

A publication of The Samuel Roberts Noble Foundation

Legacy

Spring 2010

Through The Lens



FK/MS

NFTD08

244

Tall Fescue
348 x 279

FK/IS

NFTD08

215

JAN 2010

As part of its mission to benefit mankind, the Noble Foundation conducts plant science and agricultural research, focusing on legumes and grasses such as the tall fescue seen in this photo. While the initial focus is on the Southern Great Plains, the research conducted on the Noble Foundation's Ardmore, Okla., campus has national and international implications.



4 **AGRICULTURE**
Agricultural producers and land stewards are at the heart of the Noble Foundation's efforts. The primary agricultural endeavor is a direct, no-cost consultation program

18 **OUTREACH**
The Noble Foundation supports educational and nonprofit organizations through its granting while also sponsoring community enrichment opportunities.

10 **RESEARCH**
Noble Foundation scientists search for ways to improve crop productivity and enhance plant traits to benefit animal and human health.

24 **NOBLE PEOPLE**
With more than 370 employees from 29 countries, the Noble Foundation is a one-of-a-kind environment in which to work, live and play.

More than words

A writer once told me that the trick to penning a great story is to “show, don’t tell.” In essence, an author’s duty is to help the audience experience the story.

Likewise, this issue of *Legacy* is intended to provide you a new way to experience The Samuel Roberts Noble Foundation. In place of our standard collection of stories, this special edition represents a yearlong photographic essay, a visual diary of 2009 captured through the lens of our talented staff photographer, Broderick Stearns.

More than 8,000 photos were snapped over the course of the past year, and, after a rigorous selection process, what remains are a few dozen images that collectively paint a grander portrait.

What you will see within these pages is not just people performing a job, but the living embodiment of a legacy. Lloyd Noble established this organization with the charge to benefit mankind. However, the diverse manner in which we fulfill this mission – through plant science and agricultural research, direct interaction with regional land stewards and community outreach efforts – prevents a simplified explanation. So we endeavor to show you the many aspects of the Noble Foundation, providing a two-dimensional look at the individuals, research and community that propel our mission and organization forward.



You’ll go inside the laboratories and greenhouses that serve as the birthplace of discoveries that are reshaping our state, country and world. You’ll visit farms to see how our research and agricultural education and consultation services are impacting real people in significant, tangible ways. And, of course, you’ll meet many of the individuals who trek from all corners of the world to be a part of the Noble Foundation’s efforts.

Here on our research campus and its surrounding 800 acres located in southern Oklahoma, the Noble Foundation has become a crossroads of cultural interaction where more than 370 employees from 29 different countries converge to live, work and learn from each other. While each person brings a unique frame of reference, we all share a similar desire to contribute to a greater purpose. Not many organizations offer that opportunity, but it happens here on a daily basis.

In the end, the following photos are intended to capture and chronicle a year in our collective lives, but they reveal more than just people and programs. This assemblage, this magazine is an intimate look inside the spirit and the pride of the Noble Foundation. And, if only for a few moments, we hope you truly experience our story.

Sincerely,

A handwritten signature in black ink that reads "Michael A. Cawley". The signature is written in a cursive, flowing style.

Michael A. Cawley
President and Chief Executive Officer



“The only degree to which we can make real progress is the degree to which, when we have ideas, that we can get those ideas motivated into action.”

- Lloyd Noble

Employees pass the bust of founder Lloyd Noble every day as they enter the Noble Foundation's Administration Building. Although Noble died in 1950 – less than five years after the establishment of the Noble Foundation – today's staff continues to fulfill his legacy through direct interaction with farmers and ranchers as well as plant science, agricultural research and philanthropy.



ABOVE

Assistant Professor Ryan Reuter, Ph.D., (right) discusses livestock management with Jackie Cunningham. (Background, from left): Steve Swigert, economist; Brandon Varner, intern; and James Locke, soils and crops consultant, talk with Jack Cunningham, Jackie's father. The Cunninghams are one of 1,745 regional agricultural consultation clients who work with the Noble Foundation.



