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Cotton and kenaf for oil spills

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Assuming an absorptive capacity of 50 times the weight of properly dispersed cotton fiber, a 500-pound bale of cotton could absorb 25,000 pounds of oil.

The oil spill that is destroying wildlife and wetlands and impacting the economy and livelihoods all along the Gulf Coast has turned the spotlight on ways to clean up the mess.

More than 30,000 suggestions have been submitted by the public for dealing with the oil goo that is floating ashore, but two proven products for absorbing oil in water are agricultural ? cotton and its cousin, kenaf.

Environmental degradation caused by the oil could be ?greatly reduced? by using cotton in lieu of synthetics to absorb and recover oil, cotton industry proponents say. Cotton and many cotton byproducts are much more efficient in absorbing oil than synthetics. [Cotton fiber](#) can absorb about 70 times its weight in oil, compared to 10 to 20 times for synthetic materials. The oil retained by the cotton, and the cotton itself, would degrade naturally in the environment, whereas synthetic materials will not cause the oil to degrade nor will the synthetic materials degrade in the environment, they note.

The efficacy of cotton and kenaf for absorbing spilled oil was demonstrated in the early 1990s by Stanley Anthony, who for many years headed the USDA Cotton Ginning Laboratory at Stoneville, Miss., and now has a consulting firm, Enhanced Technologies, Inc., at Madison, Miss.

His research showed that waste from gin lint cleaners could absorb 35 times its weight in oil, while cleaned waste could absorb 67 times its weight, and ginned lint 80 times its weight. Kenaf core and bast absorbed about 35 times its weight in oil.

?Gin byproducts and kenaf can be utilized to efficiently remove oil from water,? he reported in a presentation at the 1992 winter meeting of the American Society of Agricultural Engineers.

?We could probably use over 10,000 bales of cotton now to help remediate the oil spill,? Anthony says.

Research at Texas Tech University has confirmed that raw cotton can absorb up to 40 times its weight in oil, and with chemical modification, such as the addition of acetic anhydride, the absorptive capacity can be increased to as much as 70 times its weight. Further, the cotton can be reused through several cycles after removal of absorbed oil. Assuming an absorptive capacity of 50 times the weight of properly dispersed cotton fiber, a 500-pound bale of cotton could absorb 25,000 pounds of oil. As of April 1, there were 8 million bales of cotton and cleaned lint cleaner waste in storage in the U.S. (A video demonstration of cotton?s oil absorptive qualities can be seen at <http://www.ireport.com/docs/DOC-447299>.)

Texas Tech?s Institute of Environmental and Human Health has developed a wipe product, Fibertect, made of non-woven cotton with an activated carbon core. Used by the military to remove chemical and biological warfare agents, it also acts as ?an excellent sponge? to mop up oil, and can absorb 40 times its weight.

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