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# Cotton Kings: Researchers test cotton for oil-spill cleanup

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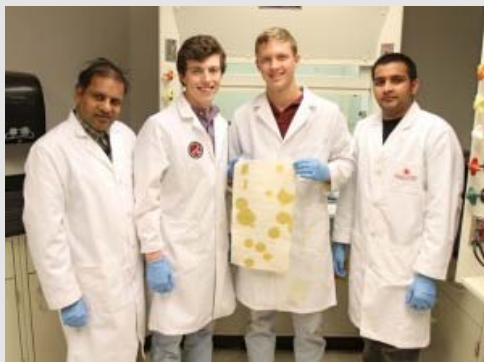


Photo by Lauren Pape

## The Cotton Kings

Professor Seshardi Ram, high school students Ronnie Kendall and Luke Kitten, and graduate student Vinit Singh hold up a sheet of cotton that was used to soak up motor oil at the Reese Technology Center on Wednesday.

Posted: Friday, January 27, 2012 12:24 am

By Caitlan Osborn  
News Editor | 0 comments

With Lubbock being the largest contiguous cotton-growing region in the world, new methods are constantly being developed to bring more life to the industry.

This is the job of Seshadri Ram, associate professor at the Texas Tech Institute of Environmental and Human Health, and his team of researchers, who specialize in nonwoven and advanced materials.

With the assistance of Vinit Singh, a Tech graduate from Mumbai, India, and two high school students, Luke Kitten and Ronnie Kendall, Ram's lab has developed a new use for less valuable cotton.

"You can say Texas produces roughly five million bales of cotton, and most of that cotton comes from the High Plains," Ram said. "So this is a very important region for cotton production."

While cotton is predominately used for denim and other apparels, roughly 8-10 percent of cotton in the Lubbock region falls into the category of low-grade, making it unsuitable as a commodity fiber. The research group is trying to bring more value to this portion of the crop by testing it for industrial use.

"What we thought was, can this cotton be used to develop a product which an industry can use, so that they give you more money?" Ram said. "We're taking a low-grade, less costly product, for which the value is more."

After the Deep Horizon Oil Spill in 2010, Ram and Singh began testing the benefits of using cotton on oil.

"So far the industry is using plastic material," Ram said. "Why we have decided to use cotton was for the environmental concerns. Cotton is a natural fiber so it is biodegradable. Not only will the cotton absorb the oil, but if you dump it in a landfill, over a period of time, the cotton will degrade and so it (does not harm the environment), unlike synthetic material, which adds to the pollution."

Ram and Singh began to test the absorption rate of the crop and discovered one gram of cotton can absorb 50 times its weight in oil, twice as much as synthetic materials.

The reason is because raw cotton has natural wax, which can separate oil from water. By the summer of 2011, Kendall and Kitten joined the team and made another important discovery: cotton absorbs at the same rate, no matter the type of oil.

"They refined this method, after thousands of experiments," Ram said, "They took motor oil, vegetable oil, diesel oil, etc. and found the same results. No matter the type of oil, one gram of cotton can absorb 50 grams."

The team then refined the method further, discovering low-grade cotton absorbs at a higher rate than costlier cotton, adding value to the less-expensive crop.

Because of their achievements, Kendall, Kitten and Singh were invited this month to present their findings at the 2012 Beltwide Cotton Conference, one of the world's leading cotton seminars, in Orlando, Fla.

"(Getting international recognition) is really neat," said Kitten, a senior at Trinity Christian High School. "It's a good experience."

Both students have made presentations at other international conferences, to share their work with others in the industry.

"It was really exciting," said Kendall, a senior at Coronado High School. "It's been a great experience to get up there and talk to all those people."

Kendall said he has benefited greatly from his work with Tech. He received an acceptance letter to the Tech honor's college, and said he will be attending this fall.

"My dad's a scientist as well, and I've talked to him about the Exxon oil spill (of 1989) and how it was cleaned up," he said. "We really haven't improved anything since then, so it's nice being able to improve things that really haven't been improved on. And it's good being involved in something that could really help the environment and make a difference in the cotton industry."

Kitten, who is interested in attending Colorado School of Mines, said he was diagnosed with Hodgkin's lymphoma last March, and chose to join the team toward the end of his chemotherapy treatment. He said he has been in remission for about four months.

"My dad and my family are farmers, so I've always had that tie to the cotton industry," he said. "Getting the opportunity to come out here really interested me to see the other aspect, not just growing, but also the utilization of cotton. It's a good way to stay active and get your mind on something else."

Singh is currently working to prove the superiority of low-grade cotton by testing the crop's biodegradable ability. When he completes his Ph.D., Singh said he wants to return to Mumbai and share what he has learned.

"I've learned much about this industry and I'm sure I will be able to grow my society with the knowledge I have gained here," he said.

Ram said the team is also working on the commercialization of low-grade cotton, and hopes the industry will use the method in a year's time.

"My interest is to show, as much as we can, that Texas Tech is a leading research university," he said. "I want to show the world that the science that is coming out of Texas Tech is top-notch. Nobody would think that you could pick a low-grade cotton and convert it into a very useful and timely product."



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