TOP
Russell Stevens, regional manager and consultant, provides direction to a participant in a prescribed burning workshop. Noble Foundation consultation services cover the complete spectrum of regional agricultural disciplines including agricultural economics, horticulture, livestock, pasture and range, soils and crops, and wildlife and fisheries.



BOTTOM LEFT
Robert Wells, Ph.D., a livestock consultant, demonstrates proper methods for vaccinating livestock. Many of the Noble Foundation's educational events provide both experienced and new agricultural producers an opportunity for hands-on learning.



BOTTOM RIGHT
Agricultural Economist Dan Childs instructs farmers and ranchers on the use of Quicken software to manage their finances. The Noble Foundation's Agricultural Division offers more than 85 events each year, providing educational opportunities to more than 4,100 adults and youth.

Kevin Lynch, an agricultural research assistant, guides his tractor as he plants switchgrass seed at the Noble Foundation's Red River Farm. The seven Noble Foundation farms, totalling 12,000 acres across southern Oklahoma, allow researchers to conduct field tests and agricultural staff the opportunity to demonstrate proper farming techniques.

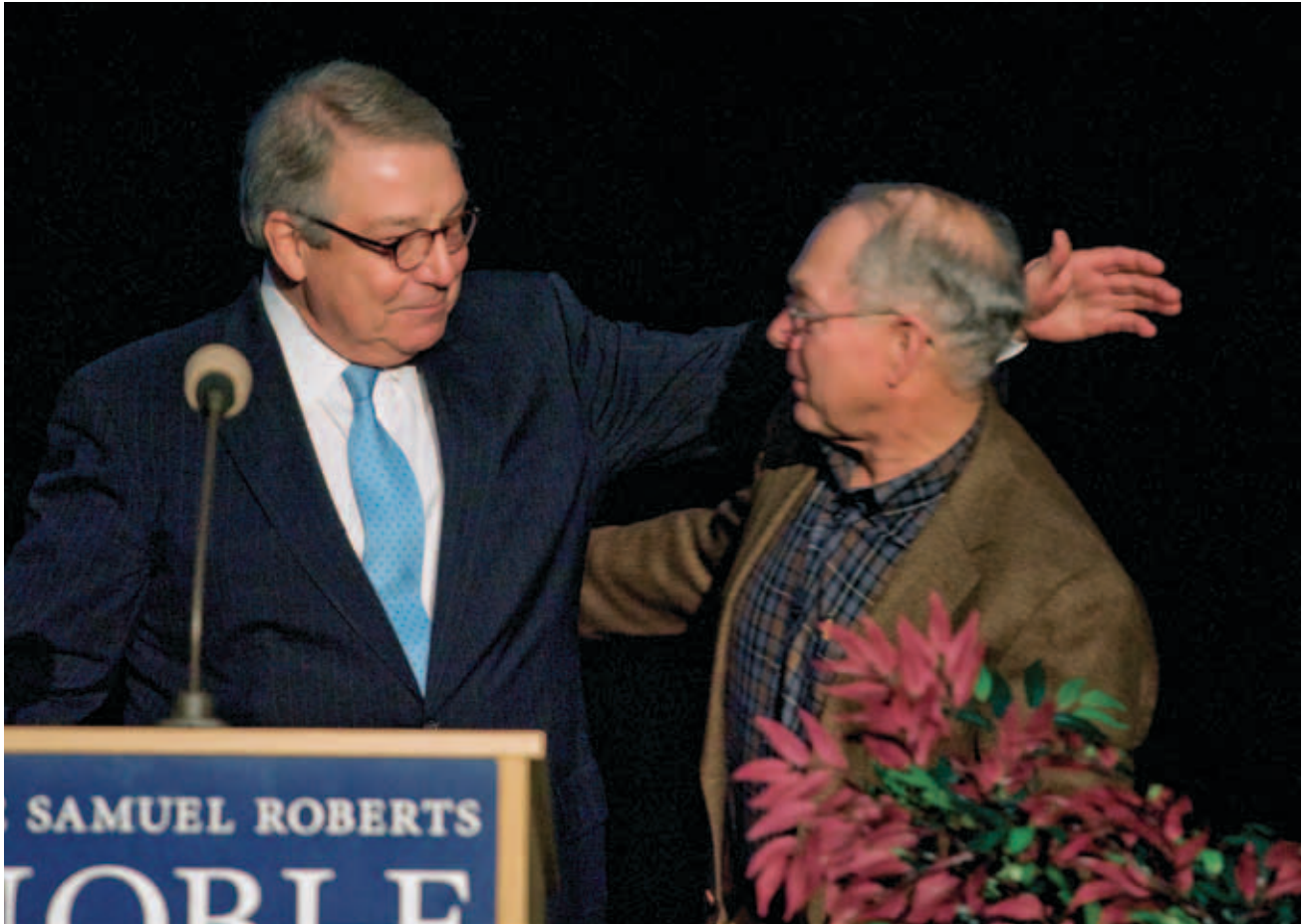






TOP
