on Rice Crop on 8th and 9th October, 2024, and further planning of the second crop, Maize.
 - WRA team visited Pashmina Dehairing Plant, Leh from 15th to 17th October, 2024. The purpose of the visit was to oversee the commissioning work of Scouring Machine with hopper feeder & dryer, Willow Machine, Axiflow Machine, Water Softening Plant, and Pashmina Dehairing Plant.
 - WRA team visited Biozed Laboratories, Thane (W) with Agilent Team- Mr. Rohit Terese (Key Account Manager - Sales) and Mr. Manoj Survade (Application Specialist) for Gas Chromatography Mass Spectrophotometer Triple Quad (GC-MS) application and hardware knowledge on 15th October, 2024
 - WRA team visited Shimadzu, Andheri on 18th October, 2024 with Mr. Rahul Shinde (Asst Area Manager) for the overview of Gas Chromatography Mass Spectrophotometer Triple Quad (GC-MS TQ8040 NX) and UV-VIS Spectrophotometer (UV 1900i). They discussed the technical query application, like scanning of samples on GC-MS and LOQ of Restricted Substance Limit (RSL). They witnessed other facility instruments and understood their use and application.
 - WRA team visited Agilent Technologies, Vikhroli on 22nd October, 2024 with Mr. Rohit Terese (Key Account Manager - Sales) for the overview of Gas Chromatography Mass Spectrophotometer Triple Quad -8890 GC/7010D MS Model (HES)/8697. They also discussed regarding the Jet Spray technique.
 - WRA team visited Anton Paar India Pvt. Ltd., Thane (W) on 24th October, 2024 with Mr. Pratik Nandgaonkar (Application specialist) for the overview of the Microwave digester used for sample preparation on ICP-OES. It's an advanced technique which helps to achieve the limit as per the regulation mentioned in GOTS, OEKO-TEX. They discussed the sample preparation of the water and soil samples in the digester. They also observed other instruments like FTIR, Particle Size Analyzer.
 - WRA team visited DKTE CoE Nonwoven from 31st October to 20th November, 2024, to develop different high-density woollen nonwovens.
 - WRA team visited the Institute of Chemical Technology for a meeting with Prof. Anand Patwardhan on 12th November, 2024.
 - WRA team visited Birla Jute Mills, Birlapur, West Bengal, on 19th-20th November, 2024, for the commercialisation of Woolenised Jute Wool Blended (WJWB) yarn.

8. NETWORKING BY WRA

- WRA team visited MSME-TDC (PPDC), Meerut, from 28th to 30th November, 2024 to assess the setup of composite and braiding machines and plan for restarting the machinery operations in WRA.
- WRA team visited Bhor Chemicals in Nashik, Maharashtra, to review our recently submitted R&D project under the NTTM MoT of the Government of India. Bhor

Chemical acts as our industry and mentor partner.

- WRA team visited Shraddha Analytical Pvt. Ltd., Ghatkopar on 15th February, 2025. Dr. Merchant, owner of Shraddha Analytical. The visit was intended to explore WRA testing facilities and the upcoming addition of instruments and scope.

8.5 EXPOS/TRADE FAIRS/EXHIBITIONS ATTENDED

- WRA team attended the 10th Nonwoven Tech Asia Exhibition on 23rd August, 2024, at the Bombay Exhibition Centre, Hall No. 4, Goregaon, Mumbai. A session was hosted by Textile Business Digest (TBD), where

Shri Giriraj Singh, Minister of Textiles, Government of India, chaired a significant industry interaction on "The Way Forward for Non-Woven Textiles in India".

8.6 WRA AT EXPOS/EXHIBITION

- The Wool Research Association set up an exhibition at Jio World Convention Centre, Bandra, Mumbai, from 23rd January to 25th January 2025. The primary purpose of the exhibition from the organisation's point of view was to display the comprehensive range of products researched and developed by the Wool Research Association, to participate in staying updated with the industry development, new technology incorporated and insights concerning fibres and yarn.

The exhibition was also a platform to network with industry professionals with different fibre and yarn manufacturers, and also to showcase our production activities at the pilot plant and lab testing facilities.

- WRA participated in Bharat Tex 2025, from February 14th to 17th, 2025, at Bharat Mandapam, New Delhi, marking a significant opportunity to highlight innovations in wool and technical textiles. Organised by a

consortium of 11 Textile Export Promotion Councils and supported by the Ministry of Textiles, Bharat Tex 2025 celebrated India's vibrant textile legacy and modern advancements.

WRA showcased its core activities, including: research & development outcomes, testing services and laboratory capabilities, incubation facilities, technical consultancy, and skill development initiatives.

Innovations and Exhibits Displayed

Under its ongoing and completed research projects, WRA displayed a range of innovative developments:

- Lightweight Cricket Pad
- Smart T-Shirt
- Digitally Printed Wool Shawls and Stoles
- Denim Garments
- Wool-based Carpets and Decorative Wall Hangings

8. NETWORKING BY WRA

Sustainable Wool Applications: WRA also exhibited prototype models of sustainable wool applications, including:

- Coarse Wool Mulch for Agricultural Use
- Coarse Wool Panels for Building Insulation
- Sustainable Wool-based Packaging Alternatives

These exhibits demonstrated the potential of indigenous Indian wool in diverse domains such as agri-tech, eco-construction, and biodegradable materials.



9. ORGANISATION STRUCTURE

9.1 COUNCIL MEETINGS

Three Governing Council Meetings and One Annual General Meeting were held during the year 2024-2025.

162nd Governing Council Meeting

Wool Research Association's 162nd Governing Council Meeting was held on Tuesday, 23rd April, 2024, at 12:30 P.M. in the Conference Room, Wool Research Association.

163rd Governing Council Meeting

Wool Research Association's 163rd Governing Council Meeting of Wool Research Association was held on Friday, 9th August, 2024, at 12:30 P.M. in the Conference Room, Wool Research Association.

164th Governing Council Meeting

Wool Research Association's 164th Governing Council Meeting of Wool Research Association was held on Saturday, 7th December 2024, at 12:30 P.M. in the Conference Room, Wool Research Association.

59th Annual General Meeting

59th Annual General Meeting of the Members of the Wool Research Association was held on Thursday, 29th August, 2024, at 11:30 A.M. Hotel Satkar Residency, Thane.

9.2 MEMBERS OF WRA

Ordinary members

01. M/s. Bhilwara Synthetics Ltd., Bhilwara
02. M/s. Banswara Syntex Limited, Banswara
03. M/s. Cashmere Marketing Agencies, Srinagar
04. M/s. Centex International Pvt. Ltd., Ludhiana
05. M/s. G. R. Woollen Mills Pvt. Ltd., Mumbai
06. M/s. Grentex & Co. Pvt. Ltd. Mumbai
07. M/s. Gujarat Sheep & Wool Development Corporation, Gandhinagar
08. M/s. Geetanjali Woollens Pvt. Ltd., Panchmahal
09. M/s. Grasim Industries (Jaya Shree Textiles), Hooghly
10. M/s. Kusumgar Corporates Pvt. Ltd., Mumbai

11. M/s. Kapotex Industries Pvt. Ltd., Gujarat
12. M/s. Modern Woollens, Mumbai
13. M/s. Raymond Limited, Thane
14. M/s. Saravanabava Mills, Mumbai
15. M/s. Shree Ram Textile Mills Ltd., Silvassa
16. M/s. Thaker Felts Pvt. Ltd., Vadodara
17. M/s. Wooltex Associates, Mumbai

Associate members

18. M/s. Indian Woollen Mills Federation, Mumbai
19. M/s. Woolmark Services India Pvt. Ltd., Thane

Special associate members

20. M/s. The Synthetic & Art Silk Mills Research Association, Mumbai
21. M/s. OCM India Ltd., Amritsar

9.3 FOUNDER MEMBERS OF WOOL RESEARCH ASSOCIATION IN 1963

1. **Mr. T. N. Khaitan**
Dhruva Woollen Mills Pvt. Ltd.,
Sun Mill Compound, Lower Parel, Bombay.
2. **Mr. G. K. Singhania**
Raymond Woollen Mills Ltd., J.K. Building,
Ballard Estate, Bombay.
3. **Mr. B. M. Grover**
Modella Woollen Mills, 50,
Vulcan Insurance Bldg. Veer Nariman Road,
Bombay
4. **Mr. L. P. Pittie**
Bombay Woollen Mills P. Ltd. 20,
Hamam Street, Bombay
5. **Mr. R. K. Seth**
Simplex Woollen Mills, Sadhana Raymond
House, D.N. Road, Bombay
6. **Mr. R. B. Kanwar Rajnath**
Ahmed Woollen Mills, Amernath C. Rly.
Office : 87, Tamba Kanta, Nakhoda Street,
Bombay
7. **Mr. T. K. Nagpal**
Nagpal Woollen Mills, Old Atlas Mills
Compound, Reay Road, Bombay
8. **Mr. R. K. Birla**
Shree Digjam Woollen Mills, Aerodrome
Road, Jamnagar

