

NC STATE
UNIVERSITY



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EVENTS

2015

| | |
|----------------------|------------|
| State Fair Dairy Bar | Oct. 15-25 |
| S'boo'ghetti Lunch | Oct. 29 |
| Novemberfest | Nov. 24 |
| Holiday Lunch | Dec. 7 |
| Fall Graduation | Dec. 18 |

2016

| | |
|---------------------|----------------|
| Wine and Cheese | Mar. 19 (tent) |
| End of Year Cookout | April 19 |
| Awards Banquet | April 21 |
| Spring Graduation | May 7 |
| Faculty Retreat | May 11 |
| IFT 2016 | July 16-19 |

Learn more at go.ncsu.edu/fbns

THE FUTURE OF FOOD IS RIGHT HERE

The past year has been remarkable. Just read about it inside.

The North Carolina Food Processing and Manufacturing Initiative gained major ground this year. A feasibility study coordinated by our department and the North Carolina Department of Agriculture and Consumer Services resulted in four recommendations.

One of those recommendations, the Food Processing Innovation Center (F-PIC) is a pilot plant concept that will include food labs for training and education, GMP processing plants, and demonstration facilities. Capitalizing on the innovative strengths and services within FBNS, a modern processing facility like this would anchor food entrepreneurs' success across the state.

Within five years of achieving all of these recommendations, the initiative should generate as many as 38,000 jobs and pump \$10.3 billion into the North Carolina economy. It is so important that Governor Pat McCrory specifically highlighted the initiative in his 2015 State of North Carolina address.

A year like this does not happen without a dedicated team of faculty, staff, students, emeriti, alumni and allied stakeholders.

This was amply demonstrated in our recognition at the annual Institute of Food Technologists meeting as one of the preeminent departments of our kind in the world.

Our recent innovations have ranged from the offbeat to the humanitarian. Making beer from wasps' yeast? A service-learning program to improve nutrition? FBNS is on it.

Thank you all for your commitment to achieving our shared vision. I firmly believe that food manufacturing is the foundation for the new economy of North Carolina, and FBNS will help make that vision a reality.



Christopher R. Daubert
Department Head

Food Alliance

From marketing our own Howling Cow® dairy products to working with North Carolina's governor to initiate a major food processing initiative, FBNS is at the forefront of innovation.





NOW'S THE TIME

North Carolina Food Processing and Manufacturing Initiative should be a boon for state's economy

Think about a jar of North Carolina peanuts. Before it can hit the grocery store shelf, the nuts have to be processed and packed, the jar manufactured, the label designed and printed. Which adds up to a product that's worth far more than the peanuts alone.

This, in a nutshell, is the premise behind a massive new initiative designed to elevate North Carolina as a food manufacturing destination, bolstering the state's economy and breathing new life into its rural communities.

Born of seeds planted by FBNS faculty in the department's strategic plan, the North Carolina Food Processing and Manufacturing Initiative is quickly becoming a reality.

The North Carolina General Assembly funded the initiative to diversify and add value to agricultural-based businesses through food processing. An economic feasibility study conducted by CALS' FBNS department and the N.C. Department of Agriculture and Consumer Services revealed that North Carolina has a significant opportunity to catalyze food processing, manufacturing and industrial development statewide.

The anticipated economic impact of the Food Processing and Manufacturing Initiative, if four key recommendations are established, will be an increase of nearly 38,000 jobs and associated economic output of \$10.3 billion.

Southern Food Culture

Lance Crackers. Cheerwine. Mt. Olive Pickles. Just a few names that epitomize our state's iconic food culture. Now's the time for North Carolina to capitalize on its potential as a global food manufacturing leader.

No small potatoes

"The results of the feasibility study are staggering," said Dr. Christopher Daubert, FBNS Department head. "The Food Processing and Manufacturing Initiative could have a huge impact on our state, especially in our poorest communities."

The decline of three of North Carolina's traditional industrial strengths (textiles, tobacco, furniture) over the past 20 years has hit rural communities hard, but it also presents a unique opportunity for the state to leverage its agricultural resources, industrial capacity and research innovation assets to fuel the growth of new value-added industry.