Shawn Norton (left), research programs supervisor, and John Blanton, Ph.D., agricultural research programs manager, examine switchgrass plants growing in test plots. The Noble Foundation, the University of Oklahoma and Oklahoma State University comprise the Oklahoma Bioenergy Center which conducts research to foster a productive bioenergy industry in the state.

BOTTOM
Kent Shankles, research operations supervisor, demonstrates low-stress cattle handling. With more than 25 years of experience, Shankles has perfected methods to relocate cattle.



ABOVE
President and Chief Executive Officer Michael Cawley (left) embraces Wadell Altom during Altom's final all-employee meeting. Altom retired in 2009 after 43 years of service to the Noble Foundation. He concluded his career as senior vice president and director of the Agricultural Division.





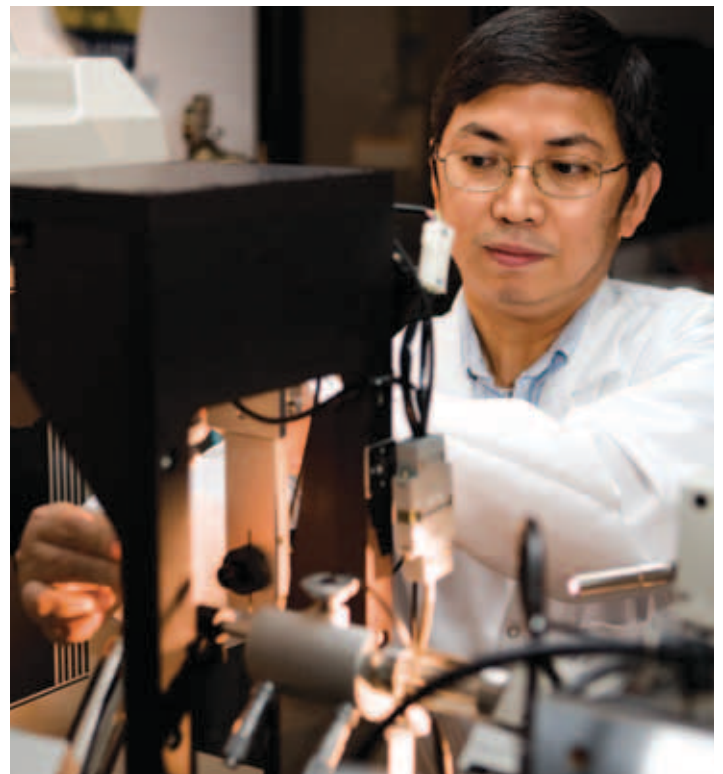
Postdoctoral fellow Jeremy Murray, Ph.D., examines nodule cross sections as part of his work in legume nitrogen fixation. Postdoctoral fellows, or “postdocs,” are newly graduated scientists who gain three or four years of experience at a research institution. The Noble Foundation, home to 65 postdocs, earned the No. 4 ranking in *The Scientist* magazine’s *Best Places to Work for Postdocs* national survey.