9. ORGANISATION STRUCTURE

9.4 LIST OF CHAIRMAN EMERITUS / PRESIDENTS / SR.VICE PRESIDENTS & VICE PRESIDENTS SINCE INCEPTION

PERIOD/ YEAR	CHAIRMAN EMERITUS	PRESIDENT	SR. VICE PRESIDENT	VICE PRESIDENT
1964/65 to 1968/69	-	Mr. G. K. Singhania Raymond Woollen Mills	Mr. T. N. Khaitan Dhruva Woollen Mills	Mr. L. P. Pittle Bombay Woollen Mills
1969/70	-	Mr. U. M. Patel Dinesh Woollen Mills	Mr. B. M. Grover Modella Woollen Mills	Mr. B. B. Nagpal Nagpal Woollen Mills
1970/71 to 1975/76	-	Mr. B. M. Grover Modella Woollen Mills	Mr. L. P. Pittle Bombay Woollen Mills	Mr. R. K. Seth Simplex Woollen Mills
1976/77 to 1977/78	-	Mr. B. M. Grover Modella Woollen Mills	Mr. L. P. Pittle Bombay Woollen Mills	Mr. T. N. Khaitan Dhruva Woollen Mills
1978/79 to 1981/82	-	Mr. B. M. Grover Modella Woollen Mills	Mr. T. N. Khaitan Dhruva Woollen Mills	Mr. B. K. Kedia Raymond Woollen Mills
1982/83	-	Mr. T. N. Khaitan Dhruva Woollen Mills	Mr. B. K. Kedia Raymond Woollen Mills	Mr. U. M. Patel Dinesh Woollen Mills
1983/84	-	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. U. M. Patel Dinesh Woollen Mills	Mr. K. V. Iyer Raymond Woollen Mills
1984/85 to 1993/94	-	Mr. B. K. Kedia Raymond Woollen Mills	Mr. U. M. Patel Dinesh Woollen Mills	Mr. Ravikant Kapur Grentex & Co.
1994/95 to 1997/98	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. U. M. Patel Dinesh Woollen Mills	Mr. K. V. Iyer Raymond Woollen Mills
1998/99 to 1999-2000	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. Hari Prasad Kedia Raymond Limited	Mr. A. N. Choudhary Jayashree Textiles
2000-2002	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. V. K. Bhartia Raymond Limited	Mr. A. N. Choudhary Jayashree Textiles
2002-2004	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. V. K. Bhartia Raymond Limited	Mr. A. N. Choudhary Jayashree Textiles
2004-2006	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. V. K. Bhartia Raymond Limited	Mr. A. N. Choudhary Jayashree Textiles
2006-2008	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. S. K. Singhal Raymond Limited	Mr. R. K.Khanna Amritsar Swadeshi
2008-2010	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. S. K. Singhal Raymond Limited	Mr. R. K.Khanna Amritsar Swadeshi
2010-2012	-	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. S. K. Singhal Raymond Limited	Mr. R. K.Khanna Amritsar Swadeshi
2012-2014	-	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. S. L. Pokharna Raymond Ltd.	Mr. R. K.Khanna Amritsar Swadeshi Mr. R. K. Khandelwal Raymond Ltd.
2014-2016	-	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. H. K. Chatterjee Raymond Ltd.	Mr. Deepak Goel Geetanjali Woollens P. Ltd. Mr. R. K. Khandelwal Raymond Ltd.
2016-2018	Mr. Ravikant Kapur Grentex & Co. Pvt. Ltd.	Mr. H. K. Chatterjee Raymond Ltd.	Mr. Deepak Goel Geetanjali Woollens P. Ltd.	Mr. R. K. Khandelwal Raymond Ltd.
2018-2020	Mr. Ravikant Kapur Grentex & Co. Pvt. Ltd.	Mr. H. K. Chatterjee Raymond Ltd.	Mr. Deepak Goel Geetanjali Woollens P. Ltd.	-
2020-2022	Mr. Ravikant Kapur Grentex & Co. Pvt. Ltd.	Mr. H. K. Chatterjee Raymond Ltd.	Mr. Deepak Goel Geetanjali Woollens P. Ltd.	-
2022-2024	Mr. Ravikant Kapur Grentex & Co. Pvt. Ltd.	Mr. H. K. Chatterjee Raymond Ltd.	Mr. Deepak Goel Geetanjali Woollens P. Ltd.	-
2024-2026	Mr. Ravikant Kapur Grentex & Co. Pvt. Ltd.	Mr. A. A. Bambardekar Mumbai	-	Mr. Akhil Khanna Amritsar Swadeshi

9. ORGANISATION STRUCTURE

9.5 LIST OF DIRECTOR GENERAL /DIRECTORS/ JOINT DIRECTOR /DY.DIRECTORS SINCE INCEPTION

PERIOD (YEAR)	SECRETARY	DIRECTOR GENERAL	DIRECTOR	JOINT DIRECTOR	DEPUTY DIRECTOR
1964/65	Mr. J. N. Chaudhuri	-	-	-	-
1965/66	Mr. A. C. Chaudhuri	-	-	-	Dr. M. G. Kulkarni
1966/67 & 1967/68	Mr. A. C. Chaudhuri	-	-	-	Dr. N. P. Badve
1968/69 & 1969/70	Mr. A. C. Chaudhuri	-	-	-	Dr. N. P. Badve
1970/71 to 1977/78	Mr. A. C. Chaudhuri	-	Mr. Sule Assistant Director (from 1971 to 1975)	-	-
1978/79	Mr. A. C. Chaudhuri	-	Dr. V. G. Kulkarni	-	-
1979/80	Mr. A. C. Chaudhuri	-	-	-	Dr (Mrs) Usha Nandurkar
1980/81 & 1981/82	-	-	Dr. A. D. M. Nath	-	Dr (Mrs) Usha Nandurkar
1983/84 to 1985/86	-	-	Dr (Mrs) Usha Nandurkar	-	-
1986/87 to 1987/88	-	-	Dr.(Mrs.) S. Patwardhan (Offg)	-	-
1988/89 to 1998/99	-	-	Dr. (Mrs.) S. Patwardhan	-	-
Jan' 2000 - 7th Sept.2003	-	-	Mrs. G. P. Rane Acting Director (Offg)	-	-
8th Sept.2003 - 7th Sept.2006	-	-	Mr. S. C. Agarwal	-	Mrs. G. P. Rane
8th Sept.2006	-	-	-	-	Mrs. G. P. Rane
2nd July, 2007 to 2015	-	-	Mr. M. K. Bardhan	-	-
1st March 2012-15	-	-	-	-	Dr (Mrs) Mrinal Choudhari
January,2016 onwards	-	Mr. M.K. Bardhan	-	Dr (Mrs) Mrinal Choudhari	Mr. P. R. Kulkarni
May- Dec,' 16	-	-	Dr. Suman Bhattacharyya	-	-
June, 2016	-	-	-	-	Mr. S. Parmar
Feb.'2017 till Sept., 2019 June,2017 onwards August,2017 onwards	-	-	Dr. A. K. Sharma	Dr (Mrs) Mrinal Choudhari Ms. Seema Patel Mr. Pawan Sharma	-
July, 2019	-	-	Dr. Md. S. Rahman	Dr (Mrs) M. Choudhari Ms. Seema Patel Mr. Pawan Sharma	-
Dec.,2020 onwards	-	-	Mr. K. K.Misra Director (Officiating) & C.O.O.	Dr (Mrs) Mrinal Choudhari Ms. Seema Patel	-
April, 2021 Onwards	-	-	Mr. K. K.Misra Director (Officiating) & C.O.O.	Dr (Mrs) Mrinal Choudhari Ms. Seema Patel	Dr. Smita Bait Mr. Shishir Tyagi Mr. Mayur Basuk
Jan, 2023	-	Mr. M. K. Bardhan Director General- Emeritus	Mr. K. K.Misra Director (Officiating) & C.O.O.	Dr (Mrs) Mrinal Choudhari Ms. Seema Patel	Mr. Shishir Tyagi Mr. Mayur Basuk
Sept., 2024	-	Mr. H. K. Chatterjee	Mr. K. K.Misra Director	Dr (Mrs) Mrinal Choudhari Ms. Seema Patel	Mr. Shishir Tyagi Mr. Mayur Basuk Dr. Animesh Laha

9. ORGANISATION STRUCTURE

9.6 LIST OF DONOR MEMBERS

SR NO.	NAME OF THE ORGANISATION	YEAR OF DONATION
1	M/s Raymond Woollen Mills	1971-72
2	M/s Modella Woollens Ltd.	1971-72
3	M/s Shree Dinesh Mills	1971-72
4	M/s G.K. Nagpal Sons	1971-72
5	M/s Beekay & Sons	1971-72
6	M/s Shree Digvijay Woollen Mills Ltd.	1971-72
7	M/s Dhruva Woollen Mills	1971-72
8	M/s Wool Combers of India	1971-72
9	M/s Bombay Woollen Mills	1971-72
10	M/s Karamchand Tulsidas	1971-72
11	"Shri. B. M. Grover - Chairman - Modella (For Physical & Colour Research Laboratory)"	1976-77
12	"Shri Gopal Krishna Singhanian - Raymond (For Chemical Research Laboratory)"	1980-81
13	"Shri. Upendrabhai M. Patel - Chairman Shri Dinesh Mills Ltd. (For Textile Research Department)"	1992-93
14	M/s R. G. Deshpande and Bros.	1999-2000
15	Shri. M. K. Bardhan, Ex-Director, WRA	2019-2020

9.7 EDUCATIONAL ACTIVITIES

- Shri. Mayur Basuk is pursuing Ph.D.
- Shri. Shishir Tyagi is pursuing M.Tech

9.8 ACKNOWLEDGEMENT

We are thankful to the Ministry of Textiles, the Ministry of Finance, the Central Wool Development Board, Office of the Textile Commissioner, Department of Science & Technology, Indian Woollen Mills Federation for the support extended to Wool Research Association from time to time.