"North Carolina is incredibly agriculturally diverse, and agriculture is the state's largest industry," Daubert said. "We also have an abundant water supply, clean watersheds and a sizeable, capable workforce, not to mention N.C. State University and its associated intellectual capital."

Another key piece of the vision for the initiative is a food processing innovation center – a facility that would house commodity-based pilot plants, training facilities, the Howling Cow® dairy plant and a retail outlet.

"The center would be a place for next-generation equipment and technologies to be on demonstration and display, a place for entrepreneurs to get assistance with manufacturing products that can be sold," Daubert said. "We'd like to have it coupled with an outlet store or in proximity to a farmers market so product sales could go right back into facility operation."

After announcing the initiative in his "state of the state" address in February 2015, N.C. Gov. Pat McCrory assembled a task force of 35 representatives of all aspects of food manufacturing, from farming to transportation to economic development.

CALS Dean Richard Linton chairs the Food Manufacturing Task Force, and Daubert serves as his designee. N.C. Agriculture Commissioner Steve Troxler, N.C. Lt. Governor Dan Forest and N.C. Secretary of Commerce John Skvarla also provide core leadership.

"We have a goal to expand the economic impact of agriculture and agribusiness in North Carolina to \$100 billion by the year 2020," Linton said during the group's first meeting in June. "Food manufacturing is part of the solution to get us there."

McCrory agrees

"This state's economy is built upon those industries that make things, that innovate things, that build things, that produce things and that grow things," McCrory said at the first task force meeting. "And I firmly believe as we continue to recover from this recession that we're going to still be very dependent upon those industries to create the jobs and grow the economy of North Carolina. I'm proud of the manufacturing and agriculture industry that's been an important part of our past, present, and it will be a very important part of our future."

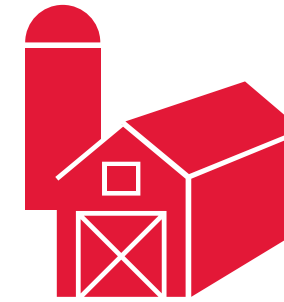
For Daubert, who grew up in a small rural community in Pennsylvania, it all boils down to helping people. "This initiative translates into jobs, especially for our poorest communities," he said. "Creating new jobs will raise the tax base, which in turn will increase the quality of schools and hospitals. It's all about growing jobs for rural North Carolina. This is key. We have a real opportunity to impact the lives of kids, families and communities. Now is the time – and North Carolina is definitely the place."

"Now is the time — and North Carolina is definitely the place."

The Food Processing and Manufacturing Initiative will focus on four main goals:

- > Capture added value from North Carolina's agricultural commodities through the development of innovative food products and processing technologies.
- > Foster the growth of food manufacturing entrepreneurial endeavors.
- > Proactively target site selection attraction opportunities within the food manufacturing supply chain.
- > Provide regulatory training and outreach to the food processing/manufacturing sector.

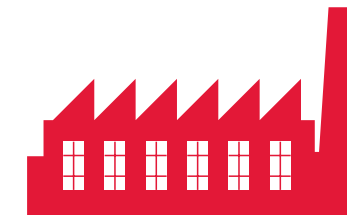
Taking the products of North Carolina's number one industry



Adding research and technology from its largest university



Transferring that knowledge to commercial endeavors



Creating jobs, new products and a manufacturing economy



The North Carolina Food Processing and Manufacturing Initiative in a nutshell:

Bringing manufacturing back to N.C.

In 2014, the North Carolina General Assembly funded this initiative to diversify and add value to agricultural-based businesses through food processing. The goal is to expand the economic impact of agriculture and agribusiness in our state by 22 percent – to \$100 billion – by 2025.

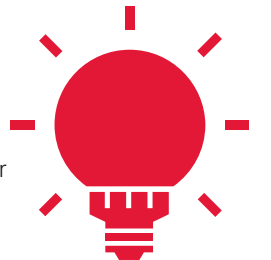
+22%

A greater bread basket

Increases in food and beverage manufacturing – entirely possible given North Carolina's highly diverse variety of crops, livestock, soils and climate – will be the cornerstone of this initiative. To this end, we are conducting a feasibility study and an economic assessment.

