

# Tractor Pull Competition Teaches Engineering Skills

By Susan McGinley

**F**ive agricultural and biosystems engineering (ABE) students won “Rookie of the Year” in 2002 for their ¼ scale tractor entry at the international student tractor pull held in Moline, Illinois. It was a good start for the novice Arizona team, which also won the safety award and placed 20th out of 30 teams overall based on combined scores for their design, written report and oral presentation at John Deere World headquarters.

The students spent countless hours cutting, welding and painting the ¼ scale tractor they designed according to specifications from the American Society of Agricultural Engineers (ASAE), the contest sponsor. The 2002 team included leader Clint Harrington, Eric Hein, Heather Carnahan, Chris Acosta, and Allen Conger.

“They really were a great bunch and, as a first year team did amazingly well against teams from larger schools who had much more experience,” said Don Slack, ABE department head. Beyond the award, the competition encourages students to learn and follow professional engineering standards, helping them develop skills they can use later on in a career.

Following on their success, the 2003 UA team competed in May and placed seventh out of 30 for all four official pulls, beating larger schools such as the University of Wisconsin-Madison, The University of Nebraska-Lincoln, the University of Minnesota, Iowa State, the University of Illinois and The Ohio State University. The team built a new “four-wheel drive” tractor for the competition, and they all intend to be back next year, Slack says.



2003 UA tractor team, from l to r: Nohemi Atayde, Jonny Clark, Don Slack (faculty advisor), Dyan Pratt (seated—driver), Charles DeFer (technical advisor) and Travis Wuertz. The tractor is named Rufus, from the Latin name for bobcat, after the UA Wildcat mascot.

Led by Jonny Clark, an ABE junior, the team included ABE students Dyan Pratt, Nohemi Atayde, Travis Wuertz and Kirsten Lovette; and agricultural technology management majors Jason Koosman and Chris Roney.

Students from across the U.S. and from several foreign countries compete annually. The engine and the wheels are provided to all contestants, but they must design and build the rest of the tractor themselves according to rigorous guidelines prepared by the ASAE. They are judged on the design of the tractor, the amount of weight it can pull using a progressive sled, and other criteria.

“It should be emphasized that our team raised all of their own money to build their tractor, transport it to the contest in Illinois, and pay their expenses while they were there,” Slack said. “I am extremely proud of their showing in both contests.” ☒

## Building Academic Ties with Mexico

Thanks to a contract funded through the United States Agency for International Development, agricultural engineering faculty and students from both sides of the border will have the chance to exchange programs, resources and expertise. The CALS Department of Agricultural and Biosystems Engineering (ABE) and the Universidad Autónoma Chapingo (UACH, located slightly north of Mexico City) have begun a formal research and academic collaboration.

“This contract is part of a larger initiative by the U.S. and Mexican governments to provide M.S. degrees from U.S. institutions to 1,000 Mexican students in technical areas critical to the growth of Mexico’s economy,” says Don Slack, ABE department head. He is lead investigator on the project, along with Mauricio Carrillo, professor of irrigation engineering at Chapingo and coordinator of its postgraduate engineering program.

The goal is to develop human resource training capabilities in emerging areas of agricultural production and processing in

Mexico. UACH is known in Mexico for its outstanding programs in agricultural research and technology, including irrigation, engineering, soil science, forestry, plant science, entomology and aquaculture. The CALS agricultural and biosystems engineering department offers advanced programs in some of these areas, making it a natural choice for collaboration.

“The UA-UACH project will specifically provide M.S. degree training for four Mexican students at UA in controlled-environment agriculture engineering, irrigation with recycled water, bioprocess engineering, and mechanical design for agricultural machinery,” Slack says. “We currently have two Chapingo graduate students enrolled in the college.” In addition, three faculty members from UACH will each spend three months at the UA for specialty training in bioprocess engineering, watershed engineering and irrigation engineering. The project also provides for three focused short-courses to be conducted by UA faculty in Mexico during the first year of the project.