**J.P.J. ASSOCIATES LLP
CHARTERED ACCOUNTANTS**

**Registered Office :
D/401, Shantidwar C & D Wing CHS
Shantivan, Borivali (East)
Mumbai - 400066**

**Tel : 022 – 6883 1279
Email : jpi@jpjassociates.com**

AUDITOR'S REPORT

**To the Members
Wool Research Association
Thane**

Report on the Financial Statements

We have audited the accompanying financial statements of Wool Research Association ("the Society"), which comprise the Balance Sheet as at March 31, 2025, and the Income and Expenditure Account for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation of these financial statements that give a true and fair view of the financial position, financial performance in accordance with the Accounting Standards and Generally accepted accounting principles. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with the Standards on Auditing issued by the Institute of Chartered Accountants of India. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Society's preparation and fair presentation of the financial statements in order to design audit procedures

that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of the accounting estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion and to the best of our information and according to the explanations given to us, the financial statements give the information required by the Act in the manner so required and give a true and fair view subject to

- a) Note No. 3 regarding Balance Confirmations
- b) Note No. 4 regarding Subscription
- c) Note No. 6 Non provision of diminution of Value of investment.
- d) Note No. 10 Non Provision of Depreciation.

in conformity with the accounting principles generally accepted in India:

(a) in the case of the Balance Sheet, of the state of affairs of the Society as at March 31, 2025;

(b) in the case of the Income and Expenditure Account, the Excess of Expenditure over Income for the year ended on that date; and

Report on Other Legal and Regulatory Requirements

a. we have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit;

b. in our opinion proper books of account as required by law have been kept by the Society so far as appears from our examination of those books;

c. the Balance Sheet, Income and Expenditure Account dealt with by this Report are in agreement with the books of account;

For J.P.J. ASSOCIATES LLP
CHARTERED ACCOUNTANTS
FIRM REG.NO. 113012 W/W100296

Sd/-

VAIBHAV VAIDYA
PARTNER
MEM. NO. 157754
Date: 22/08/2025

WOOL RESEARCH ASSOCIATION, THANE.
BALANCE SHEET AS ON 31st MARCH 2025

AS ON 31/03/2024 Rs.	LIABILITIES	SCHE- DULE	AS ON 31/03/2025 Rs.	AS ON 31/03/2024 Rs.	ASSETS	SCHE- DULE	AS ON 31/03/2025 Rs.
11,77,68,567	CAPITAL FUND	A	34,32,27,954	38,29,77,788	FIXED ASSETS	E	39,46,99,355
20,28,76,820	RESERVES	B	21,83,79,743	11,56,400	INVESTMENT AT COST 11564/- Equity shares of Rs.100/- each fully paid up of M/s.Gujarat Sheep & Wool Development Corpn. Ltd., (for break-up value of the shares, please refer to Note 6 the notes on Account schedule "L")		11,56,400
2,00,10,226	SUNDRY LIABILITIES	C	2,53,64,919				
24,59,96,696	GRANT-IN-AID FROM MOT, KVIC, AHB, & UNDP TOWARDS CAPITAL EXPS. FOR SPECIAL PROJECTS	D	2,42,95,162				
	COE - SPORTECH			17,99,64,180	CURRENT ASSETS	F	20,41,80,487
	OP.Balance 5,38,443						
	Grant recd. -						
	Add: F.Ds closed 0						
	Add: Other receipts 0						
5,38,443	Less : Funds applied/utilised 5,38,443		5,38,443				
	Design & Dev.of Light weight..						
	OP.Balance 27,153						
	Grant recd. -						
	Industry/s/Institute:s Share -						
	Add: Other receipts 5,000						
27,153	Less : Funds applied/utilised 32,153		25,899				
	MAVIM						
	OP.Balance 10,85,983						
	Grant recd. 0						
	Add: Int.recd. on F.D. 17,33,620						
	Add: Other receipts 46,42,184						
10,85,983	Less : Funds applied/utilised 74,61,787		29,69,428				
58,83,03,888	TOTAL		61,48,01,548	58,83,03,888	TOTAL		61,48,01,548

NOTE : SEE SCHEDULE "L" OF NOTES ON ACCOUNTS AS PER OUR REPORT OF EVEN DATE ATTACHED.

for J.P.J. ASSOCIATES LLP
 CHARTERED ACCOUNTANTS
 FIRM REG.NO. 113012 W/W/100296

Sd/-
 VAIBHAV VAIDYA
 PARTNER
 MEM. NO. 157754

PLACE : MUMBAI
 DATE : 22/08/2025

Sd/-
 R.V. BHANDARKAR
 HEAD ACCTS. & FINANCE

Sd/-
 DR. MRINAL CHOUDHARI
 ADDITIONAL DIRECTOR

Sd/-
 H.K. CHATTERJEE
 DIRECTOR GENERAL

Sd/-
 A.A. BAMBARDEKAR
 PRESIDENT

WOOL RESEARCH ASSOCIATION, THANE.
INCOME AND EXPENDITURE ACCOUNT FOR NON-PLAN A/C FOR THE YEAR ENDED 31st MARCH, 2025

AS ON 31/03/2024 Rs.	EXPENDITURE	SCHE- DULE	AS ON 31/03/2025 Rs.	INCOME	SCHE- DULE	AS ON 31/03/2025 Rs.
3,03,16,588	STAFF SALARY	I	4,13,64,639	GRANT-IN-AID FROM MINISTRY OF TEXTILES, GOVT., OF INDIA TOWARDS RECURRING EXPENDITURE		2,10,00,000
1,74,41,869	ESTABLISHMENT CHARGES	J	2,95,18,570			
75,000	AUDIT FEES		75,000			
18,52,062	AGM ,SEMINAR & MEETING AND CONFERENCE EXPS.		79,719	SCHEDULE - (INCOME) INDUSTRY'S CONTRIBUTION TOWARDS RECURRING EXPS.	K	5,35,15,956
5,15,396	CHEMICALS AND RAW MATERIAL		4,70,797			
-	SUNDRY BALANCE WRITTEN OFF		8,81,768			
9,69,730	PROJECT COST INCURRED BY WRA		21,25,463	EXCESS OF EXPENDITURE OVER INCOME CARRIED TO BALANCE SHEET		16,64,977
11,46,829	DEPRECIATION		16,64,977			
5,23,17,474	TOTAL		7,61,80,933	TOTAL		7,61,80,933

NOTE : SEE SCHEDULE " L " OF NOTES ON ACCOUNTS AS PER OUR REPORT OF EVEN DATE ATTACHED.

for J.P.J. ASSOCIATES LLP
 CHARTERED ACCOUNTANTS
 FIRM REG.NO. 113012 W/W100296

Sd/-
 VAIBHAV VAIDYA
 PARTNER
 MEM. NO. 157754
 PLACE : MUMBAI
 DATE : 22/08/2025

Sd/-
 R.V. BHANDARKAR
 HEAD ACCTS. & FINANCE

Sd/-
 DR. MRINAL CHOUDHARI
 ADDITIONAL DIRECTOR

Sd/-
 H.K. CHATTERJEE
 DIRECTOR GENERAL

Sd/-
 A.A. BAMBARDEKAR
 PRESIDENT

WOOL RESEARCH ASSOCIATION**(R & D PROJECT)****INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2025**

PROJECT : Development of Novel Detergent Formulation for wool with immobilized enzymes for enhancing machine wash ability of wool fabric.