Collaborative partners

We will focus the strengths of our university, government and industry entities towards a common goal – an enhanced food entrepreneur assistance program centered on job growth.



Innovation and entrepreneurship

Our university develops and transfers new technologies and research to startup and commercial enterprises. These new technologies drive innovation and efficiencies that will result in entrepreneurial development in communities across North Carolina and the globe.

We will grow jobs

From innovations that can transfer commercially to increased payrolls at new manufacturing sites, our goal is clear: Grow jobs. To do this, we propose competitive proof-of-concept funding to assist our campus in moving promising technologies and strategies from theory into reality.



The Food Processing Initiative is a partnership between NC State University's College of Agriculture and Life Sciences and the North Carolina Department of Agriculture and Consumer Services.



BEER BUZZ

The lowly wasp. We swat it, curse it, kill it and shoo it away from our eaves. We see pain and swelling. John Sheppard sees beer.

An NC State professor of bioprocessing science, Sheppard and fellow scientists Rob Dunn and Anne Madden have brewed six styles of beer using the yeasts of wasps and other arthropods such as bees and spiders.

"A wasp's nest at the microbial level is an unexplored jungle," says Madden, a microbiologist. It was luck. And then John came in. He's the magic behind the brewing."

Yeast is responsible for half of a beer's flavor; malt, hops and water conspire to influence the other half. Yeast converts sugar into alcohol and carbon dioxide, but it also imparts other aromas and flavors. The brewer's challenge is to control a yeast's metabolism to minimize bad flavors (sulphur = bad) and amplify good ones (fruity = good).

Sheppard speaks of his yeasts as if they are pets. Since yeasts comes from the wild, it must be "domesticated," he says, and tested under different conditions. "You have to train it. You get to know what it likes."

Make Mine a Bug

In June, Dr. John Sheppard was awarded one of five Chancellor's Innovation Fund grants. The \$75,000 grant will support the work of Sheppard and Dr. Robert Dunn of the Department of Biological Sciences. Their joint project uses wild yeast isolated from insects to create new beer products. The grant will allow for the further development of beer flavors over the next 12 months.

Sheppard became interested in brewing as a counterpoint to the scientific research of the 1970s. Back then, scientists began vigorously researching genetically modified organisms, but altering the DNA of yeast, a life form, is strictly verboten. "I wasn't interested in GM, because naturally occurring yeast could be exploited," he says. "That's what drew me to brewing."

Living microorganisms, yeast are technically classified as fungi and responsible for fermentation. There are hundreds of types of yeast, and they live nearly everywhere: in our food, in the air, on our skin. The type of wasps used to harvest the yeast, and the brewing process are proprietary. But it's doubtful Anheuser-Busch will send its brewers into yards with Mason jars and butterfly nets in search of wasps.

Reprinted with permission from *Indy Week*, July 15, 2015. Story by Lisa Sorg. Photos by Alex Boerner.

"We didn't expect it would make beer so well," Sheppard says. "It's surprising."

That's because large commercial brewers only use a few traditional yeasts to maintain consistency in their beers. It's the same reason McDonald's doesn't tinker with its special sauce. "To control quality in industrial beer, they aren't interested in experimenting; they want to standardize the brewing process," Sheppard says.

But that conservative approach makes for very predictable beers, opening a market for brewers like Sheppard willing to take a risk. The NC State beers adhere to traditional German brewing purity laws – using only yeast, malt, hops and water. These newly discovered yeasts yield new flavors, without adulterating the beer with extracts such as blueberry, basil, sweet potato.

Sheppard and NC State have applied for a patent on the use of the yeast. Eventually, they could license its yeast to local brewers, who could further amplify their locally sourced ingredients. (Imagine: The Stinging Lager: Now made with malt from Lee County, hops from the North Carolina mountains and yeast from Raleigh wasps.)

