explorations

GEORGE H. COOK CAMPUS MAGAZINE | FALL 2017

RUTGERS
School of Environmental and Biological Sciences

Rutgers Student Alumni **CAREER CONNECT**

Network with the leaders of today.
Mentor the leaders of tomorrow.

Join the Rutgers Student Alumni Career Connect, a professional networking and mentorship platform. Share industry experiences, mentor students, and build your own professional network with Rutgers alumni worldwide.

As a professional you can:

- Make an immediate and lasting impact on a student or young graduate's life by serving as a mentor;
- Join or lead discussions related to your industry; and
- Search for and network with alumni experts in your field.

It's quick and easy to get started! Visit:

careers.rutgers.edu/SACC

Brought to you by Rutgers University Career Services and Rutgers University Alumni Association.

Division of Undergraduate Academic Affairs • Rutgers, The State University of New Jersey

RUTGERS
University Career Services
New Brunswick

RUTGERS
University Alumni Association

Contents

EDITORIAL OFFICE
Rutgers, The State University of New Jersey
57 US Highway 1, New Brunswick, NJ 08901-8554

EXECUTIVE DEAN OF AGRICULTURE AND NATURAL RESOURCES
Robert M. Goodman

VICE DEAN FOR ADVANCEMENT
Melissa McKillip

OFFICE OF ALUMNI AND COMMUNITY ENGAGEMENT
Diana Orban Brown, Director

OFFICE OF COMMUNICATIONS AND MARKETING
Michael Green, Director

OFFICE OF PHILANTHROPY AND STRATEGIC PARTNERSHIPS
Melissa McKillip, Associate Dean

CONTRIBUTORS
Diana Orban Brown, Melissa Kvidahl, Paula Walcott-Quintin, and Phil Wisneski

GRAPHIC DESIGNER
Lori Nardoza

PHOTOGRAPHERS
Jeff Heckman and John O'Boyle

On the Cover: At Unionville Vineyards with alumni Justen Beneduce Hiles SEBS'08, John Cifelli SEBS'09, Rich Heritage SEBS'08, and Scott Quarella SEBS'13. Photograph by John O'Boyle. **Table of Contents:** Photographers John O'Boyle and Greg Williams.

Stay Connected

Help us keep you up to date. Have you moved? Send us your new address and email to discovery@sebs.rutgers.edu, and we will add you to our distribution list.

post-it!

What's up with you? We want to hear from you.

@ diana.orban@rutgers.edu

Office of Alumni and Community Engagement
Rutgers, The State University of New Jersey
57 US Highway 1
New Brunswick, NJ 08901-8554

Please include your name, school, class, mailing address, email, and phone number.

Read All About Us

Newsroom
sebsnjaesnews.rutgers.edu

Newsletter
discovery.rutgers.edu/pubs

Follow Us

A Message from Bob Goodman

Dear friends,

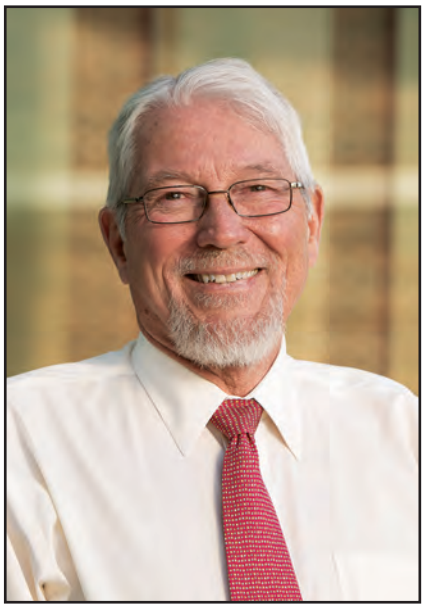
We are pleased to bring you the Fall 2017 edition of *Explorations*, our school's bi-annual magazine that communicates the impact of our research, teaching, and outreach as well as reinforces the value of a Rutgers degree.

This year marks the 10th anniversary of the School of Environmental and Biological Sciences, which succeeded Cook College in 2007 in a larger and dramatic transformation of undergraduate education across the Rutgers University–New Brunswick campus.

I came to Rutgers in 2005, so as a relatively new dean at the time I found myself a part of the richest discussion about undergraduate education that I have participated in during my 40-plus years in academia. As I wrote then, I was proud to lead the "vision of developing a new global dimension for undergraduate education at Cook that would take our program to new heights of relevance and excellence in an increasingly globalizing world where food, nutritional, and environmental security will be critical to the success of human civilization in coming generations."

As we pursue fulfilling the vision of the school, we've continued to make strategic hires in new faculty, 18 of whom began their tenure in the last or current academic year. In this issue of *Explorations*, you will meet four of these new hires, whose expertise and research focus represent priorities of the school. Our new faculty colleagues add to the broad core of experienced and engaged faculty already serving our students, and will help sustain the school into the future.

Also new and exciting for us is the arrival of our new Chancellor, Debasish "Deba" Dutta, to serve the Rutgers University–New Brunswick campus. At the beginning of his tenure in July, he wrote, "I fervently believe in the promise of public higher education and in the land-grant mandate of opportunity and accessibility." Here at the school and experiment station, we're delighted to have his leadership, in



no small part because he has a deep sense of the history and relevance of higher education institutions, like ours, that began in America in the mid-19th century as land-grant colleges.

Even as we welcome new members into our fold, we said goodbye to two long-serving members of our Cook community. Bob Hills retired on September 1 as associate dean for academic programs and Tim Casey, distinguished professor in the Department of Ecology, Evolution, and Natural Resources, retired on July 1.

