



US Army Corps
of Engineers
Mississippi Valley Division



Corps Hurricane Response

Task Force Hope Status Report Newsletter

December 15, 2011

Corps completes successful levee armoring test

Twofold test indicates grass/HPTRM combo will provide HSDRRS levees with extra resilience to storm surge overtopping

by Susan Spaht

Two months ago, the Corps of Engineers, its non-Federal sponsors, the LSU AgCenter, and Evans-Graves Engineers prepared a selected section of levee in St. Charles Parish for a special armoring test.* The test team laid out High Performance Turf Reinforced Mattresses (HPTRM) plus two types of grass, and waited 60 days for the grass to grow. The test was twofold:

Test 1. Turf Establishment - this test would evaluate the ability of the grass to take root through the HPTRM and form a sturdy bond that would anchor the HPTRM and “armor” the levee. Armoring of levees is the last step in the completion

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Test 1: Growing the grass with HPTRM

Above: Todd Grantier, the Corps’ test team leader, checks the levee grass before mowing operations begin. **Below:** a tractor-mower drives along the St. Charles Parish levee test site mowing the grass/HPTRM combo.



Test 2: Mowing the grass/HPTRM combo

Corps' armoring test called success by test team



15-foot Bush Hog mower

Levee board tractors mow the grass at the levee test site in St. Charles Parish as test team members closely observe the work and take notes.



8-foot Flail mower

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of the Hurricane and Storm Damage Risk Reduction System (HSDRRS). Armoring provides the extra resilience a levee would need to withstand the possibility of overtopping from a storm surge greater than a 100-year storm.

Test 2. Operations and Maintenance – this test would determine the ability of the new grass/HPTRM unit to withstand normal grass-mowing operations. This test was performed using the Pontchartrain Levee District and East Jefferson Levee District's own tractor-mower

equipment, i.e., the equipment they own and use regularly to cut the grass on their levees.

The grass-cutting test was witnessed by representatives of levee districts, the State's Office of Coastal Protection and Restoration, the LSU Ag-Center and the Corps of Engineers.

Tough Conditions

The armoring test was started this fall and was purposefully planned for this portion of the levee system to make the test as tough as possible. The test team wanted to prove a point.

The test grass was given a mere 60 days to grow and take root through the HPTRM. "It would have been much better to have given the grass 120 days to grow," said Mike Park, Chief of Task Force Hope. "And October is not the best time to plant grass, but that was way our timing worked out.

"We selected one of the most severe bends in the entire levee system," Park added, "and the most severe loading environment (tractor-mowers) we could come up with. And the ground was wet when the mowing was performed." These are all less than favorable conditions for growing grass and for mowing operations. The test team's point was that if the grass could take root through the HPTRM and anchor it to the levee in these less-than-ideal conditions, and if the mowing operations would go smoothly on the sharp levee bend, then certainly the grass will grow and the maintenance work will go well when performed in more favorable conditions.

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“Our team was confident that we could get the grass to grow through the HPTRMs,” said Todd Grantier, the Corps’ test leader. “There was more concern about the mowing operations.” Would the tractor-mower blades get caught in the HPTRM? Would the mower blades tear the HPTRM in the process of cutting the grass, or pull up the HPTRM? Would the mowers slip when passing over the HPTRM on the severe bend in the levee? “There were no extraordinary problems,” said Grantier, “everything went smoothly.”



Mike Park

“This is going to work,” said Park. “This was a very successful test, and we learned some important lessons from it.”

Lessons Learned

1. One obvious lesson learned, or at least confirmed, is that it is best to plant levee grass in the spring, in the proper growing season, and allow it longer growing time before mowing it. “Although it wasn’t ideal to plant grass late in the season,” said Grantier, “we learned that by using sod we can get turf well-established before the winter dormant season.”