Sheppard's lab fridge is full of his beer, but few people have tasted it. Until recently, NC State didn't allow the sale of alcoholic beverages on campus, but administrators recently agreed to apply for a permit allowing Sheppard to sell limited amounts of his beer at university events. Later this year, he expects the beer to be sold commercially, although in small batches.

Fortunately on this late spring morning Sheppard has several bottles in the fridge, and we celebrate beer-thirty with a few ounces of his latest creations. He pops an orange cap from a brown bottle of an English IPA. It's highly hopped and fruity but fear not, it's refreshing, delicious and not the least bit treacly. A session beer, it contains only 5 percent ABV, making it an apt breakfast drink.

Next, Sheppard unveils a green-capped sour. It's lighter, with a honey nose and bracing tartness. With a pH of 3.7 – that's acidic for those of us who didn't take chemistry – it's in the range of Lambic-style beers.

Because once harvested the yeast continues to grow on its own, the brewery doesn't endanger the local arthropod population. "To get bumblebee beer, two bumblebees died," Madden says. "You killed more bugs on the sidewalk to the bar."

How is FBNS changing the way people eat?

We start with A PACKed Kitchen. >



From left, Cayla Bridges, FNBS's Natalie Cooke and Carla Leathers at the N.C. Farmer's Market.

Carla Leathers is famous for her banana pudding. It's loaded with the good stuff – sweetened condensed milk, whipped cream, vanilla wafers. The Raleigh mom brings it to every family gathering, and it disappears quickly.

So when her daughter Cayla Bridges, 12, came home from a Cooking Matters class talking about a healthier way to make banana pudding, Leathers was skeptical.

"When she showed me the recipe, I thought there is no way this can be good," Leathers said. "It had unsweetened applesauce and yogurt. But I agreed to try it since she wanted to make it for me. Surprisingly, I really liked it."

This was one moment of many that spurred Leathers to write a letter to Dr. Natalie Cooke, a postdoctoral teaching scholar in the college's Department of Food, Bioprocessing and Nutrition Sciences. Cooke is program director of A PACKed Kitchen, a service-learning program that helps deliver the Cooking Matters classes.

Here's how it works: The Inter-Faith Food Shuttle is the lead partner in North Carolina for Share Our Strength's nutrition education program, Cooking Matters. Cooke and Dr. Suzie Goodell, associate professor of nutrition science, partnered with the Inter-Faith Food Shuttle and Share Our Strength in 2009. Since then, NC State students have been teaching Cooking Matters classes in the community as part of their involvement in A PACKed Kitchen.

A PACKed Kitchen helps the Inter-Faith Food Shuttle teach Cooking Matters classes by training their A PACKed Kitchen volunteers and



coordinating and financing their Cooking Matters classes, which are offered for free each fall at a variety of community partner sites throughout Raleigh. To date, the program at NC State has involved more than 100 student volunteers and reached nearly 300 community participants.

Bridges was one of 12 middle school students from three different Boys and Girls Clubs who participated in a Cooking Matters for Teens class at the Urban Ministries' Open Door Clinic last fall. Her class was designed to give young people hands-on experience cooking nutritious meals and learning how to make healthy choices.

Bridges excelled in her class, earning the "most likely to become a chef" award at the end of the semester. "I was really excited that Cayla wanted to take the class," Leathers said. "Every week she would try a new recipe, and she would read labels everywhere we went, scrutinizing everything. I am a diabetic, so it's good for me to learn different ways to eat healthier."

Bridges and the other participants made two recipes each week then took home groceries to make the meals at home. "One of the unique things about the Cooking Matters for Teens curriculum is the extreme food makeover," Cooke said. "Participants pick their favorite recipe, and they decide over the course of six weeks based on what they're learning how to adapt that recipe to make it healthier."

During the last week of the class, Cooke said, the teens compete against each other in teams to prepare their recipes, which are then judged by a panel of experts. "We made tacos," Bridges said. "They were good. We used ground turkey, whole-wheat tortillas, lettuce and cheese. My favorite part of the class was trying things. I that I'd never tried, like avocado and horny melon."