ABOVE LEFT
Shanmugam Rajasekar, Ph.D., research associate, makes crosses in low-lignin alfalfa as part of the Noble Foundation's transgenic breeding program. Lignin is a polymer that creates rigidity or woodiness in plants. Low-lignin plant technology developed at the Noble Foundation shows promise in making forage plants more digestible to livestock and may have application in the bioenergy industry.



TOP RIGHT
Research Associate Yuhui Chen, Ph.D., examines *Medicago truncatula* plants as part of a program to catalog genetic mutations in individual plants. Understanding genetic differences in mutant plants sheds light on the function and interaction of specific genes. The Noble Foundation hosts an annual, multiday screening of mutant plants by a team of international scientists who study legumes.



BOTTOM RIGHT
Xiaoqiang Wang, Ph.D., principal investigator, uses X-ray crystallography to study the structures of plant enzymes that make bioactive natural products. The Noble Foundation has a number of core facilities, such as Wang's, that use specialized instrumentation to assist researchers in each of the scientific laboratories.



TOP
A staff scientist with the University of Missouri uses a syringe to extract a sample for analysis as part of the Metabolite Analysis Workshop hosted by the Noble Foundation's Analytical Chemistry Core Facility. Participants from research institutions in the region attended the workshop to learn about mass spectrometry theory and use.

BOTTOM
Jimmy Stein, senior research associate, charts the growth of *Medicago truncatula* in the Noble Foundation greenhouse. *Medicago* is a close relative of alfalfa, an agriculturally important legume. The Noble Foundation has led an international effort to study the genome of *Medicago* and apply its findings to alfalfa and other economically valuable legumes.



ABOVE
Jeremy Bell (plaid shirt), research associate, and postdoctoral fellows Nikki Charlton, Ph.D., (white shirt) and Sita Ghimire, Ph.D., (red shirt) collect plant samples looking for endophytes that are naturally occurring in Oklahoma. Endophytes are a type of fungi that live between a plant's cells and impart beneficial traits like drought tolerance to their host.

OPPOSITE PAGE
Research scientist Hem Bhandari, Ph.D., details switchgrass breeding to scientists from Ceres, Inc. In 2006, the Noble Foundation entered a collaboration with Ceres, Inc., that focuses on improving switchgrass for use as a bioenergy crop. The Noble Foundation collaborates with many universities and corporations such as BASF Plant Science, Forage Genetics International and Grasslanz Innovations.





