



# NASA's Impact in Kentucky: A Tech Transfer Perspective

You know that NASA studies our planet, our sun, the solar system, and the Universe. But did you know about the space program's economic impact here on Earth?



In 2011, NASA invested nearly **\$2.5 million** in the state of Kentucky.

Since 2001, NASA's SBIR/STTR Program has invested over **\$3.5 million** in **6 Kentucky companies** and more than **\$1.2 billion** nationwide.

## How NASA's SBIR/STTR Program Benefits Kentucky

NASA is committed to moving technologies and innovations into the mainstream of the U.S. economy, and the Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) program helps fulfill this goal.

SBIR/STTR stimulates technological innovation by encouraging small, high-tech companies—particularly minority and disadvantaged businesses—to partner with NASA to help meet its research and development needs in key technology areas. At the same time, this program strengthens small companies by enabling them to bring cutting-edge new products into the U.S. economy.

The list to the right highlights Kentucky businesses that received SBIR/STTR contracts from NASA since 2001. (Visit <http://sbir.nasa.gov> for more information on the SBIR/STTR program.)

### NASA SBIR/STTR Companies in Kentucky

Advanced Dynamics, Inc. ....	Lexington
Intellas Group, LLC .....	Louisville
Longhurst Engineering, PLC .....	Guthrie
Microsensor Systems, Inc. ....	Bowling Green
Thortek .....	Irvine
TIER1 Performance Solutions .....	Covington



KENTUCKY



## How NASA Spinoffs Benefit Kentucky



### **Turfgrass Conditioner Reduces Drought Stress and Encourages Root Development** (Louisville)

Plant-Wise Biostimulant Company, Inc. markets a turfgrass product designed to improve turf quality and vigor even under adverse conditions. The product's formula incorporates a NASA technology for growing plants as food sources and recycling agents in long-duration spacecraft. Plant-Wise Biostimulant's product is an environmentally friendly blend of seaweed extracts, humic acid, and plant nutrients designed to help plants improve color and quality, reduce stress and frost damage, stimulate growth, and generate new and deeper roots.



### **Emergency Preparedness System Helps with Natural Disaster Response** (Murray)

The Mid-America Remote Sensing Center of Murray State University collaborated with Martin Marietta Energy Systems, Inc. to design the Integrated Automated Emergency Management Information System (IAEMIS) for Martin's gaseous diffusion plant at the U.S. Department of Energy's Oak Ridge complex. The IAEMIS system provides information to help emergency personnel make informed decisions in the event of an earthquake or other natural disaster. IAEMIS consists of a database management hazard inventory and a spatially-oriented information management system that analyzes NASA Landsat data.



### **Bowling Ball Spotting System Helps Professional Bowlers** (Hopkinsville)

NASA's expertise helped Ebonite International's engineers develop an extremely accurate way to locate the top dead center point of a bowling ball, its heaviest area. Marking this point on each ball helps professional bowlers manage the spinning and hooking action of the ball once it is drilled. The Ebonite system floats and rotates each ball until the heaviest point settles at the bottom. Then, a plunger marks the exact center point on the ball. Professionals can then decide exactly where to drill, to optimize their bowling style.



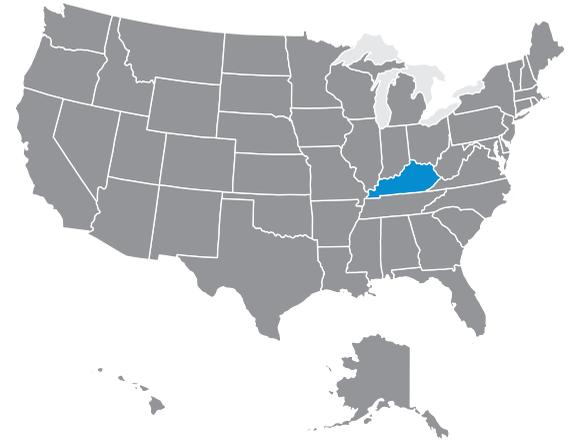
### **Energy Recovery System Produces Electrical Power from Waste Heat** (Lexington)

The NASA/University of Kentucky Technology Applications Program (NASA/UK TAP) helped Crane Company improve conservation and problem-solve installation and operational issues for a cogeneration energy recovery system. This system captured hot stack gases from the company's four ceramic kilns to produce electrical power. Its flexibility, which permitted energy recovery from a variety of waste heat sources, was based on an Organic Rankine cycle engine originally developed for spacecraft power. The system produced 20% of the plant's total power needs while operating at 75% of capacity.



### **Recycled Newspapers Insulate Homes** (Springfield)

All-Weather Insulation Company's founders consulted NASA/UK TAP on how to produce an insulating material from shredded newspapers that met federal insulation specifications. NASA/UK TAP contributed technical information to All-Weather resulting in a successful cellulose insulation product. The company's insulation is made by shredding old newspapers and treating them with a combination of chemicals. The resulting material is blown into walls and attics to form a fiber layer which blocks inflow or outflow of air.



NASA actively seeks partnerships with U.S. companies that can license NASA innovations and create "spinoffs" in areas such as health and medicine, consumer goods, transportation, renewable energy, and manufacturing. When businesses leverage NASA technologies to develop new products, it not only benefits the regional economy, but significantly strengthens the nation's competitiveness in the global marketplace.

NASA's centers across the country have helped 9 Kentucky companies develop revolutionary spinoff technologies.

Learn more about how NASA innovations benefit the public in *Spinoff*, an annual publication that highlights NASA's most significant technology transfer successes. (Available at: <http://www.sti.nasa.gov/tto>)

### **National Aeronautics and Space Administration**

**Office of the Chief Technologist  
NASA Headquarters  
Washington, DC 20546**

[www.nasa.gov](http://www.nasa.gov)

*Publication herein does not constitute NASA endorsement of the product or process, nor confirmation of manufacturer's performance claims related to any particular spinoff development.*