NC State students work in groups of five to teach each Cooking Matters class. There are two chefs, a nutritionist, a class manager and a food runner. The students that taught Bridges' class in fall 2014 were: senior nutrition majors Thomas Adams, Kristen Bochicchio and Sarah Wilson; Susane Sommer Damasceno, a master's student in nutrition; and Emily Riddle, a junior nutrition major. Kerry Jones, a senior human biology major (with a minor in nutrition), supported the team as community liaison.

"The beauty of the Cooking Matters curriculum is that it allows for engaging the participants in learning through encouraging them to tell stories and share experiences," Cooke said. "Our students are learning how to be nutrition educators, and they're also learning how to involve their participants in a real way."

As part of the service-learning program, students attend Goodell's lectures, and then go to Cooke's lab for application of what they've learned in the classroom. "They're learning knife skills, for example, before they teach them to kids and teens," Cooke said. "They do a lot of practicing before they get into the real-world instruction setting."

For Bochicchio, the decision to apply for the class (which the students do by writing an essay) was personal. "Following his heart attack, my grandfather brought home educational fliers from his cardiac rehab visits," she said. "He was very excited as he

explained to me what he learned. Nutrition is a science, but it is useless if the public is not benefiting from it. Those 'aha' moments, when people understand why nutritional recommendations are important, are what really matters. Undergoing the training to

become a Cooking Matters instructor made me a resource to help people reach those 'aha' moments."

Aside from learning to read food labels (which she described as "cool"), Bridges most enjoyed learning how to do what her mom does in the kitchen every day.

"I liked doing the chopping part," she said. "They helped me learn how to chop with a pinch and a claw. That was neat. I like to cook more at home now. We made an apple dessert from the book they gave me."

And Bridges still enjoys making her version of banana pudding. "I told Cayla that she and I will make 'her recipe' again, but I want to use sweetened applesauce," Leathers wrote in her letter to Cooke. "She said, 'No, Mama. You don't need the sugar. I'm trying to help you eat better.' She is right. I have diabetes and have to monitor my carbs. I thought that was funny, but it shows how much she is learning and applying what she has learned."

"When she showed me the recipe, I thought there is no way this can be good."

DEPARTMENT NOTES

New Hires

D. Michelle Benoist

Research Specialist, Drake Lab

Paul Currier

Research Technician, Dairy Process Operator

Coty Redding

Research Technician, Lake Wheeler Dairy

Bethanne Tobey

Instructional Technologist

Retirement

Lisa Gordon

retired from NC State August 2015

Tim Sanders

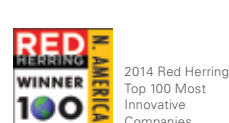
retired from the USDA January 2015

Ken Swartzel

ended phased retirement from NC State July 2015

In Memoriam

Dr. Len Aurand passed away on Dec. 1, 2014. Aurand was a founding team member of the Department of Food Science where he taught food chemistry and human nutrition. He retired from NC State in January 1988.



FBNS IN THE NEWS

Dr. MaryAnn Lila and her lab were featured on PBS's *Carolina Impact* broadcast on diabetes research.

<http://bit.ly/1EWks7b>

Dr. Keith Harris and Kendra Stallings were featured in *Perspectives* magazine for their JuVn8 muscadine smoothies.

<http://bit.ly/1heYo28>

Slavko Komarnytsky was featured in the *Charlotte Observer* for his support of K-12 science education.

<http://bit.ly/1PyvXrd>

This **DELTA** feature story (with videos) profiles the Food Safety program and Howling Cow® ice cream production.

<http://bit.ly/1hGhaA8>

Dr. Allen Foegeding's article made #10 in the *New Food 2014 Advent Calendar*, which showcased 24 of the most popular articles published in *New Food* during the previous year.