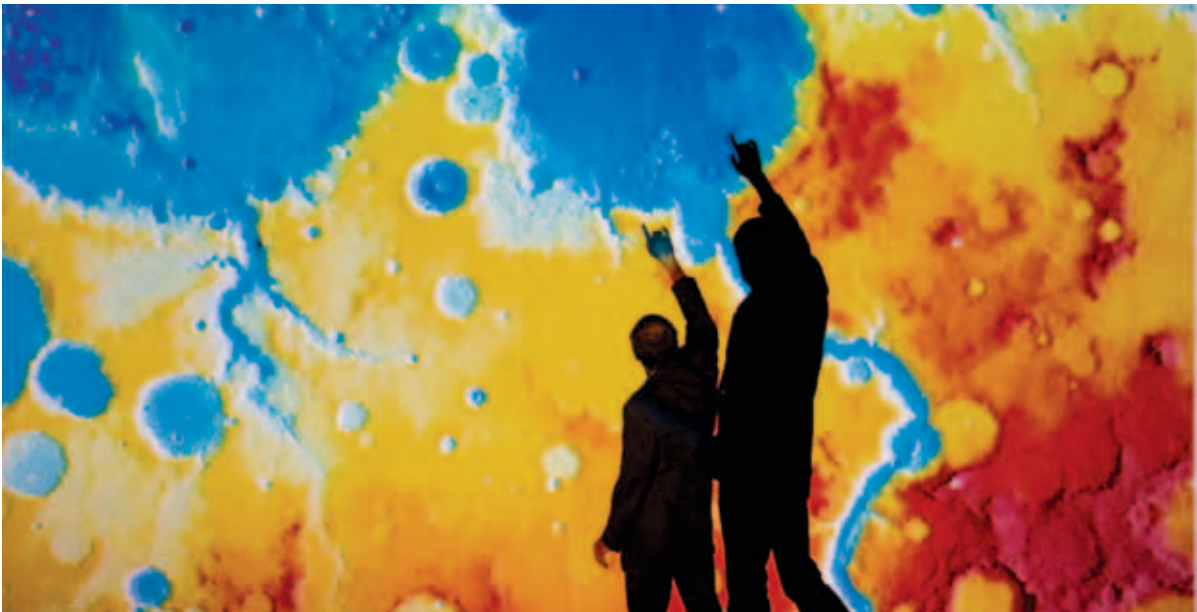


Principal Investigator Kelly Craven, Ph.D., presents his research results at the Noble Foundation's quarterly all-employee meeting.



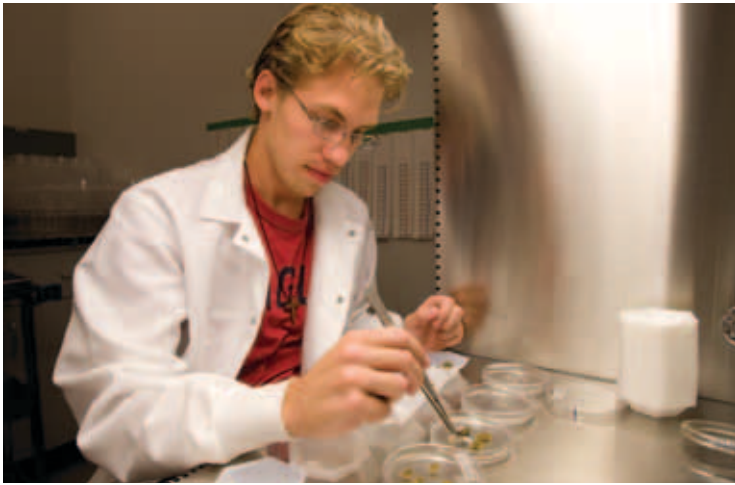
TOP
During their visit to the Noble Foundation's greenhouse, students from a local elementary school touch grasses and legumes as they learn about plant variety and growth.

BOTTOM
Students from Plainview Elementary School load gels for DNA testing as part of their tour. Noble Foundation researchers and agronomists often provide hands-on experiences during student tours.



TOP
Reed Timmer, Ph.D., meteorologist and star of the Discovery Channel's *Storm Chasers*, answers questions about tornadoes during his *Profiles and Perspectives* presentation. The Noble Foundation invests in community enrichment through two lecture series – *Profiles and Perspectives* and *Explorations in Science* – to provide southern Oklahoma residents a chance to hear nationally renowned speakers and scientists.

BOTTOM
Steven Squyers, Ph.D., head of NASA's Mars Exploration Rover mission, discusses the challenges of sending an unmanned craft to the Red Planet. More than 700 community members attended this *Profiles and Perspectives* event.



TOP LEFT
Craig Schluttenhofer, from Purdue University, prepares tissue cultures as part of the Noble Foundation Summer Research Scholars Program. The program offers elite undergraduate students the opportunity to conduct plant science in a real-world laboratory setting with some of the profession's greatest minds.

TOP RIGHT
New York University student and Summer Research Scholar Mayya Glushankova performs column purification as part of an experiment to isolate and identify proanthocyanidin compounds. Glushankova worked in the laboratory of Richard Dixon, D.Phil., senior vice president, director of the Plant Biology Division and a member of The National Academy of Sciences.

BOTTOM
Summer Research Scholar David Short, from The College of William and Mary, examines plant cultures as he studies the role of proline in bacterial pathogen-induced disease progression in *Nicotiana benthamiana*. Since the Summer Research Scholars Program began in 2004, selected students have come from some of the United States' most prestigious universities.