(SCHEDULE - 1)

(2023-24) (Rs.)	EXPENDITURE	(2024-25) (Rs.)	(2023-24) (Rs.)	INCOME (Rs.)	(2024-25) (Rs.)
-	Raw material/consumables	1,17,154	28,000	Grant-in-Aid from Ministry of Textiles, New Delhi	80,671
-	Consultancy	-			
40,000	Promotion/Proof of Concept	-	12,000	Industry's/WRA's contribution	36,483
40,000	TOTAL	1,17,154	40,000	TOTAL	1,17,154

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP
 CHARTERED ACCOUNTANTS
 FIRM REG.NO. 113012 W/W/100296

Sd/-

VAIBHAV VAIDYA
 PARTNER
 MEM.NO. 157754

Sd/-

R.V. BHANDARKAR
 HEAD ACCTS. & FINANCE

Sd/-

DR.MRINAL CHOUDHARI
 ADDITIONAL DIRECTOR

Sd/-

H.K. CHATTERJEE
 DIRECTOR GENERAL

Sd/-

A.A. BAMBARDEKAR
 PRESIDENT

PLACE : MUMBAI
 DATE : 22/08/2025

WOOL RESEARCH ASSOCIATION**(R & D PROJECT)****INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2025**

PROJECT : Design and Development of sportwear and sports accessories having Thermo Physiological comfort properties in order to enhance the performance assessed by using a Sweating Thernal Manikin system under different environmental conditions

(SCHEDULE - 2)

(2023-24) (Rs.)	EXPENDITURE	(2024-25) (Rs.)	(2023-24) (Rs.)	INCOME (Rs.)	(2024-25) (Rs.)
-	Salaries/Wages	-	2,84,390	Grant-in-Aid from Ministry of Textiles, New Delhi	55,985
4,06,250	Raw material/consumables	-	1,21,860	Industry's/WRA's contribution towards project expenses	40,815
-	Consultancy	66,800			
-	Overhead/Contingencies	-			
-	Proof of Concept	30,000			
4,06,250	TOTAL	96,800	4,06,250	TOTAL	96,800

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP
CHARTERED ACCOUNTANTS
FIRM REG.NO. 113012 W/W/100296

Sd/-

VAIBHAV VAIDYA
PARTNER
MEM.NO. 157754

Sd/-

R.V. BHANDARKAR
HEAD ACCTS. & FINANCE

Sd/-

DR.MRINAL CHOUDHARI
ADDITIONAL DIRECTOR

Sd/-

H.K. CHATTERJEE
DIRECTOR GENERAL

Sd/-

A.A. BAMBARDEKAR
PRESIDENT

PLACE : MUMBAI
DATE : 22/08/2025

WOOL RESEARCH ASSOCIATION**(R & D PROJECT)****4INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2025**

PROJECT : Development of cost effective handmade carpets & Floor Coverings, Home Furnishings & Knitwears using Jute (Treated Woolenised or Untreated) & other natural fibres with value added eco-friendly finishes such as with Flame Retardancy, Mosquito Repellent, Anti-Bacterial/Antimicrobial Properties etc."

(SCHEDULE - 3)

(2023-24) (Rs.)	EXPENDITURE	(2024-25) (Rs.)	(2023-24) (Rs.)	INCOME (Rs.)	(2024-25) (Rs.)
9,86,677	Salaries/Wages	9,05,975	30,42,825	Grant-in-Aid from National Jute Board, Ministry of Textiles, Govt. of India Kolkata	19,49,619
1,87,000	Consultancy	2,98,400			
5,93,018	Raw material/consumables	2,17,998			
2,47,222	Proof of Concept	2,24,424			
1,84,025	Trial & Testing	1,27,388			
44,026	Monitoring & Review	19,144			
2,71,050	Overhead/Contingencies	1,56,290			
5,29,807	Travelling	-			
30,42,825	TOTAL	19,49,619	30,42,825	TOTAL	19,49,619

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP
FIRM REG.NO. 113012 W/W100296

Sd/-
VAIBHAV VAIDYA
PARTNER
MEM.NO. 157754

PLACE : MUMBAI
DATE : 22/08/2025

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R.V. BHANDARKAR
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ADDITIONAL DIRECTOR

Sd/-
H.K. CHATTERJEE
DIRECTOR GENERAL

Sd/-
A.A. BAMBARDEKAR
PRESIDENT

WOOL RESEARCH ASSOCIATION**(R & D PROJECT)****INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2025**

PROJECT : Sustainable Enhancement of Aesthetic values of Woolens by Digital Printing

(SCHEDULE - 4)

(2023-24) (Rs.)	EXPENDITURE	(2024-25) (Rs.)	(2023-24) (Rs.)	INCOME (Rs.)	(2024-25) (Rs.)
5,50,000	Salaries/Wages	--	12,29,087	Grant-in-Aid from Central Wool Development Board Ministry of Textiles, Govt. of India, Jodhpur	--
4,23,973	Raw material/consumables	--			
6,705	Travelling	--			
58,022	Administrative expenses	--			
99,790	Testing & other costs	--			
90,597	Proof of concept/ promotion & dissemination of knowledge	--			
12,29,087	TOTAL	--	12,29,087	TOTAL	--

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP
 CHARTERED ACCOUNTANTS
 FIRM REG.NO. 113012 W/W/100296

Sd/-
 VAIBHAV VAIDYA
 PARTNER
 MEM.NO. 157754

Sd/-
 R.V. BHANDARKAR
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Sd/-
 H.K. CHATTERJEE
 DIRECTOR GENERAL

Sd/-
 A.A. BAMBARDEKAR
 PRESIDENT

PLACE : MUMBAI
 DATE : 22/08/2025

**WOOL RESEARCH ASSOCIATION
PROJECT A/C - COE-SPORTECH**

(SCHEDULE - 5)

(2023-24) (Rs.)	RECEIPTS	(2024-25) (Rs.)	(2023-24) (Rs.)	PAYMENTS	(2024-25) (Rs.)
24,361	Opening Balance	5,38,443	-	Fixed Assets	28,59,103
-	Interest on FD	-	25,065	TDS receivable (24-25)	-
12,636	Accrued Interest (Net)	-	64,800	Deposites against PBG	-
1,02,95,513	Sundry Debtors	27,45,730	7,54,500	EMD refunded	-
2,27,76,951	Fixed Deposits	-	-	Fixed Deposits	-
-	TDS refund (recd.)	1,13,373	3,13,52,969	Interest on FD	-
			3,73,637.00	Sundry Creditors	-
			47	Bank Charges	-
			5,38,443	Bank Balance	5,38,443
331,09,461	TOTAL	33,97,547	331,09,461	TOTAL	33,97,547

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP
CHARTERED ACCOUNTANTS
FIRM REG.NO. 113012 W/W100296

Sd/-
VAIBHAV VAIDYA
PARTNER
MEM.NO. 157754

PLACE : MUMBAI
DATE : 22/08/2025

Sd/-
R.V. BHANDARKAR
HEAD ACCTS. & FINANCE

Sd/-
H.K. CHATTERJEE
DIRECTOR GENERAL

Sd/-
A.A. BAMBARDEKAR
PRESIDENT

WOOL RESEARCH ASSOCIATION
PROJECT A/C. - LAB UPGRADEATION

(SCHEDULE - 6)

(2023-24) (Rs.)	RECEIPTS	(2024-25) (Rs.)	(2023-24) (Rs.)	PAYMENTS	(2024-25) (Rs.)
9,76,322	Sundry Debtors	-	7,84,895	Sundry Creditors	-
			1,91,427	EMD etc.,	-
9,76,322	TOTAL	-	9,76,322	TOTAL	-

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP
CHARTERED ACCOUNTANTS
FIRM REG.NO. 113012 W/W/100296

Sd/
VAIBHAV VAIDYA
PARTNER
MEM.NO. 157754

PLACE : MUMBAI
DATE : 22/08/2025

Sd/-
R.V. BHANDARKAR
HEAD ACCTS. & FINANCE

Sd/-
DR.MRINAL CHOUDHARI
ADDITIONAL DIRECTOR

Sd/-
H.K. CHATTERJEE
DIRECTOR GENERAL

Sd/-
A.A. BAMBARDEKAR
PRESIDENT

WOOL RESEARCH ASSOCIATION**PROJECT A/C. - Design and Development of Light Weight and high Impact resistance sports goods**

(SCHEDULE - 7)

(2023-24) (Rs.)	RECEIPTS	(2024-25) (Rs.)	(2023-24) (Rs.)	PAYMENTS	(2024-25) (Rs.)
25,634	Opening Balance	27,153	99,965	Consultancy Charges	-
5,82,546	Grant received from MOT	-	-	Consumables	-
-	Sundry Creditors	5,000	1,48,800	Proof of concept	-
			3,10,801	Sundry Creditors	-
			3,481	Bank Charges	6,254
			17,980	Overhead exps.	-
			27,153	Bank Balance	25,899
6,08,180	TOTAL	32,153	6,08,180	TOTAL	32,153

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP
 CHARTERED ACCOUNTANTS
 FIRM REG.NO. 113012 W/W/100296