<http://bit.ly/1WSufpZ>

PRODUCT AWARDS

FBNS startup **Aseptia**, co-founded by **Drs. Ken Swartzel and Josip Simunovic**, won gold at the 2015 Edison Awards in the Food Processing & Preparation category for their microwave-assisted aseptic processing technology. Aseptia utilizes microwave technology to deliver rapid pasteurization and sterilization that results in a shelf life of 12 months or more while preserving the original food's natural flavor, aroma and nutritional benefits. The company's patented AspetiWave™ technology meets strict FDA standards for food and safety and does not utilize refrigeration, canning, preservatives or additives. The Edison Awards honor excellence in new product and service development, marketing, design and innovation. It is one of the most prestigious accolades a company can receive for innovation and business success.

From left: Dr. Josip Simunovic, Dr. Pablo Coronel, Amanda Vargochik, Michael Druga

Shake and Go Kefir, a product developed by FBNS graduate students **Kyle McLean, Erin McMurtrie** and **Claire Svendsen**, won first place in the National Dairy Council Product Development Competition. Kefir is a fermented milk drink and is made with kefir grains or a powdered kefir starter, both made of yeast and bacteria, to turn it into a tangy beverage with a thinner consistency than yogurt. With one full serving each of dairy and fruit, Shake and Go Kefir is designed to be a nutritious breakfast item.

From top: Claire Svendsen, Kyle McLean, Erin McMurtrie



A BANNER YEAR

FBNS faculty, students and alumni rack up awards at IFT and beyond

The 2015 IFT Achievement Awards was an NC State showcase, with the FBNS Department claiming six of 18 national awards.

"It was truly a remarkable year," said Dr. Christopher Daubert. "There are many, many excellent food science programs in the U.S. For NC State to have turned in such a strong performance is a real testament to the quality of our faculty, students and alumni."

The icing on the cake came on the third day of the annual conference in Chicago, when the FBNS College Bowl team won the national title.

"The competition is fierce," Daubert said of the Jeopardy-style tournament. "Our team had to get through regionals and three phases of the national competition. NC State was behind in the final round, and with four questions remaining, they pulled ahead and won. There were over a thousand people in the audience. It was really very exciting."

Christopher Daubert

IFT Fellow

"A unique professional distinction conferred on IFT professional members with outstanding qualifications and experience for their contributions to the food science and technology field."

Keith Harris

William V. Cruess Award for Excellence in Teaching

"For his demonstration of knowledge, creativity and enthusiasm in the field of food science and technology."

David Green

Carl L. Fellers Award

"For his longstanding dedication to enhancing the profession."

Aseptia and the NC State Department of Food, Bioprocessing and Nutrition Sciences

Food Technology Industrial Achievement Award

"For the development and commercialization of a new generation of shelf-stable products using microwave-assisted aseptic processing."

Pablo Coronel, Ph.D. Food Engineering 1999

Industrial Scientist Award

"For his pioneering work in the understanding and development of processes for pasteurization and sterilization of foods using continuous-flow microwave heating."

Mickey Parish, Ph.D. Food Science/Microbiology 1986

Myron Solberg Award

"For his outstanding development and leadership of cooperative activities among industry, academic and government organizations."

Clint Stevenson and Caitlin Alberts

Journal of Food Science Education

"Food Science in Action" Video Competition

"For their video about making Howling Cow® ice cream."



2015 IFT Student Awards

Jon Baugher, Jacques Overdiep, James Chapa, Kurt Selle

1st Place, IFTSA College Bowl (above, from left)

Erin McMurtrie, Claire Svendsen, Kyle McLean

1st Place, National Dairy Council Product Development Competition

George Stoforos

1st Place, Food Engineering Poster Competition

Katheryne Daughtry

2nd Place, Food Microbiology Poster Competition

Angie Ameerally

3rd Place, Dairy Foods Poster Competition

Curtis Park

3rd Place, Manfred Kroger Dairy Foods Oral Competition

Kyle McLean

3rd Place, Rose Marie Pangborn Sensory Oral Competition

NC State Food Science Club (Meghan Keck, President)

Outstanding Chapter for Public Outreach

Faculty and Staff Awards and Honors

Rodolphe Barrangou

- > One of Thomson Reuters "Highly Cited Researchers" for 2014 and named by Thomson Reuters as one of the "World's Most Influential Scientific Minds"
- > NC State Alumni Association Outstanding Researcher

