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Agriculture professor featured in new book

FOR IMMEDIATE RELEASE:

Dr. Jason de Koff, associate professor in the Department of Agricultural and Environmental Sciences at Tennessee State University, is featured in a recently published book by the American Society of Agronomy called “Agronomy – Grow With It!”

The book includes profiles of 20 agronomists and their work as a way to explore the science of agronomy and show concepts related to the Next Generation Science Standards. de Koff’s work teaching farmers how to produce biodiesel from their crops was showcased in this book which is geared toward teenagers.

“I’m ecstatic to be in a book focused on getting youth excited about agriculture,” de Koff said. “Teaching youth about agriculture has been a personal mission of mine since beginning the mobile demonstrations at TSU. I plan to use the book with my own children to increase their awareness of all of the many ways that agriculture plays an important role in their lives.”

The book will be followed up this fall with a website, www.agronomy4me.org, with additional information and resources for students and teachers.

The American Society of Agronomy is an international professional society focused on sustainable agronomy. It currently has over 8,000 members and over 14,000 certified professionals.

Jason de Koff
Biodiesel road show



There is no better feeling than knowing you were able to help someone.

Jason de Koff logs many miles a year driving around Tennessee. His rig looks like a food truck for selling hot dogs, but it's not. It's a mobile laboratory to show farmers about bioenergy—fuel from crops. Jason is an agronomist at Tennessee State University.

Jason explains, “The lab has equipment I use to show farmers how they can grow crops like soybean, sunflower, and canola and make their own fuel.” From these crops, farmers can produce biodiesel. Like diesel refined from petroleum, crop-based diesel can

be used in tractors and other large farm equipment, as well as in some cars and trucks. It can also be used to produce electricity.

“There are many potential fuel crops, but each one has its advantages and disadvantages. I focus on crops that I know can grow well in Tennessee, produce a lot of biofuel, but won't cost the farmer too much to produce—and are good for the environment.”

It's probably no surprise that Jason started out wanting to be a chemist and got his undergraduate degree in chemistry. He says he wanted “to make cool things in a laboratory.” But then he decided he wanted a job “that would have real world impact. There is no better feeling than knowing you were able to help someone. In agronomy, I do this by giving farmers the tools they need to do it themselves...to produce what they need on their own land.”

Jason takes the mobile lab on the road in Tennessee to teach farmers about biodiesel.



From Seeds to Fuel
The mobile laboratory includes equipment to process seeds into biodiesel.

Press for crushing the oilseeds like canola, sunflower, and soybean.



The press releases the oil from the seeds and leaves behind a solid meal, which can be used as animal feed.



In a processor, alcohol and a catalyst are added to the vegetable oil.



The oil divides into two layers. The lighter biodiesel rises to the top, and the denser glycerol sinks to the bottom.



IT'S ALL CONNECTED—FUEL POWERED BY the Sun

All the fuels we burn, whether they are wood, petroleum, or biodiesel, trace their energy to plants (or organisms that ate plants) that were powered by the sun.

By the process of photosynthesis, plants capture and store the sun's energy in the form of long chains of carbon and hydrogen molecules, called hydrocarbons. When a fuel is burned, the chains of hydrocarbons break apart, releasing heat and energy.

Coal, natural gas, and petroleum are fossil fuels. The sun's energy stored in these fuels was captured millions of years ago and then buried deep in the earth. The supply of fossil fuels is finite. Fuels derived from crops are renewable.

About Tennessee State University

With more than 9,000 students, Tennessee State University is Nashville's only public university and is a comprehensive, urban, coeducational, land-grant university offering 38 undergraduate, 22 graduate and seven doctoral programs. TSU has earned a top 20 ranking for Historically Black Colleges and Universities according to U.S. News and World Report, and rated as one of the top universities in the country by Washington Monthly for social mobility, research and community service. Founded in 1912 Tennessee State University celebrates 100 years in Nashville during 2012. Visit the University online at tnstate.edu.