Sd/-
 VAIBHAV VAIDYA
 PARTNER
 MEM.NO. 157754

PLACE : MUMBAI
 DATE : 22/08/2025

Sd/-
 R.V. BHANDARKAR
 HEAD ACCTS. & FINANCE

Sd/-
 DR.MRINAL CHOUDHARI
 ADDITIONAL DIRECTOR

Sd/-
 H.K. CHATTERJEE
 DIRECTOR GENERAL

Sd/-
 A.A. BAMBARDEKAR
 PRESIDENT

WOOL RESEARCH ASSOCIATION
PROJECT A/C. - Mahila Arthik Vikas Mahamandal (MAVIM)
(SCHEDULE - 8)

(2023-24) (Rs.)	RECEIPTS	(2024-25) (Rs.)	(2023-24) (Rs.)	PAYMENTS	(2024-25) (Rs.)
84,56,956	Opening balance	10,85,983	-	Sundry Creditors	5,14,115
45,91,052	Sundry Creditors	-	96,75,711	Fixed assets	95,743
21,36,020	Interest earned	17,33,620	11,19,092	Sundry Debtors	4,13,369
88,30,402	Fixed Deposit	41,63,388	25,30,200	Mandays/Salary expenses	21,59,600
1,34,522	TDS receivable (recd.)	4,06,125	57,33,000	Consultancy	-
-	Salary payable	26,000	9,07,537	Travelling expenses	4,28,588
-	Interest accrued (Net)	46,671	17,83,400	Raw material	-
			3,14,632	Testing and Inspetion charges	2,93,703
			61,550	Salary payable	-
			1,68,224	Interest reversed	12,111
			2,02,408	TDS receivable	1,72,224
			5,66,527	Misc. exps.	4,02,258
			689	Bank Charges	649
			10,85,983	Bank Balance	29,69,427
2,41,48,952	TOTAL	74,61,787	241,48,952	TOTAL	74,61,787

CHARTERED ACCOUNTANTS
FIRM REG.NO. 113012 W/W100296

Sd/-
VAIBHAV VAIDYA
PARTNER
MEM.NO. 157754

PLACE : MUMBAI
DATE : 22/08/2025

Sd/-
R.V. BHANDARKAR
HEAD ACCTS. & FINANCE

Sd/-
DR.MRINAL CHOUDHARI
ADDITIONAL DIRECTOR

Sd/-
H.K. CHATTERJEE
DIRECTOR GENERAL

Sd/-
A.A. BAMBARDEKAR
PRESIDENT

WOOL RESEARCH ASSOCIATION
PROJECT A/C. - CENTRAL WOOL DEVELOPMENT BOARD (CWDB)

(SCHEDULE - 9)

(2023-24) (Rs.)	RECEIPTS	(2024-25) (Rs.)	(2023-24) (Rs.)	PAYMENTS	(2024-25) (Rs.)
77,17,338	Grant -in Aid	89,71,656	18,80,205	Consumables	3,20,969
4,14,972	Sundry Creditors	5,04,699	34,72,176	Manpower cost (Salary exps.)	42,75,083
3,91,363	Sundry Debtors	27,99,699	11,25,000	Lab equipment (Capex)	20,89,794
			7,57,432	Travelling exps.	6,42,505
			12,34,184	Testing and other misc.cost	8,40,592
			39,800	Excess grant shown in previous year	-
			14,876	Overhead	7,75,607
			-	Industrial Bulk Trials	7,40,251
			-	Promotion and dissemination	8,60,531
			-	Proof of Concept	17,30,721
85,23,673	TOTAL	122,76,053	85,23,673	TOTAL	1,22,76,053

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

CHARTERED ACCOUNTANTS
 FIRM REG.NO. 113012 W/W100296

Sd/- Sd/-
 VAIBHAV VAIDYA R.V. BHANDARKAR
 PARTNER HEAD ACCTS. & FINANCE
 MEM.NO. 157754

Sd/-
 DR.MRINAL CHOUDHARI
 ADDITIONAL DIRECTOR

Sd/- Sd/-
 H.K. CHATTERJEE A.A. BAMBARDEKAR
 DIRECTOR GENERAL PRESIDENT

PLACE : MUMBAI
 DATE : 22/08/2025

WOOL RESEARCH ASSOCIATION
PROJECT A/C. - NTTM

(SCHEDULE - 10)

(2023-24) (Rs.)	RECEIPTS	(2024-25) (Rs.)	(2023-24) (Rs.)	PAYMENTS	(2024-25) (Rs.)
52,98,753	Grant credited from NTTM	34,64,706	-	Fixed asset	24,219
15,38,273	Sundry debtors	18,69,555	1153818	Man Days Charges (Salary exps.)	12,60,000
-	Sundry creditors	1,39,819	3,60,000	Consultancy	25,000
			11,46,899	Consumables	10,84,668
			8,80,600	Promotion/Proof of concept	1,49,500
			3,53,865	Travelling exps.	2,84,250
			12,81,215	Testing & other misc.cost	11,17,891
			5,36,663	Sundry creditors	-
			11,23,965	Overhead exps.	8,94,452
			-	Bulk trials	6,34,100
68,37,026	TOTAL	54,74,080	68,37,026	TOTAL	54,74,080

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP
CHARTERED ACCOUNTANTS
FIRM REG.NO. 113012 W/W/100296

Sd/-
VAIBHAV VAIDYA
PARTNER
MEM.NO. 157754

PLACE : MUMBAI
DATE : 22/08/2025

Sd/- R.V. BHANDARKAR
HEAD ACCTS. & FINANCE

Sd/- DR.MRINAL CHOUDHARI
ADDITIONAL DIRECTOR

Sd/- H.K. CHATTERJEE
DIRECTOR GENERAL

Sd/- A.A. BAMBARDEKAR
PRESIDENT

WOOL RESEARCH ASSOCIATION, THANE.**SCHEDULE "A"**

AS ON 31/03/2024 Rs.	CAPITAL FUND	AS ON 31/03/2025 Rs.
11,41,93,636	Balance as per last Balance sheet.	11,66,12,167
11,41,93,636		11,66,12,167
24,18,531	Add : Project Assets taken over during the year	22,54,59,387
11,66,12,167		34,20,71,554
11,66,12,167		34,20,71,554
11,56,400	a) EARMARKED CAPITAL FUND : [Being donation received from members for investment in M/s. Gujarat Sheep & Wool Development Corporation Ltd., in terms of resolution passed in 23rd G.C. meeting held on 26th August.' 1971.]	11,56,400
11,77,68,567	TOTAL	34,32,27,954

WOOL RESEARCH ASSOCIATION, THANE.**SCHEDULE "B"****RESERVES**

AS ON 31/03/2024 Rs.	PARTICULARS	AS ON 31/03/2025 Rs.
	<u>I. DEPRECIATION RESERVE A/C.</u>	
1,42,33,827	a] Depreciation upto last year	1,53,80,656
11,46,829	b] Depreciation for the year	16,64,977
1,53,80,656		1,70,45,633
	<u>II. RESEARCH AND DEVELOPMENT AND REPLACEMENT / UPGRADATION RESERVE</u>	
1,10,00,508	Balance as per last balance sheet.	1,10,00,508
--	Add : Addition during the year.	--
1,10,00,508		1,10,00,508
	<u>III. EDUCATION FUND.</u>	
3,86,448	Balance as per last balance sheet.	3,98,598
12,150	Add : Interest received during the year	13,497
3,98,598		4,12,095
	<u>IV. CORPUS FUND</u>	
13,70,80,815	Balance as per last balance sheet.	17,60,97,058
4,01,63,072	Add : Addition during the year.	1,54,89,426
17,72,43,887		19,15,86,484
11,46,829	Less : Excess of expenditure over income transferred.	16,64,977
17,60,97,058		18,99,21,507
20,28,76,820	TOTAL (I+II+III+IV+V)	21,83,79,743

WOOL RESEARCH ASSOCIATION, THANE.**SCHEDULE "C"****OUTSTANDING LIABILITIES**

AS ON 31/03/2024 Rs.	PARTICULARS	AS ON 31/03/2025 Rs.
42,000	For the year 2021-2022	-
10,31,765	For the year 2023-2024	-
-	For the year 2024-2025	8,64,567
25,000	Security Deposit /Retention money	5,29,847
75,84,788	Gratuity provision.	92,84,090
73,58,626	Leave salary provision.	94,65,968
9,81,846	Sundry liabilities (WRA)	46,54,273
29,22,233	COE - Sportech	1,76,503
17,760	Duties and taxes (Net)	-
	<u>PROJECT LIABILITIES :</u>	
-	MAVIM	3,43,464
46,208	Lab Upgradation A/c	46,208
2,00,10,226	TOTAL	2,53,64,919

WOOL RESEARCH ASSOCIATION, THANE.**SCHEDULE "D"****ASSETS OF PROJECT (MINISTRY OF TEXTILES)**

NAME OF THE PROJECT	PARTICULARS	AS ON 31/03/2024 Rs.	ADDITION DURING THE YEAR. Rs.	TAKEN OVER DURING THE YEAR Rs.	ASSETS AS ON 31/03/2025 Rs.
SPENT GRANT					
1) COE - Sportech	Lab equipments/Machinery	21,54,50,989	28,59,103	21,83,10,092	--
2) COE - Sportech	Books & Journals	59,50,058	-	59,50,058	--
3) COE - Sportech	IT -Infrastructure/Web Site	11,99,237	-	11,99,237	--
4) MAVIM project	Lab equipments/Furniture	2,07,17,550	95,743	-	2,08,13,293
5) Sustainable enhancement of Aesthetic values..	Lab equipments	15,508	-	-	15,508
6) Central Wool Dev. Board (IWDP) Schemes	Lab equipments	13,52,349	20,89,794	-	34,42,143
7) National Technical Textile Mission			24,219	-	24,219
	TOTAL	24,46,85,691	50,68,859	22,54,59,387.32	2,42,95,162

WOOL RESEARCH ASSOCIATION, THANE.

