

University of Oklahoma Press Release

Contact: Jana Smith, Director of
Strategic Communications for R&D
University of Oklahoma
405-325-1322; jana.smith@ou.edu

University of Oklahoma scientists and international team decipher the genetic code of the tomato--an American staple and one of the nation's most valuable fruit crops

Research effort assists growers and the nation's economy

Norman, Okla.—University of Oklahoma scientists and others from more than a dozen countries joined together to sequence the tomato genome and, ultimately, improve the nation's \$2 billion tomato crop. The Tomato Genomics Consortium directed the research effort, which was supported in the United States by the National Science Foundation and the USDA's Agriculture Research Services.

The OU team led by Bruce Roe, George L. Cross Research Professor Emeritus in the College of Arts and Sciences, was one of the U.S. partners participating in the Consortium to sequence the tomato genome, which revealed the order, orientation, types and relative positions of the 35,000 genes. The genomes of the domesticated tomato and a related wild tomato are the first varieties ever sequenced.

According to Roe, "The tomato is the model system for studying fruit development. The significance of obtaining the highly accurate genome structure of the tomato is that it has helped us gain a greater understanding of the genes controlling fruit characteristics and processes, such as those involved in fruit color, flavor and texture."

These new studies lay the groundwork for the development of new strains of tomatoes with more desired traits, such as higher yields, increased disease resistance, more climate tolerance, new colorings and more alluring aromas. Growers will benefit from lower costs and an improved crop; consumers will benefit from a more desirable fruit.

Fresh market tomatoes were worth an estimated \$1.3 billion to U.S. growers last year, making it the nation's highest ranked fresh market fruit in terms of total revenues. Processed and fresh tomatoes together account for \$2 billion in sales annually. The USDA estimates Americans consume an average of 19 pounds of fresh tomatoes each year.

The Consortium was organized in response to an international call for more plant genome sequencing. Other U.S. partners include scientists from the Cornell University Boyce Thompson Institute for Plant Research, Colorado State University and the University of Arizona at Tucson. The international team members were from Korea, China, the United Kingdom, India, the Netherlands, France, Germany, Japan, Spain, Italy, Israel, Belgium and Argentina.

The two new tomato sequences are reported in this week's issue of *Nature* . For information about the OU genomics team and its role in this international research project, please visit the OU Genome Center tomato sequencing web site at <http://www.genome.ou.edu/tomato.html> or contact Bruce Roe at broe@ou.edu.

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