2. The grass used in the levee test was typical, commercially-available Bermuda sod. This is the grass that the Corps will use, along with HPTRMs, to armor the HSDRRS levees. This grass is designed and bred to grow at a slow rate. At the time of the test mowing operations, the grass was only about two inches



Mowing grass on severe levee bend

“This was a very successful test, and we learned some important lessons from it.” - Mike Park, Chief, Task Force Hope



Turf Flotation Tire



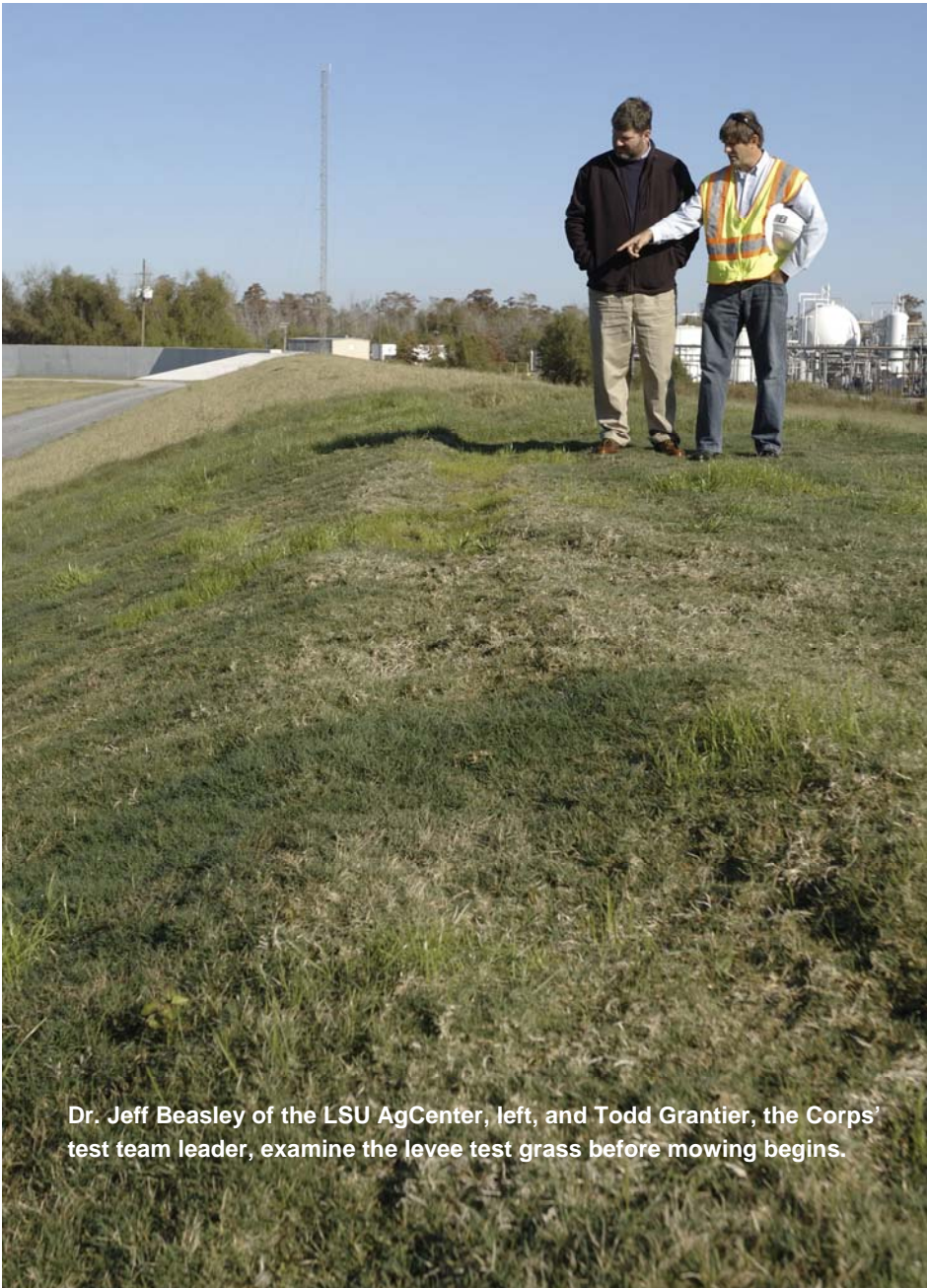
Ribbed Agriculture Tire

high after two months of growing. The advantage here is that the levee boards will not have to mow the levees as often as they presently do. That is expected to result in lower maintenance costs.

