

FOOD SCIENTISTS LEAD CHARGE TO BATTLE DISEASE, TACKLE NEW PROCESSING TECHNIQUES

Safety, quality, and innovation: Those are the aims of OARDC food scientists and engineers who team up to provide everyone from consumers to NASA scientists the benefits of cutting-edge research. OARDC scientists make food safer, lengthen its shelf life, and provide expertise to medical researchers and food companies keen on improving the foods we eat.

Some examples:

—*Salmonellosis* is a food-borne disease with 1.4 million cases nationwide and an approximate cost of \$2.3 billion annually. Eggs are the primary source. Microbiologist Ahmed Yousef found that treating whole shell eggs with a combination of ozone (approved in 2001 as an antimicrobial agent due largely to his work), mild heat, and slight pressure significantly reduced contamination in eggs without damaging their quality. Ohio is the second-largest egg producer in the country with production valued at \$334 million in 2004.

—One in three Americans will contract cancer at some point during their lifespan. Food chemist Steven Schwartz works with Ohio State medical researchers to examine phytochemicals in foods that can help. Findings include how lycopene in tomatoes battles prostate cancer and how biochemicals in broccoli can fight bladder cancer. About 232,000 new cases of prostate cancer are diagnosed each year. Reducing the incidence just by 5 percent would trim \$400 million from the estimated \$8 billion spent annually on prostate cancer treatment. The American Cancer Society estimates that 63,210 cases of bladder cancer were diagnosed in 2005, with 13,180 deaths. Economic studies indicate that direct medical expenditures related to bladder cancer amounted to almost \$3.7 billion in 2001.

—Food engineer Sudhir Sastry is working on a NASA-funded project to heat food and sterilize waste in space. Sastry, an international expert in ohmic heating, developed food packaging that contains electrodes, allowing astronauts to enjoy a hot meal. Ohmic heating is produced by projecting an electric current through the food, heating food directly rather than from the outside-in. After dinner, the astronaut can use the same packaging to sterilize biological waste and other refuse. The techniques are needed on a possible mission to Mars. In a more down-to-earth project, Sastry developed a new way for processors to peel tomatoes using very little lye—an environmental waste problem—and preserve the nutrient-rich peel to use in sauces and purées.

—Since 1987, Ohio State has teamed up with North Carolina State University and the University of California-Davis to run the Center for Advanced Processing and Packaging Studies. CAPPs began as a National Science Foundation-sponsored program that focused on basic research recommended by industry. CAPPs projects at Ohio State focus on studies of novel food-processing techniques, such as high pressure, pulsed electric field, and ohmic heating technologies and are supported by more than a dozen industry partners, including Kraft Foods and Ohio-based Procter and Gamble.

For more information, visit <http://www.fst.ohio-state.edu/CAPPs>.