TOP
Tyler Rice from Penn State University collects forage grass clippings as part of the Noble Foundation's Lloyd Noble Scholars in Agriculture Program. The annual program offers students nationwide the opportunity to conduct agricultural research at one of the nation's foremost agricultural consultation and research organizations.

BOTTOM
Cassie Jo Schriefer from North Dakota State University takes notes for her study on the effects of water quality on stocker cattle. Schriefer's research was conducted as part of the Lloyd Noble Scholars in Agriculture Program.



TOP
Hugh Aljoe, consultation programs manager, speaks at the Fourth National Conference on Grazing Lands in Reno, Nev. Agricultural consultants, scientists and administrators give numerous presentations around the world detailing the programs, research and history of the Noble Foundation.

BOTTOM
Michael Cawley, president and chief executive officer, greets audience members after speaking at the Reno conference.



TOP LEFT
Southern Oklahoma Technology Center (SOTC) staff and Noble Foundation granting staff visit the construction site of SOTC's new biotechnology laboratory, funded in part by a Noble Foundation grant. The Noble Foundation's granting program focuses on nonprofit organizations, higher education and health care.

TOP RIGHT
Donna Windel (right) reviews expansion plans for the Gloria Ainsworth Day Care Center with Sally Murray, executive director of the center. Windel retired as director of granting at the end of 2009 after 23 years. She oversaw more than 2,000 grants totaling \$240 million. Mary Kate Wilson, who has served in the granting department since 1997, became director upon Windel's retirement.

BOTTOM
Mary Kate Wilson, director of granting, reviews construction of the Mercy Memorial Health Center Patient Tower in Ardmore, Okla., with DeeAnn Chatham and Andre Moore, both of Mercy Memorial Health Center Foundation, and Aubrey Atnip, vice president of Phoenix Construction. The Noble Foundation contributed \$7.5 million for construction of the hospital addition.

Noble People





OPPOSITE PAGE
Miki Hartwell, research assistant, springs into the air as part of her modern dance routine during *Dance Around the World*. Throughout the year, Noble Foundation employees find inventive ways to support local charities. Proceeds donated as part of *Dance Around the World* supported the local chapter of the March of Dimes.

TOP
Employees erupt with cheers and laughter as Doug McAbee, graphic designer, is helped up after crashing into his chair and popping the final balloon in the balloon relay race. The relay race capped the annual United Way campaign. The Noble Foundation and its employees donated more than \$60,000 to the United Way of South Central Oklahoma.

BOTTOM LEFT
Cassidy Brown, daughter of Richard Brown, utility services center technician, reacts to the shattering of her egg in the egg toss contest at the annual Noble Foundation family picnic. More than 700 people attended the picnic for an afternoon of food, festivities and competition. The egg toss is a highlight event.

BOTTOM RIGHT
Lydia Wang, daughter of Principal Investigator Zeng-yu Wang, Ph.D., and Kuihua Zhang, research technician, out-hula hoops her opponents to win the competition at the Noble Foundation annual family picnic in June.



TOP
Principal Investigator Carolyn Young, Ph.D., provokes a burst of laughter at the Noble Foundation's quarterly all-employee meeting as she holds up a cardboard cutout of her absent co-presenter, Twain Butler, Ph.D.

BOTTOM
Lori Ratliff (left), cafeteria supervisor, assists Yuhong Tang, Ph.D., genomics/microarray facility manager, during the preparation of Tang's spicy kung pao chicken. Noble Foundation employees from around the world share their favorite recipes – and even demonstrate preparation techniques – with the cafeteria staff, who then prepare some of the specialty dishes for the entire employee population.



TOP
Robbie Brooks, controller in the Accounting Department, leads a lunchtime workout class at the Noble Foundation's fitness facility. Employees have the opportunity to receive cash awards and other benefits by joining the Health Incentive Program and maintaining a healthy lifestyle.