Gary Cartwright

- > 2015 Distinguished Service Award, American Dairy Products Association

Pablo Coronel

- > 2015 FBNS Outstanding Alumnus

Christopher Daubert

- > 2015 Distinguished Alumni Award, Michigan State University Department of Biosystems and Agricultural Engineering
- > 2015 Outstanding Engineering Alumnus, Pennsylvania State University College of Engineering

Lisa Dean

- > Acting Research Leader for the Market Quality and Handling Research Unit of the U.S. Department of Agriculture

MaryAnne Drake

- > 2015 American Dairy Science Association Fellow

Allen Foegeding

- > Fellow of the Royal Chemical Society, UK

April Fogleman

- > Elected to the Board of Directors of the Human Milk Banking Association of North America

Keith Harris

- > First place in the Innovation Fair at the North Carolina Agriculture and Biotechnology Summit

Fred Jimenez

- > 2015 CALS Award for Excellence

Todd Klaenhammer

- > Tissier Medal, Japan Bifidus Foundation

Tim Sanders

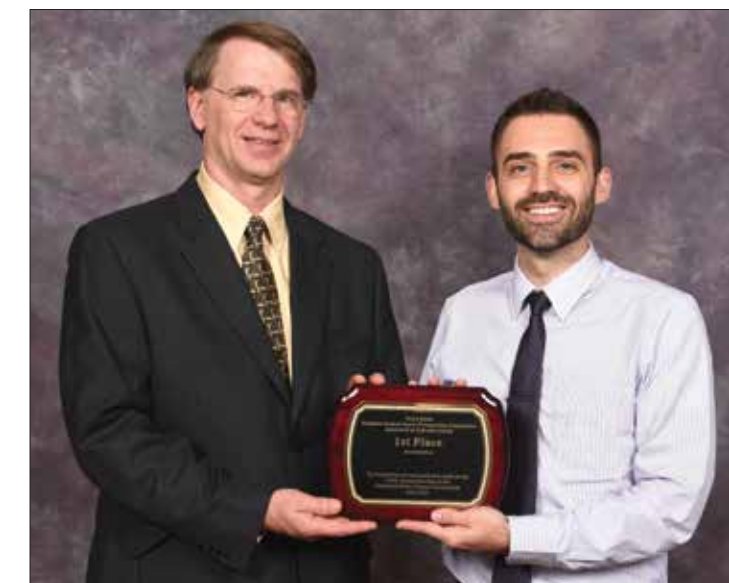
- > American Peanut Council Lifetime Achievement Award

Clint Stevenson

- > Gertrude Cox Award for Innovative Excellence in Teaching and Learning with Technology, NC State University
- > Two awards for "The Ice Cream Makers" video (collaborative with DELTA and Howling Cow®)

Keith Harris and Clint Stevenson

- > E.B. Knight Journal Award, North American Colleges & Teachers of Agriculture



Student Awards and Honors

2015 American Dairy Science Association annual meeting

Ty Wagoner

1st Place, Dairy Foods Graduate Poster Competition (above)

