USDA Announces Top Scientific Breakthroughs in 2013

WASHINGTON (USDA) — Agriculture Secretary Tom Vilsack announced a new report on scientific breakthroughs discovered by USDA [1] researchers that led to new patents and inventions with the potential for commercial application and potential economic growth. Innovations included in the report range from flour made out of chardonnay grape seeds that prevents weight gain to antimicrobial packets that keep food from spoiling, efforts to protect U.S. troops in Iraq from diseases carried by sand flies, new processes for turning grass clippings and raked leaves into bioenergy, and many more.

"Studies have shown that every dollar invested in agricultural research returns $20 to the economy. We have accelerated commercialization of federal research and government researchers are working closely with the private sector to develop new technology and transfer it to the marketplace," said Secretary Vilsack. "USDA has a proven track record of performing research that benefits the public."

USDA reports receiving 51 patents, filing 147 patent applications, and disclosing 180 new inventions in the last fiscal year, which are detailed in the Department's 2013 Annual Report on Technology Transfer released today. Helping drive these innovations, USDA has 259 active Cooperative Research and Development Agreements with outside investigators, which includes Universities and other organizations, including 117 with small businesses. The USDA's technology transfer program is administered by the Agricultural Research Service (ARS), USDA's principal intramural scientific research agency.

Discoveries from USDA's 2013 Technology Transfer Report include:

- A new kind of flour made from chardonnay grape seeds that can prevent increases in cholesterol and weight-gain (the Mayo Clinic is currently conducting human clinical trials on the product);
- New ways to turn lawn clippings and tree leaves from cities into bioenergy;
- An enzyme compound that can be used to develop insecticides to combat sand flies, a disease spreading insect that poses a major problem for U.S. military in Iraq and is responsible for hundreds of thousands of childhood deaths in Africa;
- A computer-based model of the fluid milk process to lower greenhouse gas emissions (the model has been distributed to more than 100 processors in the United States and should help the dairy industry realize its goal of reducing greenhouse gas emissions by 25 percent per gallon of milk by 2020);
- Oat concentrates, a digestible, functional food from oats licensed for the production of Calorie-Trim and Nutrim;

- A new process for turning old tires into zinc fertilizer;
- A handheld device that uses gold nanoparticles to detect West Nile virus (and potentially other diseases) in blood samples;
- Window cleaners that use a biodegradable solution of nanoparticles that prevent water-beading that are superior to current cleaners;
- A small packet that when inserted in small fruit containers releases an antimicrobial vapor that helps keep fresh fruit from rotting on the shelf.

Over the years, USDA innovations have created all sorts of products Americans use every days, from cosmetics, to insect controls, leathers, shampoos, and of course food products. Here are just a few examples of things USDA research is responsible for:

- Frozen orange juice concentrate;
- "Permanent press" cotton clothing;
- Mass production of penicillin in World War II;
- Almost all breeds of blueberries and cranberries currently in production, and 80% of all varieties of citrus fruits grown in the U.S.;
- "Tifsport", a turf used on NFL, collegiate, and other sports fields across the country, specifically designed to withstand the stress and demands of major team sports. Tifsport is also used on PGA and other golf course fairways, while its sister turf, "Tifeagle", specially designed to be mowed to one-tenth of an inch daily, is used on PGA putting greens.

The 2014 Farm Bill will help to build on these accomplishments by establishing a new Foundation for Food and Agriculture Research that leverages $200 million in public funding and another $200 million from the private sector to support groundbreaking agricultural research.

More information about the USDA innovations contained in this year's report, as well as a look at previous USDA research discoveries is available here: https://www.ars.usda.gov/sp2UserFiles/Place/01090000/FY13_TT%20Ann%20Rpt%20.pdf [2]

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