SCHEDULE 'E' 2024-2025

			GROSS BLOCK				DEPRECIATION				NET BLOCK	
SR. NO.	PARTICULARS	RATE %	AS ON 01.04.2024	ADDITION DURING THE YEAR	DEDUCTION DURING THE YEAR	AS ON 31.3.2025	UPTO 01.04.2024	DEPRECIATION FOR THE YEAR	ADJUSTMENT DUE TO SALE /LOSS	TOTAL UPTO 31.3.2025	AS ON 31.3.2025	AS ON 31.3.2024
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1)	LAND		5,83,883	-	-	5,83,883	-	-	-	-	5,83,883	5,83,883
2)	BUILDING (Old)	2.5	26,43,986	-	-	26,43,986	17,73,587	21,760	-	17,95,347	8,48,639	8,70,399
3)	FURNITURE AND FIXTURE	15	9,11,917	18,000	-	9,29,917	6,65,528	39,658	-	7,05,186	2,24,731	2,46,389
4)	LAB EQUIPMENT	15	72,70,885	56,52,560	-	1,29,23,445	44,79,068	8,42,715	-	53,21,783	76,01,662	27,91,817
5)	OFFICE EQUIPMENT	15	12,25,516	1,37,238	-	13,62,754	7,12,467	91,064	-	8,03,531	5,59,223	5,13,049
6)	AIRCOND. WDG. PLANT	15	1,77,025	-	-	1,77,025	1,76,975	8	-	1,76,983	43	51
7)	ELECT. INSTALLATION	15	35,39,826	-	-	35,39,826	13,67,416	3,25,862	-	16,93,278	18,46,549	21,72,410
8)	LAB FURNISHING	10	14,72,715	-	-	14,72,715	11,71,177	30,154	-	12,01,331	2,71,384	3,01,538
9)	WATER COOLER	15	39,182	-	-	39,182	12,125	4,059	-	16,184	22,998	27,057
10)	AIR CONDITIONER	15	3,87,512	3,74,198	-	7,61,710	2,62,855	59,775	-	3,22,630	4,39,080	1,24,657
11)	FIRE FIGHTING EQUIPMENTS	15	59,232	-	-	59,232	48,610	1,593	-	50,203	9,029	10,623
12)	WATER TANK	15	31,600	-	-	31,600	31,470	20	-	31,490	111	130
13)	MOPED (LUNA)	15	11,300	-	-	11,300	11,254	7	-	11,261	39	46
14)	BUILDING (New)	2.5	13,37,551	-	-	13,37,551	6,78,794	16,469	-	6,95,263	6,42,288	6,58,757
15)	BUILDING (WRA'S CONTR.PILOT PLANT)	2.5	7,50,000	-	-	7,50,000	3,80,618	9,235	-	3,89,853	3,60,147	3,69,382
16)	MOTOR CAR (BUS & CAR)	15	24,82,764	-	-	24,82,764	21,48,628	50,120	-	21,98,748	2,84,016	3,34,136
17)	AIR CONDITIONING PLANT FOR COE LAB	15	14,96,477	-	-	14,96,477	12,01,859	44,193	-	12,46,052	2,50,425	2,94,618
18)	CCTV INSTALLATIONS	15	3,27,637	1,47,400	-	4,75,037	2,04,416	29,538	-	2,33,954	2,41,083	1,23,221
19)	COMPUTER SYSTEMS/PRINTERS	15	4,31,628	3,23,312	-	7,54,940	53,809	98,750	-	1,52,559	6,02,381	3,77,819
	Total		2,51,80,638	66,52,708	-	3,18,33,346	1,53,80,656	16,64,977	-	1,70,45,634	1,47,87,712	97,99,982

WOOL RESEARCH ASSOCIATION, THANE.**SCHEDULE "E" (1)****PROJECT ASSETS TAKEN OVER ON COMPLETION OF PROJECTS**

SR. NO.	NAME OF THE PROJECTS.	FURNITURE	LAB EQUIPMENTS	AIR CONDITIONER	BUILDING	TOTAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Dying of wool	4,156	30,628	-	-	34,785
2	Blending of wool	7,074	1,36,211	-	-	1,43,285
3	Chemical finishing of carpet	6,622	87,345	-	-	93,967
4	Designing of wool	-	4,49,307	-	-	4,49,307
5	Color Research project	-	54,637	-	-	54,637
6	Carpet Weaving programme	23,997	3,438	-	-	27,435
7	Standardisation of yarn.	-	2,85,481	-	-	2,85,481
8	Computer Aided Designing (Old)	-	5,44,495	-	-	5,44,495
9	Evaluation of Wool Jute.	-	5,00,000	-	-	5,00,000
10	Techno Economic study of shoddy.	-	4,77,130	-	-	4,77,130
11	Development of cheap furnishing.	-	3,00,000	-	-	3,00,000
12	Software for garment designing.	-	9,34,800	-	-	9,34,800
13	Extraction of various dyes.	-	24,255	-	-	24,255
14	Cad for Textiles.	-	10,34,620	-	-	10,34,620
15	To set of norms (Siro Fast)	-	9,93,851	-	-	9,93,851
16	Pilot Plant.	-	-	-	7,50,000	7,50,000
17	Modification of reactive dyeing.	-	2,25,134	-	-	2,25,134
18	Development of Eco-friendly.	-	1,76,956	-	-	1,76,956
19	Eco-Testing Lab.	1,27,829	31,42,640	-	-	32,70,469
20	Angora Rabbit Wool	-	2,05,060	-	-	2,05,060
21	To Investigate the factors.	47,310	1,03,191	-	-	1,50,501
22	To Make the Natural dyeing.	4,400	1,70,601	-	-	1,75,001
23	To Develop the Software.	49,210	1,36,288	-	-	1,85,498
24	Development of Design for carpet.	8,743	4,56,774	-	-	4,65,517
25	Value Added.	11,257	65,112	-	-	76,369
26	Computer Aided Emproidary.	31,131	5,94,775	-	-	6,25,906
27	Development of Instrumental.	1,16,760	12,83,985	-	-	14,00,745
28	To Develop Software Prediction.	-	1,75,350	-	-	1,75,350
29	Role of Enzymes.	-	45,552	-	-	45,552
30	Study of Technical Aspects.	-	25,097	-	-	25,097
31	To Develop Different Type of Knitwear	-	66,062	-	-	66,062
32	To Improve Aesthetics Value	-	1,99,842	-	-	1,99,842
33	Textiles committee	-	64,68,437	-	-	64,68,437
34	To Dev. Innovation Yarn	-	5,50,000	-	-	5,50,000
35	To Dev. Cotton Core	-	2,75,000	-	-	2,75,000
36	Enrichment of Painting	-	2,00,000	-	-	2,00,000
37	Dyeing of Wool	-	50,000	-	-	50,000
38	Information Technology	-	2,89,550	-	-	2,89,550
39	CAD Jaquard	-	2,70,650	-	-	2,70,650
40	Design and Fabricate	-	14,22,816	-	-	14,22,816
41	To Improve Processing	-	7,38,812	-	-	7,38,812
42	UNDP -GOI project	2,25,350	1,17,82,004	1,05,000	25,02,829	1,46,15,183
43	To Develop Itch free woollen(Plasma)....	-	12,00,717	-	-	12,00,717
44	Ultra Sound assisted...	-	7,99,191	-	-	7,99,191
45	To assesas Quality norms....	-	45,39,900	-	-	45,39,900
46	Blind dyeing..	-	10,64,885	-	-	10,64,885
47	Softening..	-	3,66,593	-	-	3,66,593
48	Preloom processing.....	-	3,46,747	-	-	3,46,747
49	Dev.of Composites....	-	2,15,543	-	-	2,15,543
50	To evolve feasible...	-	51,150	-	-	51,150
51	To Synthesise wool dyes....	-	24,23,882	-	-	24,23,882
52	Dev.of Internet based...	-	37,19,940	-	-	37,19,940
53	Surface Topographical...	-	4,04,438	-	-	4,04,438
54	To Dev.cost effective ETP	-	6,04,685	-	-	6,04,685
55	Effluent treatment system for Power generation	-	1,50,849	-	-	1,50,849
56	Upgradation of Indian wool	-	12,26,307	-	-	12,26,307
57	Dev.of Thermal Responsive HighAltitude (CWDB)	-	2,12,653	-	-	2,12,653
58	Negative ion finishing for woollen carpets...	-	12,17,367	-	-	12,17,367
59	Dev.of pollutin free and eco-friendly dry scouring.	-	6,49,624	-	-	6,49,624
60	Dev.of Multifunctional finish with anti bacterial..	-	10,63,034	-	-	10,63,034
61	To impart superwash property to Indian wool..	-	2,21,557	-	-	2,21,557
62	UNDP-Pasmina Project	-	53,17,564	-	-	53,17,564
63	Dev. Effective & eco-friendly electroflocculation ..	-	8,73,285	-	-	8,73,285
64	Dev.Waterproof Breathable sports wear..	-	4,82,550	-	-	4,82,550
65	Fibre Length Measurent Instrument(DST)	-	4,33,968	-	-	4,33,968
66	Instrumentto Determine...	-	7,65,763	-	-	7,65,763
67	Synthesis & Application of Solar Ultraviolet	-	10,03,268	-	-	10,03,268
68	Innovation of Bulky yarns of woolenised Jute....	-	7,05,050	-	-	7,05,050
69	To design & develop evaporative cooling textiles	-	4,02,713	-	-	4,02,713
70	Enhancement of Moisture management properties ..	-	2,02,960	-	-	2,02,960
71	To develop light sensitive Photo-Chromic Smart	-	57,605	-	-	57,605
72	Design & Dev.of Indian Wool based Smart Textiles...	-	20,66,147	-	-	20,66,147
73	Design & Dev.of Indian Wool based Tech,Textiles.	-	9,22,630	-	-	9,22,630
74	Lab Upgdadation- Equipments	-	3,59,36,858	-	-	3,59,36,858
75	Dev.and appl.of eco friendly microencapsulated..	-	5,06,990	-	-	5,06,990
76	Dev. of high performance smart sportswear...	-	4,18,653	-	-	4,18,653
77	Dev. of innovative sportech products...(Hot melt)	-	7,18,697	-	-	7,18,697
78	Dev.of fitness clothing like gym and Yoga wear ..	-	4,01,613	-	-	4,01,613
79	Development of Membrane Bioreactors	-	5,65,921	-	-	5,65,921
80	Dev.of Novel Detergent Formulation for wool	-	11,32,800	-	-	11,32,800
81	Development of sports gears (inner wears,socks,etc)	-	4,18,000	-	-	4,18,000
82	Synthesis of water soluble fluorescent colorants for	-	3,01,810	-	-	3,01,810
83	COE Soprttech	-	22,54,59,387	-	-	22,54,59,387
Total (Rs.)		6,63,839	33,45,49,179	1,05,000	32,52,829	33,85,70,847
WRA Assets.						3,18,33,346
Project Assets taken over upto 2024-2025.						33,85,70,847
Assets of existing projects.						2,42,95,162
TOTAL (Rs.)						39,46,99,355