3. Another interesting lesson learned from the HPTRM test had to

do with the tractor tires. The large Bush Hog tractor used in the mowing operations had *ribbed agriculture tires* which have very deep treads (see photo). “After several passes on the severe levee bend,” explained Grantier, “those tire treads cut the

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Dr. Jeff Beasley of the LSU AgCenter, left, and Todd Grantier, the Corps' test team leader, examine the levee test grass before mowing begins.

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young grass down to the HPTRM. The HPTRM was not damaged, nor was the levee. This cutting could be avoided if the tractor was fitted with *turf flotation tires*. "That will be one of the considerations we will offer to the levee boards."

4. When the tractors passed over a test section with no HPTRM, i.e., just grass, the tires left deep impressions in the grass. When the tractors

passed over a grass/HPTRM combo section, there were no tire impressions made. "This tells to us that the HPTRM reduces reaction to wheel loading, and protects the levee during maintenance operations by reducing wheel slippage and rutting," said Grantier. "A valuable lesson learned."



*see Oct. 5, 2011 Newsletter:
http://www.mvn.usace.army.mil/hps2/pdf/October_5_2011.pdf

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Status Report Newsletter

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A Letter from our new Commander
Maj. Gen. John W. Peabody

Kelly and I are delighted to join the professionals of the historic Mississippi Valley Division! We have been given a heartfelt welcome by everyone we have met, and look forward to getting to know and serve with all of you as we work together to advance the nation's interests in this vital region.

The privilege of command is a solemn trust and honor that carries extremely important responsibilities. To be selected for a third division command of so historic and important a Corps division is even more humbling. What makes this division so critical is the character of the Mississippi River watershed that drains the vast natural and agricultural wealth of this great nation. Including the Intercoastal Waterway system, the United States has a larger navigable waterway system than all of the rest of the world combined. This unique combination of riches and waterways provides the United States with a geopolitical advantage that is unmatched anywhere in the world, and which formed the historical basis for our present-day wealth and power.

We who are entrusted with managing the heartland of this system have a sacred duty to apply our best efforts - all of our intellectual and physical energy - to ensure this natural and national treasure delivers the greatest value, in both economic leverage and natural heritage, as is possible. I pledge to apply all of my energy and abilities to work with you to achieve precisely that purpose.



Maj. Gen. John W. Peabody

More specifically, I pledge the following:

- To serve the people of this region within the context of my Oath of Office, the broad interests of the United States, and the strategic direction of the Corps of Engineers;
- To collaborate with all stakeholders and partners to develop and execute optimal solutions to water resource challenges under the law and within our authorities;
- To strive to deliver value to this region by devising engineering solutions for the challenges the Corps faces;
- To develop the full potential of the professionals who work in MVD, and to build strong cross-functional teams enabled to solve problems at the lowest appropriate echelon;
- To carry on the legacy of excellence of all of my predecessors, and to advance the Corps of Engineers' strategic direction in MVD;

- To leverage the full capabilities and influence of the Mississippi River Commission to advance solutions to complex problems;
- To work to make lasting improvements in our business processes and the way the institutional mechanisms of this region operate;
- And finally, for the ladies in my life, to attempt to find the best possible balance between professional obligations and personal requirements.

In my previous assignment in command of the Great Lakes and Ohio River Division, I was privileged to be designated as a Commissioner on the Mississippi River Commission. In that capacity I was able to visit all of MVD's districts and many of its projects, and in so doing gained some familiarity with many of the concerns that affect our stakeholders. As a result, I have some familiarity with many of the important water resource issues facing this region and the Corps. I look forward to working with all of you to gain a more in-depth understanding of those issues, and to working with the talented professionals of the Mississippi Valley Division in devising solutions for them.

I am honored by this assignment, and look forward to serving with all of you. Essayons and Building Strong!

John Peabody

Maj. Gen. John W. Peabody
 Commander, Mississippi Valley Division