

## Cotton research may allow for cleaner Gulf

By Jaime Adame

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Not all cotton is the same, says Roger Haldenby, vice president of operations for Lubbock-based Plains Cotton Growers.

Cotton lint is typically baled and turned into yarn, eventually becoming fabric.

Sometimes, however, a shortened growing season yields a less valuable crop.

"We produce cotton which is of a lower marketability, because of its lack of maturity," Haldenby said, explaining that "those cottons are normally discounted."

As an industry advocate, his organization is "always looking for new markets and new methods for woven materials," Haldenby said.

Enter researchers like Seshadri Ramkumar at Texas Tech University.

Ramkumar has developed a patented material dubbed Fibertect that may have a wide range of uses, including possibly cleaning up oil in the Gulf of Mexico. Now, his work has gotten the attention of many, with media attention from across the globe.

"It's a nice story, but it was not easy. It took 10 years for us to come to this level," said Ramkumar, a tenured associate professor.

Ramkumar has been at the university since 1999, exploring ways to develop nonwoven materials.

Disposable diapers, fabric dryer sheets and even envelopes are some examples of nonwoven materials, according to the Association of the Nonwoven Fabrics Industry. Without weaving or knitting, fibers are bonded together via mechanical, thermal or even chemical processes, the industry trade group says.

Ramkumar's focus was on military applications.

"I started working on next-generation military clothing," said Ramkumar, who holds a doctorate in materials, textiles and fiber science.

"Cotton was one of the earlier candidates," Ramkumar recalled.

So he approached the Plains Cotton Growers.

"There's always more requests for funding than there are funds," Haldenby said, adding that he's known Ramkumar for about a decade.

"It's never an easy decision" to decide who gets industry support, Haldenby said. Scientists ask for "two or three times" the amount of funding available, he said.

Cotton researchers in Texas can receive cotton industry funding from Cotton Incorporated, the behemoth company funded via per-bale assessments paid by cotton producers.

In addition to marketing — Cotton Incorporated is behind the familiar "The Fabric of Our Lives" television marketing campaign — the organization also spent nearly \$11 million directly on product research and development, according to the company's annual report.

Another \$3.8 million is sent to states, including Texas, to support more research.

Ramkumar said that over five years, he's gotten between \$75,000 and \$100,000 in annual funding from "cotton-related agencies," including some governmental support.

His biggest financial backer has been the U.S. Department of Defense, which has supplied about \$150,000 in annual funding for nearly a decade, he said.

The funding is needed to pay for materials and also support the eight or so lab assistants, most of them graduate students, who assist Ramkumar's projects. He now manages a \$2 million lab focused on nonwoven materials that didn't exist when he first joined Texas Tech.

From the cotton industry's point of view, "basically, over the last five years we've seen kind of a relatively small amount being granted to him in order to start some of his work," Haldenby said. "He's delivered on each project that he's been funded on."

In a 2008 project description that received funding from Cotton Incorporated's State Support Program, Ramkumar focuses on the low-maturity cotton, also described as "low micronaire" cottons.

"If low micronaire cottons can be successfully developed into high market value products, there will be new high-end opportunity for nearly 2 million discounted bales from Texas," the description reads.

The absorbency and environmental qualities of cotton are a key part of why Ramkumar's product may be used in the Gulf of Mexico — and why it has drawn media attention from cable network CNBC and various other national, and even international, media.

Cotton combined with an activated carbon core allows absorbent wipes to sop up both oil and hydrocarbon vapors.

Ramkumar touts how cotton is more environmentally friendly and biodegradable than synthetic materials, a key consideration when thinking about the "landfill issue" — what to do with cleanup materials after their use.

The product is now manufactured in Waco and sold by First Line Technology.

"The results are promising," Ramkumar said, though he added that "I cannot

guarantee that this product will be used.”

Cost is always an issue, he noted.

With possible military and industrial safety applications, however, Ramkumar is sure of one thing.

“This has opened up new opportunities for cotton,” he said.

And if there is a strong market for Ramkumar’s materials, for cotton growers “that’s a tremendous return on relatively small amount of money invested in research,” Haldenby said.



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