Andy Lee

2nd Place, Dairy Foods Graduate Poster Competition

2015 Experimental Biology annual meeting

Kimberly Palatini

Finalist, Emerging Leaders in Nutrition Science Competition, ASN

PARTNERS AND DONORS

FBNS Endowed and Annual Scholarships

American Dairy Products Association Scholarship
 Benjamin P. Forbes Scholarship
 Benjamin W. Kilgore Food Science Scholarship
 Burton M. Newell Scholarship
 Butterball LLC CAPS Scholarship
 Christie Abigail "Abbi" Fleming Dairy Science Scholarship Endowment
 Dixie Flyers Association, Inc. Dairy Manufacturing Scholarship
 Dr. Frank and Rachel Kirby Thomas Food Science and Family & Consumer Sciences Scholarship Endowment
 Dr. Isadore and Cynthia Peppe Food Bioprocessing and Nutrition Sciences Scholarship Endowment
 Dr. Peggy Foegeding Memorial Food Science Scholarship Endowment
 Duong, Green, and Gharst Food Science Leadership Award Endowment
 Eakes Turner Food Science Scholarship
 Food Science Club Endowment
 Fred Tarver Poultry Products Scholarship Endowment
 Frito-Lay Product Development Graduate Fellowship
 H. Hawkins Bradley Scholarship Endowment
 Harvey L. and Kathleen R. Barnes Scholarship Endowment
 Hase H. and Lena M. Smith Scholarship Endowment
 Ivan D. and Lillian T. Jones Food Science Scholarship Endowment
 J. Frank and Margaret B. Neely Scholarship Endowment
 James L. and Diana G. Oblinger Scholarship Endowment
 John and Kelli Rushing Food Science Freshman Scholarship
 John Rushing Southeastern Food Processors Association Endowed Scholarship
 Leonard and Frances Crouch Scholastic Achievement Award Endowment
 Mose and Helen Kiser Scholarship Endowment
 Neil and Nancy Webb Memorial Scholarship Endowment
 NC Meat Processors Association Scholarship Endowment in Memory of John Long
 Robert N. Wood - NC Dairy Products Association Memorial Scholarship Endowment
 T.W. Garner Food Company (Texas Pete) Scholarship Endowment
 Todd R. and Amy E. Klaenhammer FBNS Graduate Award Endowment
 Victor and Maryetta Jones Scholarship Endowment

Endowments Supporting FBNS Faculty and Programs

Burton M. Newell Food Science Library Endowment
 David H. Murdock Distinguished Professorship Endowment
 Don Hamann Memorial Lectureship Endowment
 Phi Tau Sigma Professional Development Endowment
 Russell S. Flowers Teaching & Training Endowment for Food Safety and Quality
 Tarheel Supplymen's Endowment for Excellence in Food, Bioprocessing and Nutrition Sciences
 Thomas N. Blumer Endowment
 Todd R. Klaenhammer Distinguished Professorship in Probiotics Research Endowment
 W.L. Clevenger Department of Food Science Endowment for Excellence

Other CALS Endowments and Scholarships Supporting FBNS Students and Faculty

A. Tab Williams, Jr. Endowed Scholarship
 CALS Alumni and Friends Society Scholarship
 College of Agriculture and Life Sciences Agricultural Foundation Scholarship
 Dr. Roy Lee and Virginia Brown Lovvorn Scholarship
 George T. and Marina T. Barthalmus Life Sciences Scholarship Endowment
 H. Brooks James Memorial Scholarship
 Joe L. Perry Scholarship Endowment
 John B. Steele Memorial Scholarship
 Lewis A. Sikes Scholarship
 Livio Ferruzzi Memorial Agricultural Scholarship Endowment
 Lloyd T. Weeks Scholarship
 Mitchell F. Allen, Jr. Memorial Scholarship
 Paul Elam McCarthy Memorial Scholarship
 Raymond F. Shearin Scholarship
 Robert Lee Lewis Agricultural Scholarship
 Roy R. and Alice Barber Bennett Scholarship
 Stephanie Christine Anderson Memorial Scholarship
 W. F. and Mozelle Parker Scholarship
 Winslow Foundation Scholarship

Donors to FBNS Funds 7/1/2014 – 6/30/2015

Jeanne and Thomas F. Aardema
 AeroClave LLC
 Jamal Ahmed
 Erin A. Almand*
 American Peanut Shellers Association
 Dr. Jean E. Anderson
 Ann's House of Nuts, Inc.
 Kenji Aoyama*
 Aseptia Technologies Inc.
 Dr. M. Andrea Azcarate-Peril*
 Kathleen A. Baldwin*
 Dennis L. Ball
 Dr. Susan F. and Mr. Howard E. Barefoot*
 Drs. Lisa M. and Rodolphe Barrangou*
 Candace and W. Ricks Batchelor
 Jonathan L. Baugher*
 Bay View Food Products Co.
 Bejo Seeds Inc.
 Ellen R. and Robert T. Benton
 Dr. Doris A. Betanocurt-Marcano
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