



# FoodPIC Focus

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## Objective of FoodPIC

The objective of FoodPIC is to assist companies in developing new food products efficiently, economically, and with high probability of success.

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## Welcome from the Director



Welcome to the first issue of the FoodPIC Focus Newsletter. As is usually the case with new endeavors, we will begin modestly, then expand with this newsletter. At first, we will distribute it to Board members and others who already know what FoodPIC is all about, then as we progress, to other leaders in the Georgia Food Industry and beyond. Our purpose is to keep friends, supporters, and potential clients better informed about developments with the Center. While these are challenging times for all of us, there are some reasons

for optimism. We continue to be contacted by food companies, large and small who are interested in the services we can provide. We are perhaps closer than we have ever been to lining up support for a new FoodPIC building on the Griffin Campus that will provide areas to have most of our equipment in contiguous spaces and to work with several clients at once. In the interim, we are in the midst of significant renovations to our pilot plant area in the Melton Building, where most of our activities currently take place, and in a second pilot space nearby. An important step forward is setting up a new Culinary Laboratory/Commercial Kitchen that will allow clients to experiment with, and prepare foods using commercial/restaurant scale equipment (cook range, baking ovens, mixers, fryers, etc). Adjacent to this lab and to our pilot plant, we are installing a QC/QA laboratory where clients

can measure the chemical composition and physical properties of their products (proximate analysis, texture/viscosity). We are also setting up a dedicated facility that will allow testing of the microbiological and sensory shelf-lives of food products under a wide range of conditions. Coupled with modeling software, we will assist clients by measuring the effects of packaging and storage conditions on product shelf life. We continue to work closely with the Griffin-Spalding Development Authority in hopes of attracting both R&D projects for ourselves and new food processing companies to the community. More to come!

*Dick Phillips*

Director



The University of Georgia

Griffin Campus



Coralline Serres

## French Student picks UGA Griffin

As part of her agricultural studies at the National School of Agronomy in Toulouse, France, Coraline Serres must spend 12 weeks in a foreign country. It helped that her school has a partnership with the University of Georgia, but she still could have gone to any other school that accepted her.

Coraline arrived in Griffin at

the end of June to begin her internship at the Food Science and Technology department at the UGA campus in Griffin. This is her first trip to the United States. She will be working on a number of projects that involve food processing and marketing.

"People are very friendly and welcoming, so that's nice", said Serres about her experi-

ence on campus so far.

For quite a while, she has been interested in improving food products or creating new ones and then finding out if there's a market for those products, she said, adding that UGA Griffin, with its strong focus on research, was a natural match.

*"We've had several outbreaks of foodborne illness related to fast food. This could help to prevent future cases."*

*-Yen-Con Hung*



**FoodPIC Focus**

## Electrolyzed Oxidized Water

By Sharon Omahen

Water is one of the world's most precious resources. But if you combine it with salt and an electrical charge, it becomes one of the strongest disinfectants, too. Scientists at the University of Georgia are studying ways to use electrolyzed oxidized water, or EO water, to sanitize fresh chicken in processing plants along with other things. It can be up to 10 times more effective at killing harmful bacteria than traditional methods.

"We wanted to use the water on chicken carcasses to see if it cuts down on the levels of salmonella and campylobacter," said Yen-Con Hung, a food scientist with the UGA College of Agricultural and Environmental Sciences.

### Two steams of water

EO water is created when a saltwater solution goes through an electrolysis process, said Hung. It separates the water's positive and negative ions. This makes two

forms of water, one very acidic and one very alkaline.

Working with CAES poultry scientist Scott Russell, Hung tested both forms of EO water on fresh chicken carcasses. They found the acidic EO water killed foodborne pathogens on the chicken. The alkaline EO water cleaned the chicken. "The alkaline stream of EO water mixes with the fat on the chicken and cleanses the surface and protects the carcass in the future," Russell said. "It's just like when your grandmother mixed fat and lye to make soap."

### Technology licensed and used in U.S.

Pennsylvania-based Murray's Chickens is the first poultry processor in the United States to use the UGA EO process to kill pathogens, Hung said. EAU Technology holds the license on the UGA technology.

"In mass production, this technology would be very cost effective," Hung said. "When you want to use it, you push a button. You don't have to worry with mixing up concen-

trated liquids, and it's more effective than chlorine rinses."

In his laboratory on the UGA Griffin, Ga., Campus, Hung has found the acidic water effectively kills harmful bacteria on eggs, apples, lettuce and cutting boards. The alkaline water is a useful general cleanser.

### Widely used in Japan and Korea

The technology is widely used in Japan to sanitize dental and medical equipment. Many Japanese homes have EO washing machines that need no detergent. Koreans use it in dishwashers.

In the U.S., the wholesale and retail cut flower industry uses the water to prevent the spread of diseases and extend shelf life. "And the water doesn't have to be changed every day," Hung said. Hung hopes to see the technology used in U.S. fast food restaurants.

"We've had several outbreaks of foodborne illness related to fast food. This could help prevent future cases," Hung said.