WOOL RESEARCH ASSOCIATION, THANE.**SCHEDULE "F"**

AS ON 31/03/2024 Rs.	PARTICULARS	AS ON 31/03/2025 Rs.
	<u>FIXED DEPOSITS</u>	
	<u>Corpus Fund/R & D Replacement Fund</u>	
8,09,51,302	Fixed Deposits with State Bank of India	8,66,42,559
6,81,85,465	Fixed Deposits with Central Bank of India	7,20,55,325
—	Fixed Deposits with Axis Bank	44,15,249
51,77,785	Interest accrued on FD (SBI)	48,20,089
8,03,503	Interest accrued on FD (CBI)	8,98,004
	<u>CASH & BANK BALANCES</u>	
	68,91,468 Current Account with S.B.I. (A/c. 11100522024)	52,33,498
	5,38,443 ESCROW A/c with S.B.I. (A/c. 32424163025)	5,38,443
	7,536 Cash on hand	4,542
	14,135 CWDB Project Account C.B.I. (A/c. 1334639360)	26,120
	49,41,796 Central Bank Of India (Testing fees) (A/c. 1334641891)	91,17,305
	8,317 WRA Trustee's Account. C.B.I. (A/c. 1334698893)	18,010
	10,85,983 MAVIM Account with S.B.I. (A/c. 39012931052)	29,69,427
	11,54,047 Axis Bank Ltd. (A/c. 061020003285)	11,56,359
1,46,68,879	27,153 Axis Bank Ltd.(Project; Light weight....) (A/c. 918020094870444)	25,899
69,905	MAVIM Project A/c.	-
15,38,273	NTTM	34,07,828
2,30,583	CWDB - IWDP Schemes	30,30,281
	<u>SUNDRY DEBTORS.</u>	
80,89,931	Testing Fees outstanding considered good	95,72,994
	<u>OUTSTANDING SUBSCRIPTION</u>	
	81,018 Considered Good for the year (2020-2021)	81,018
	81,018 Considered Good for the year (2021-2022)	81,018
2,48,554	86,518 Considered Good for the year (2022-2023)	86,518
17,99,64,180	TOTAL	20,41,80,487

WOOL RESEARCH ASSOCIATION, THANE.**SCHEDULE "G"****ADVANCE RECOVERABLE**

AS ON 31/03/2024 Rs.	PARTICULARS	AS ON 31/03/2025 Rs.
10,17,648	Deposits with MSEDCL/TMC etc..	10,17,648
53,23,447	Gratuity fund with L.I.C. of India	72,84,337
10,92,127	Other Advances	2,15,500
3,37,532	Prepaid expenses	2,89,458
1,97,498	TDS Receivable (10-11)	1,97,498
--	Duties and taxes (Net)	12,81,865
30,42,278	TDS Receivable (22-23)	--
29,04,724	TDS Receivable (23-24)	--
--	TDS Receivable (24-25)	35,90,719
1,39,15,254	TOTAL	1,38,77,024

WOOL RESEARCH ASSOCIATION, THANE.**SCHEDULE "H"****CURRENT ASSETS (PROJECT)**

AS ON 31/03/2024 Rs.	PARTICULARS	AS ON 31/03/2025 Rs.
	<u>GRANT-IN-AID DUE FOR RECURRING EXPENSES.</u>	
12,27,674	Dev. effective & eco-friendly electroflocculation ..	--
12,38,790	Dev.of keratin based bio-composite fils and electro spun..	--
13,54,516	Synthesis & Application of Solar Ultraviolet	--
19,75,150	Dev.of high performance,smart sportswear...	--
17,34,744	To develop light sensitive Photo-Chromic Smart	--
11,95,275	To design & develop evaporative cooling textiles	--
11,08,155	Enhancement of Moisture management properties of polyester....	--
--	Development of sports gears (inner wears,socks,bands,leggings ets.)	--
--	Synthesis of water soluble fluroscent colorants for	--
--	Development of Membrane Bioreactors	--
3,51,943	Design & Dev.of Light weight and high impact resistance sport goods	--
--	Dev.of Cost Effective hand made carpets & floor coverings using Jute....	7,84,262
1,04,020	Sustainable Enhancement of Aesthetic values by digital printing....	1,04,020
1,02,90,266	TOTAL	8,88,282

WOOL RESEARCH ASSOCIATION, THANE.
SCHEDULE " I "

STAFF SALARIES

AS ON 31/03/2024 Rs.	PARTICULARS	AS ON 31/03/2025 Rs.
2,75,96,820	Salaries & Allowances (Includes PF/FPF, ADMN. charges & EDLIS premiums)	3,81,60,238
2,988	Maharashtra Labour Welfare Fund.	8,850
28,829	Staff Medical Expenses.	39,897
5,42,491	Staff Welfare Expenses	6,66,611
41,399	Staff Leave Travel Concession.	23,940
21,04,061	Group Gratuity Scheme	24,65,104
3,03,16,588	TOTAL	4,13,64,639