BOTTOM LEFT
Postdoctoral fellows Julia Dyachok, Ph.D., (left) and Hema Ramanna, Ph.D., (right) learn CPR during a health and safety training course offered to Noble Foundation employees. On-campus programs ranging from defensive driving to personal finance are available.

BOTTOM RIGHT
Wearing a traditional kimono, Sakae Hisano, research assistant, serves tea as part of a Japanese holiday celebration. With employees from 29 countries, the Noble Foundation library schedules recognitions of cultural events throughout the year.



TOP
Research Associate Cheol-Min Yoo, Ph.D., takes aim during his *Fall into Fitness* ping pong match. Teams from the Noble Foundation's administration group and three operating divisions competed in several health-related events, including ping pong, basketball free throw, food and health jeopardy, a 5K run, a one-mile walk and volleyball.

BOTTOM
Qiao Zhao, Ph.D., postdoctoral fellow, returns a serve during the *Fall into Fitness* volleyball match. The afternoon of competition was designed to promote a healthier campus environment.

OPPOSITE PAGE
Ignoring the rain that grew heavier throughout the afternoon, Chad Kelley, environmental services technician, sprints toward the finish line in the *Fall into Fitness* 5K run.





Hem Bhandari, research scientist



Dusty Pittman, research associate



Yuhui Chen, research associate



Sarah Alkire, administrative assistant



Jill Wallace, vice president and CFO



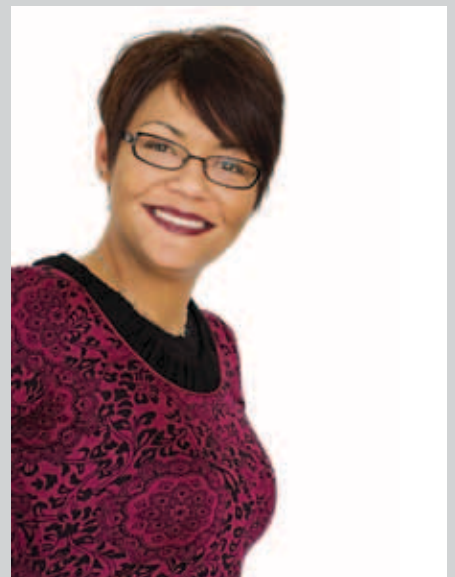
Xin Ding, research scientist



Eric Dean, groundskeeper



Qing Chang, postdoctoral fellow



Kelly Wood, human resources assistant



Chance Tynes,
research assistant



TOP
ON Feb. 10, 2009, an F4 tornado swept through southern Oklahoma. Noble Foundation administrative assistant Susan Pack, her family and neighbors survived the storm in an underground shelter, but her house was destroyed. Pack and a few other Noble Foundation employees directly affected by the devastation saw an immediate outpouring of support from their colleagues.

BOTTOM LEFT
Jeff Moen, corporate counsel, uses a chainsaw to remove a tree that was uprooted by the tornado in a fellow employee's front yard. More than half of the Noble Foundation's employees volunteered for post-storm cleanup work.

BOTTOM RIGHT
Greg Wells, senior plumber, uses a backhoe to clear wreckage from the remains of Susan Pack's house on the morning after the tornado.

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ON THE COVER

All the research, programs and amazing people captured within the pages of this special photo issue are a direct result of the vision of Lloyd Noble (seen in the camera's viewfinder). One man set out to make a difference and succeeded. Six decades later, his organization has blossomed into an internationally recognized source of excellence in plant science and agriculture.

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Legacy is published by the Office of Public Relations and the Office of Publications and Visual Media at The Samuel Roberts Noble Foundation. Headquartered in Ardmore, Okla., the Noble Foundation is an independent, nonprofit institute conducting plant science research and agricultural programs to enhance agricultural productivity. *Legacy* offers insight into the outstanding scientists and agricultural consultants who pursue the vision of Lloyd Noble, the founder of the Noble Foundation, to benefit mankind.

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Questions and comments

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