Lab in a Bag Promotes Cotton

Dr. Seshadri Ramkumar, PhD, CText, FTI (UK), FTA [Honorary] (India), TAPPI Fellow (USA) is a full professor of advanced textiles at Texas Tech University, USA. His research interest lies in the development of value-added cotton textiles for advanced applications like oil spill remediation. Since December 1999, he has been playing a major role in building the technical textiles sector in India and developing U.S.-India relationships in cotton and textiles sector. He has been recognised with Hall of Fame award in the field of nonwovens, “Lifetime Technical Achievement Award, given by the USA-based Association of Nonwoven Fabrics Industry (INDA). He is the only living professional currently who has been awarded the Honorary Membership and Honorary Fellowship of world’s largest textiles field’s professional association, Textile Association (India). He writes a column called “TexSnips,” which gets distributes to over 2000 people all over the world.

Cotton needs to be presold based on its environmental friendliness. Plastic pollution is receiving highest attention with the recent conclusion of the 4th session of intergovernmental negotiating committee to negotiate global plastic treaty held in Ottawa, Canada, April 23-29, 2024. Importantly, the document on plastic production and pollution prepared by the United Nations Environmental Program was used as an aide memoir during the discussion.

According to the document, there is a link between plastic pollution and human health and the environment. It calls for ending the pollution instructing the need for bold vision and plan. This gives impetus for natural fiber sectors like cotton to go on a high gear in cotton productivity and quality improvements, thinking beyond the commodity and common fashion products. There needs to be more encouragement for developing advanced products from cotton and natural fibres that can serve as alternatives to plastics. Importantly, industry must be involved in outreach and engagement to tell positive stories of cotton and how it can combat pollution.

Leading cotton associations like the Cotton Association of India, the USA-based National Cotton Council and Cary, NC-based Cotton Incorporated are doing their part to promote the
positive values of cotton by marketing campaigns and supporting research.

In addition to these laudable efforts, it is important that these campaigns reach youngsters at middle and high schools, colleges, and universities as these are future consumers with independent decision making and buying powers. In the United States, which is one of the leading cotton producers and exporters of cotton, academic institutes emphasise the importance of outreach and engagement with the industry and society. Such efforts must be replicated in other cotton nations, where there are active engagements with stakeholders to gather latest information and increase the footprint of cotton in various products. An interesting engagement activity, “Lab in a Bag,” from our laboratory may be valuable to the cotton industry and allied sectors.

Lab in a Bag Showcases Sustainability

Engaging with customers, community, and the next generation is important to promote sustainability and new values.

On April 17, 2024, as part of the 6th annual Engaged Scholarship Symposium organised by Texas Tech University, sustainability aspects of cotton and advanced applications were highlighted using a mobile laboratory, termed as “Lab in a Bag.”

I had an opportunity to present our engaged research with High Plains’ cotton prod “Engaged Research in National Defense, Human Health, and Environmental Protection,” that focuses on finding new applications for cotton, developing alternatives to plastics, and exploring opportunities for cotton in defense and industrial sectors.

The symposium highlighted various aspects of engagement such as using theatre plays to simulate disaster days, pictorial representation of a situation, etc. The power of effective engagement with stakeholders was stressed in the event. Presentations involved researchers from arts, engineering, family science and English all focusing on outreach and engagement.

Our work featured a mobile laboratory using a “Lab in Bag,” that has materials to highlight the earth friendliness of natural materials like cotton. The way the mobile laboratory can be put together with ease attracted the attention of the audience in the meeting. Such a makeshift laboratory can be used by different industries to highlight their uniqueness.

Lab in a Bag set-up consists of a packet of cotton, cotton nonwoven samples, oil absorption set-up, experimental oil and safety equipment. This set-up can be quickly assembled and can be used to demonstrate new applications of cotton such as oil absorption to school students, consumers, and for promoting the product.

People in the audience such as those belonging to the education sector enquired about sustainability approaches followed in the cotton sector. Practical demonstrations enhance awareness and interest in sustainable products. In the case of oil absorption by raw cotton, “Lab in a Bag,” projects the scientific mechanism to the audience as well as how such products are biodegradable. Show and tell engages well with (Photo Courtesy: Brad Thomas, TTU)
the audience and can serve as great advertisement tools.

It was clear that people are aware of microplastic pollution, and the industry must involve in aggressive engagement with the society to highlight the positiveness of cotton such as the development of value-added products, biodegradability, and providing livelihood to many farmers in developing nations such as those in Africa.

It is becoming clear that better messaging and reaching out to practitioners in other disciplines such as theater, music and art can produce positive campaigns to relay facts about cotton and other natural products.

**Reaching Out to a Broader Community**

Interesting show and tell efforts like the Lab in a Bag attract youngsters and public alike in knowing the benefits of using cotton in commodity and industrial applications.

Industry associations and academia in India can promote cotton in education settings, laboratory open houses, etc. The Nonwovens and Advanced Cotton Laboratory at Texas Tech University engages with local workforce development organisations and Chamber of Commerce to create awareness on cotton.

As a case in point, this past January, we made efforts to engage with an elementary school to promote cotton in a STEM event organised by a Parents Teachers Association. Among all the high-tech demonstrations such as robotics, an engaging demonstration of raw cotton soaking up oil attracted the audience.

Aditya R, a seventh-grade student from Hutchinson Middle School in Lubbock, USA demonstrated value-added applications of cotton. The demonstration attracted good interest among the visitors.

“Wax in natural cotton being nonpolar attracts nonpolar oil,” explained Aditya. Recognising the importance of cotton to the economy of Lubbock and its natural biodegradability, Aditya demonstrated the instantaneous oil absorption by natural cotton nonwoven fabric.

Graduate students from the Nonwovens & Advanced Materials Laboratory at Texas Tech University engaged enthusiastically with young students and parents from the region. Our Nonwovens & Advanced Materials Laboratory is active in outreach to school students in promoting sustainability and STEM projects.

Nandhanaa Anand, a 10th grade student at the Lubbock High School is collaborating with us on a project that focuses on sustainable products for advanced applications.

The highlight of the event was the showcasing of different STEM areas such as robotics, engineering, sustainability and forensic sciences.

Pre-K to 5th grade students displayed their projects using poster presentations and models.

Such outreach efforts must be conducted to encourage more students to take STEM majors in higher education. Innovative ideas can evolve because of participation in multidisciplinary showcase events and exhibitions. It will also help with collaborations with different industrial sector and disciplines.

Cotton industry must look for opportunities to engage with global organisations that have focus on sustainability to educate public about the benefits of cotton. Industry can also support summer internships and small projects and entice students to participate. These will pay off well for the cotton sector.

*(The views expressed in this column are of the author and not that of Cotton Association of India)*

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