Cotton could hold key to Gulf oil spill cleanup

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Roger Haldenby, vice president of Plains Cotton Growers, Inc., and Dr. Seshadri Ramkumar, associate professor at the Texas Tech Institute of Environmental and Human Health, looks on at the Fibertect® process.

By Matt Felder
Field Editor

Hundreds of miles from ground zero of the worst oil spill in U.S. history sits a concept that has literally sprung out of the country's largest cotton patch.

It goes by the name of Fibertect® and is a decontamination wipe that some scientists claim is the best answer to the massive clean-up job in the Gulf of Mexico.

"You need to have material that can not only suck up the oil—there are so many technologies available just to suck up the oil—but you need to also have the technology that will hold the obnoxious or toxic vapors which are very volatile," says Dr. Seshadri Ramkumar, associate professor at the Texas Tech Institute of Environmental and Human Health, who is the brain behind Fibertect®.

The concept began just a few months after he arrived at Texas Tech University in 1999. The U.S. Department of Defense approached the institute about developing the next generation in countermeasures to biological and chemical warfare.

In December 2008, the Lawrence Livermore National Laboratory conducted rounds of tests and determined Fibertect® to be the number one product for decontamination of chemical weapons. A patent was awarded in 2009. This past June the wipe received a stamp of approval from the Environmental Protection Agency (EPA).

Fibertect® contains a fibrous activated carbon center that is sandwiched between layers made from raw cotton. The waxes in the cotton fiber allow it to repel sea water and absorb oil, while the center layer holds volatile compounds such as the polycyclic aromatic hydrocarbons, or blistering agents such as mustard vapors, and other toxic chemicals.

"These are the times which nobody wants, but one has to use this opportunity for the benefit of the others," Dr. Ramkumar says. "We feel we have been given an opportunity to contribute and take science from the lab to the reality level."

Given the recent Gulf disaster, the wipe is also a perfect clean-up tool to remove toxic material reportedly sickening

oil spill clean-up crew members.

A test in late June of Fibertect® on the soiled beaches of Grand Isle, La., proved successful at picking up the oily paste washing ashore at beaches and marshes across the region.

Fibertect® can hold 15 grams of oil per gram of material. The middle carbon layer can hold 16 grams of those toxic vapors per gram of material, adding a whole new meaning to the cotton slogan, "fabric of our lives."

"It's allowed cotton farmers on the High Plains of Texas to come to the rescue with what we spend the year growing —cotton lint—and incorporating it into a 21st Century piece of technology that's being used for clean up," says Roger Haldenby, vice president for Plains Cotton Growers, Inc.

The toxic substances are contained safely within the wipe for five hours, more than enough time to decontaminate the wipe to a safe place.

The entire Deepwater Horizon tragedy hits close to home for those in agriculture as the two industries are no stranger to disasters.

"We're totally sympathetic with the people down on the Gulf Coast. We have to deal with disasters here on a regular basis, but they're all weatherrelated. They have to deal with a disaster there that is man-made," says Lamb County cotton farmer Michael White. "We sympathize with them, but we're also proud that we produce a product that maybe can benefit them and help them in their clean up."

The area within a 150-mile radius of Lubbock produces 60 percent of the nation's cotton. That comes out to some 3.5 million acres of cotton each year producing some 3 to 6 million bales.

Growers say most of the cotton in the area is destined to be spun into denim each year.

However, weather problems lead to a fair amount of low grade cotton not suitable for clothing. It's that type of cotton that is needed to make Fibertect® work.

TFB Vice President Dewey Hukill says agriculture can help the world many ways other than food and clothing. Fibertect® is one example.

"It shows that agriculture can help in a lot of ways," says Dewey Hukill, a cotton farmer and vice president of Texas Farm Bureau. "Besides clothing and feeding the world, there are some other things that we do to help."

Like most commodities in agricul-ture, producers pay a modest amount for every bale of cotton they produce. The money goes to fund research and promotion campaigns. Some of those

dollars helped develop Fibertect®.

"This is proving just how valuable those dollars are, and what's been spent in research money here at Texas Tech University is proving to be a great value for the money," Haldenby says.

The announcement of Fibertect's® capabilities comes at a crossroads in the Gulf cleanup as the road to recovery may be longer and more daunting than once thought.

Government and university researchers have confirmed plumes of dispersed oil spreading far below the ocean surface from the leaking well in the Gulf of Mexico, raising fresh concern about the potential impact of the spill on sea life.

Such news could adds years to the total recovery.

"We've got a multi-task problem out there: how to contain and recapture and eliminate as much oil as possible," says Dr. Ron Kendall with the Texas Tech Department of Environmental Toxicology. "The dose makes the poison. The more oil in the Gulf, the more potential there is for an impact to our fish and wildlife resources and to human health."

Fibertect® has passed all regulation hurdles and is in the production stage at Hobbs Bounded Fiber in Waco.

Texas Farm Bureau
http://www.txfb.org/