# Touring Food Companies

FoodPIC members **Jinru Chen** and **Dick Phillips**, along with graduate students, and visiting scientists have recently visited representative companies of some of the most important food products in the State of Georgia. These included the headquarters of **Chick-fil-A**, one of Georgia's most legendary food companies and a leader in the restaurant business in the Southeast and beyond. We were hosted by **Ms. Shona Jonson**, a graduate of UGA's Department of Food Science and Technology where she received her MS degree under the direction of FoodPIC member, **Dr. Anna Resurrection**. We received an inside look at this rapidly growing, innovative company. While there, we met **Mr. Jim Hopkins** a project leader at **Purdue Farms** Innovation Center who arranged for us to visit the large poultry processing facility in Perry. This very large facility converts live birds into a wide range of restaurant-ready and home-ready products on a very large scale. Our thanks to **Wally Hunter**, **Lee Hix** and others for this informative tour.

Pecans and peanuts comprise two other leading Georgia food commodities and we were able to tour two of the leading companies in these two industries. **Southeast Georgia Pecans** in Valdosta represents a cutting edge facility for shelling and market-

ing pecans with rigorous attention to safety. Company President, **Mr. J.P. Worn**, head of sales, **Jeff Worn**, and VP of Operations, **Clint Wills** (UGA alum) provided a great deal of information about the industry (did you realize that half of the crop is presently being exported to China?!); and an inside look at the shelling and grading operation that adds so much value to this valuable commodity. We



were also able to visit a modern peanut warehousing and shelling operation – **Tifton Quality Peanuts**. Here Plant Manager, **Clint Watson**, showed us the enormous monolithic concrete dome storage facilities that are unequalled at preserving the quality of in-shell peanuts. These structures maintain lower temperatures than other storage facilities and are even capable of being nitrogen flushed to prevent lipid oxidation/rancidity. Our thanks to CEO **Bill Park** for arranging our visit.

From shelling to blanching, roasting, and peanut butter making, our friend and generous supporter, **Ed Parker**, Product Development Manager, welcomed us to **American Blanching Company** in Fitz-

gerald. This company produces a staggering amount of many different peanut butters for private labels and it was fascinating to see how peanuts are transformed into one of America's favorite foods. Here and elsewhere we were impressed by the exacting attention to detail that ensure success and profitability by the best food companies. Adjacent to, and an independent customer of American Blanching, is the **MANA** non-profit company which processes peanut paste into a Ready-To-Use Therapeutic Food (RUTF) for distribution to the world's poorest and most malnourished children. In a subsequent trip, **Mark Moore**, founder and CEO, demonstrated to Chen, Phillips, and **Dr. Tim Williams**, Director of the USAID Peanut Collaborative Research Support Program, how Georgia peanuts are converted into this life-saving product now being distributed through the United Nations and non-government organizations. This resonated with us due to our own research into RUTFs. Of course, we discussed FoodPIC's ability to work with any and all food processing companies to solve problems and develop new products and processes during these visits and project intensive future efforts to make our program known to the industry.



*"We discussed FoodPIC's ability to work with any and all food processing companies to solve problems and develop new ones."*

*-Dick Phillips*



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**FoodPIC, the University of Georgia's Food Product Innovation and Commercialization Center's mission is to strengthen and help grow Georgia's food industry, working in concert with food businesses, industries and entrepreneurs. Our newsletter will keep you apprised of FoodPIC discoveries, events and opportunities.**

Visit our website:

<http://foodpic.uga.edu>

## Peanuts join red wine, blueberries as power food

By Sharon Dowdy

Eating peanuts with their skins on is not only less messy, it's much healthier for you, too, according to a University of Georgia food scientist.

Peanut skins have high levels of resveratrol. The popular bioactive compound is often associated with red wine and the "French paradox," a phenomenon noted in France where deaths from coronary heart disease are low despite the prevalence of fatty diets.

"Resveratrol is associated with reduced cardiovascular disease and has anti-aging, -cancer and -inflammatory factors," said Anna Resurreccion, a food scientist with the UGA College of Agricultural and Environmental Sciences.

### **Skins boost resveratrol three fold**

After red wine, red grape juice and dark chocolate, roasted peanuts are one of the important sources of resveratrol. "and when consumed

with skins, they provide about three times more resveratrol" compared to leaving off the skins, she said.

"Roasted peanuts with skins also have antioxidant properties equivalent to blueberries, but more than in red wine, green tea, or cocoa drinks," said Resurreccion, who has studied peanuts for 25 years.

### **Full of good fats, too**

Peanuts were once frowned upon for their high fat content, she said. But they are full of healthy fats like monounsaturated oleic and other polyunsaturated fatty acids.

Americans eat peanuts primarily as a snack food, but in undeveloped countries peanuts serve as a major protein source.

A 2002 Nurses' Health Study found that daily intake of two tablespoons of peanuts, or just a handful, reduced the risk of type 2 diabetes in women by 21 percent. The

study also shows women with type 2 diabetes reduced their risk of cardiovascular disease by 44 percent by consuming the recommended daily allowance.

### **Full of vitamins**

"Regular peanut intake has been shown to improve the diet quality of consumers as evidenced by higher intake of vitamins A and E, folic acid, calcium, magnesium, zinc, iron and dietary fiber," Resurreccion said.

Peanut oil has healthy benefits, too. Phytosterols found in peanut oil can reduce cholesterol, inhibit colon, prostate and breast cancers and protect against atherosclerosis, she said.

"To date, we have only scratched the surface of this area of research, and scientists are discovering more bioactive compounds with beneficial effects," Resurreccion said.



**Anna Resurreccion**