WOOL RESEARCH ASSOCIATION, THANE**SCHEDULE " J "****ESTABLISHMENT CHARGES**

AS ON 31/03/2024 Rs.	PARTICULARS	AS ON 31/03/2025 Rs.
4,21,852	Printing & Stationery.	4,40,175
2,06,563	Postage, Telegram & Telephones.	5,48,945
25,71,133	Electricity & Water Charges.	37,41,739
98,568	Advertisement & Publicity	1,49,676
38,00,252	Repairs & Maintenance	1,27,69,940
27,125	Rates & Taxes.	27,125
3,26,664	Insurance Exps.	3,53,193
11,28,505	Conveyance & Travelling.	13,92,254
4,22,348	Foreign Travel Exps.	-
50,235	Entertainment Exps.	44,776
52,966	Bank Charges.	79,201
1,500	Journals & Periodicals.	-
42,000	Subscription to the other Association.	40,000
1,89,820	Miscellaneous exps.	61,637
13,55,013	Security Service Charges.	19,88,241
5,62,646	Motor car exps.	3,80,534
19,25,571	Professional charges.	27,38,978
22,51,848	Testing charges.	26,80,634
20,04,007	Labour charges/wages to casual workers	20,78,189
752	Interest on delay payments/GST liabilities etc..	833
2,500	Employer's contribution to MPT	2,500
1,74,41,869	TOTAL	2,95,18,570

WOOL RESEARCH ASSOCIATION, THANE.**SCHEDULE " K "****INCOME**

AS ON 31/03/2024 Rs.	PARTICULARS	AS ON 31/03/2025 Rs.
3,08,995	Members Subscription.	4,99,269
4,31,21,432	Testing Fees Income.	5,04,78,424
91,40,627	Consultancy Service charges and R & D	53,18,020
1,29,243	Miscellaneous receipts.	8,51,750
92,84,630	Old liabilities/ creditors written back	4,02,832
78,70,555	Interest on Fixed Deposites.	1,06,64,495
3,57,808	Interest credited by LIC for Gratuity fund	4,26,970
-	Interest on Income Tax Refund	3,63,622
1,20,426	Foreign Exchange Gain	-
7,03,33,717	TOTAL	6,90,05,382
4,01,63,072	Less : Transferred to Corpus Fund	1,54,89,426
3,01,70,645	Transferred to Income & Expenditure A/c.towards Industry's contr.	5,35,15,956

WOOL RESEARCH ASSOCIATION

SCHEDULE 'L'

NOTE ON ACCOUNTS

1. Significant Accounting Policies

Accounts have been prepared under the historical cost convention. The significant account policies are as under:

- a. Fixed Assets: Fixed assets are stated at cost of acquisition inclusive of expenses relating to acquisition.
- b. Depreciation: Depreciation is provided on Assts acquired by the Association, out of its own funds by the WDV method at the following rates.

Building	-	2.5 %
Furniture, Fixtures & Equipments	-	15 %
Furnishing	-	10 %
- c. Investment: Investments acquired out of donation from members are valued at cost of acquisition.
- d. Inventory: Consumable items such as Laboratory chemicals and Wool Consumables, Color Software development and computer stationery and other consumables purchased during the year are treated as consumed during the year.
- e. Retirement Benefits
 - i. Provident fund contribution is funded with Regional Provident Fund Commissioner.
 - ii. Provision of Leave Salary:
Provision of leave salary is made by the Association on the basis of leave accumulated to the credit of employee at the year end.
 - iii. Liability for gratuity is provided on the basis of calculation made by the Association as per the payment of Gratuity Act, 1972 on Balance Sheet date. However, valuation has been estimated by the WRA at Rs. 92,84,090.00 The premium paid to LIC for the Group Gratuity Trust is shown as Deposits as Rs. 72,84,337.00.
- f. Foreign currency transaction: All foreign currency transaction during the year are converted at the standard rate as specified by Grant Sanctioning Authority.
- g. Grant-in Aid:
 - 1) Grant-in-aid from Government authorities is accounted for on the basis of amount sanctioned.

- 2) Grant-in-aid for recurring expenses (WRA as well as specific projects) is adjusted as and when the expenses are incurred.
 - 3) Grant-in-aid of Capital nature on WRA account is transferred to capital fund on purchase of fixed assets.
- h)
 - a) Interest on Fixed Deposits is accounted for on accrual basis and is shown under income
 - b) Subscription and testing fees are accounted for on accrual basis and consultancy service charges and other income are accounted for on receipt basis and the same is first utilized for off setting the industry's contribution to meet capital expenses as well as revenue expenses and the balance has been transferred to R & D Replacement Fund.
 - i) Corpus Fund:
 As per Ministry of Textiles O.M. No. 20/21/98/A & MMT dated 9th September, 1998 – Minutes of the 13th Meeting of the Co-ordination Council for Textile Research Association (TRA) held on 11th August, 1998. TRAs' are authorized to retain 100 % of the earned income by building a Corpus Fund from such retained income and utilize interest from such Corpus Fund to meet their need based requirement.
 - j) Education Fund :
 Education fund has been created out of donation received for the purpose of enhancing the educational facilities at Training Centre and improving the level of training.
 - k) All expenses are accounted for on accrual basis. Allocation of various recurring expenses to the various projects is done on the basis determined by the Management.
- 2
 - a) In the opinion of the Governing Council, subject to these note, current assets, loan and advances, including grant receivable, have value on realization in the ordinary course of activities of the Association, not less than at which these are stated in the Balance Sheet, except subscription and testing fees of previous years which may prove irrevocable for which no provision has been made. Provision for all known liabilities has been made in the accounts and the same is not in excess of what is reasonably necessary.
 - b) During the year the management has carried out physical verification of fixed assets. However there are some discrepancies found with book record and the management is in the process of reconciling the same with book record.
3. No confirmations from creditors, deposits and in respect of loan and advances have been obtained. Confirmations in respect of debtors fixed deposits placed bank are being obtained. WRA has done reconciliation of Goods and Service Tax (GST) balances as per books of accounts and as per GST returns filed.
 - 4 The provision of subscription receivable from ordinary and Special associate members and the details of the installed capacity of the member mills on the basis

of which calculation of subscription is made is as prepared by the management and is relied upon by the auditors without verification for want of relevant records.

- 5 The mutual adjustment of grant for capital to revenue and vice versa are made and not yet confirmed by the granting authorities for relevant years.
- 6 Investment in M/s Gujarat Sheep & Wool Development Corpn. Ltd. Rs. 11,56,400/- represent the contribution from industry through WRA in sheep breeding program of M/s Gusheel. Audited Accounts of Company are still awaited. In the absence of audited accounts, the net worth, diminution in value of investment can not be ascertained.
- 7 The apportionment of staff salaries, freight charges, raw material, traveling, spares and other overheads including testing charges between the Association and various projects is made as per the advice from the respective project-in-charge/Director in this regard.
- 8 Depreciation on fixed assets amounting to Rs.16,64,977/- for the current year (Previous year Rs.11,46,829/-) on WRA assets has been provided for and shown under depreciation reserve.
- 9 Impairment of Assets.
The carrying amount of assets, other than inventories is reviewed at each balance sheet date to assess whether there is any indication of impairment in respect of such asset or group of assts. If such indication exists, the recoverable amounts of such assets or group of assets is estimated. If such recoverable amount of asset or group of assets is less than it carrying amount, an impairment loss is reckoned by reducing the carrying amount to its recoverable amount. If there is an indication at the balance sheet date that the previously assessed impairment loss no longer exists, the recoverable amount is reassessed and the asset is reflected at the recoverable amount subject to a maximum of depreciable historical costs.
- 10 Fixed Assets: The Association has purchased/taken over assets worth, Rs 50.69 Lakhs, Rs.66.53 Lakhs and Rs. 3,385.70 lakhs as on 31.03.2025 out of the Projects funded by MOT, COE Sportech Project, MAVIM and other agencies respectively. These assets are being used by the Association to carry out the activities. However, no depreciation has been provided during the year as well as during the earlier years on such assets. The impact of depreciation is not quantified.
- 11 The Association has not identified the creditors having registration under Micro, Small and Medium Enterprises Act 2006 and the Small Scale Industries Act. Hence the disclosure as required is not made in the accounts.
- 12 During the year, excess expenditure incurred on project of Rs.21,25,464/- has been shown as project cost incurred by WRA as expenditure of WRA.

- 13 Previous year figures are re-grouped/re-arranged wherever necessary to make them comparable with those of current years.

SIGNATURES TO SCHEDULES 'A' TO 'L'

FOR J.P.J.ASSOCIATES LLP
CHARTERED ACCOUNTANTS
FIRM REG.NO. 113012 W/W100296

For & on behalf of the
GOVERNING COUNCIL

Sd/-
VAIBHAV VAIDYA
PARTNER
MEM. NO. 157754

Sd/-
A.A. BAMBARDEKAR
PRESIDENT

Sd/-
H.K. CHATTERJEE
DIRECTOR GENERAL

Sd/-
DR. MRINAL CHOUDHARI
ADDITIONAL DIRECTOR

Sd/-
R.V. BHANDARKAR
HEAD ACCTS. & FINANCE

PLACE : MUMBAI
DATE : 22/08/2025



Wool Research Association, Thane

(Linked to Ministry of Textiles, Govt. of India)

P.O. Sandoz Baug, Kolshet Road,

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