Bob's retirement brought an end to a 41-year career devoted to helping shape and enhance the academic lives of thousands of undergraduate students at our school. He first came to Rutgers in January 1976, working alongside beloved figures like Dick Merritt, former dean of instruction, and Roger Locandro, former dean of students at then Cook College.

Tim joined the faculty of Rutgers in 1977 and quickly rose to the rank of distinguished professor by 1988, and chair and graduate director in the Department of Entomology. Thereafter, he served at the highest administrative levels, including a stint as acting executive dean of Cook College during which he was credited with being instrumental in the founding of the Department of Ecology, Evolution, and Natural Resources. Many of our more recent graduates would remember Tim as the director of the General Honors Program at the school, a position he began in 2006 and held for close to 10 years. We're grateful for the contributions of Bob and Tim, and wish them well in their retirement.

I thank you for your interest in and support of all that we do at the school, and for the ways in which you enrich our work as alumni, friends, and supporters. I urge you to stay connected with us, in person or online, via the Office of Alumni and Community Engagement at discovery.rutgers.edu.

Executive Dean,
School of Environmental and Biological Sciences

Photography by John O'Boyle.

Thank you!

Juan Cerezo

MICROBIOLOGY, SEBS '18

"The scholarships from SEBS have allowed me to succeed in school and pursue my dream of becoming a physician without any financial setbacks."

Blessing Ajayi

BIOLOGY, SEBS '18

"This scholarship helped me avoid unneeded loans and keeps me driven to becoming the first doctor in my family."

Photography by John O'Boyle.

To help support students at the School of Environmental and Biological Sciences please contact Melissa McKillip, associate dean for philanthropy and strategic partnerships, at ***melissa.mckillip@rutgers.edu or visit makeagift.rutgers.edu***

NEW JERSEY WINERIES
the Best of the Bunch

Four SEBS alumni. Four New Jersey wineries.

ONE COMMON GOAL

To draw attention to high-quality Jersey wines and elevate the state's stature to rival those of East Coast wine destinations like the Finger Lakes.

Here's how these young alumni are transforming New Jersey's reputation one bottle at a time.

New Jersey wines haven't always enjoyed the best standing in the wine industry. In fact, if you ask Justen Beneduce Hiles SEBS'08, the industry has some accidental roots: "When it started out years and years ago, it was mainly fruit farmers who had extra fruit and turned it into wine. It may not have even been grapes. It might have been made from pears or apples, and it yielded very, very sweet wine." She's the first to admit that this type of wine definitely has a place in the market: it tastes good, and it's inexpensive. But it's not all New Jersey can do. Far from it.

Pittstown-based Beneduce Vineyards focuses on a sustainable farming method that includes pulling leaves by hand, using fewer chemicals, employing biodiversity, and other initiatives. The result is fine varieties, and the winery is known for its Chardonnay, Riesling, Gewürztraminer, Pinot Noir, Cabernet Franc, and an Austrian red named Blaufränkisch.

Heritage Winery—which previously grew peaches and apples for five generations—made the transition to wine in 1999. Since then, they've been awarded New Jersey's "Winery of the Year" by the Garden State Wine Growers Association in 2011, 2014, and 2015. And, their efforts have been recognized by *The Wine Advocate*, which recently awarded the winery's Vintage Brut a 90 point rating, indicating outstanding complexity and character.

"It's the first time ever that a New Jersey wine was rated 90 points or higher, so this broke a glass ceiling," says Rich Heritage SEBS'08, of his family farm's achievement. "There are so many wine professionals in New Jersey, and if you would have told them 10 years ago that someone would get 90 points for New Jersey wine grown from New Jersey soil, they would have said no way. So this is a win for the entire New Jersey wine industry."

Alongside Heritage Winery, Beneduce Vineyards' Blaufränkisch earned 88 points, and Unionville Vineyards' Pheasant Hill Chardonnay, Rose, and Pinot Noir earned 89 points each. Unionville's general manager is John Cifelli SEBS'09, also executive director of the Winemakers Co-op, and he sees these ratings as just one step in bringing to light the amazing things happening on the New Jersey wine scene: "This is a watershed moment for us as far as legitimacy in the state. New Jersey always has had a chip on its shoulder, so it's great to put a stake in the ground and say that we're making great wine here."

At the forefront of this movement are SEBS graduates, who banded together to raise awareness of their own farms as well as the burgeoning New Jersey wine industry.

Spreading the Word

Earning top scores from internationally renowned publications is just the beginning. For these alumni, elevating the reputation of New Jersey wines is a ground-up operation that starts with simply getting the word out to local wine lovers.

To draw people to their farm, Beneduce Hiles and her family invested in making their property a true destination. When they opened their winery's doors in 2012, over 800 people attended the grand opening event. Since then, instead of advertising, they put money into the experience: a stone fire pit and patio, welcoming landscaping, a stage for live music (every weekend, by the way), and a greenhouse boasting fruit trees like lemon and fig trees for a wintertime escape.

At Bellview Winery, where the Quarella family has been farming for a century, locals are invited to events filled with music, food, and wine. The farm is also the site of a big Italian festival, and other fun events like trivia nights, says Scott Quarella SEBS'13.

"It's great to put a stake in the ground and say that we're making great wine here."

-John Cifelli SEBS'09

Pictured from left to right, alumni John Cifelli SEBS'09, Rich Heritage SEBS'08, Justen Beneduce Hiles SEBS'08, and Scott Quarella SEBS'13.

Photography by John O'Boyle.

Pictured from top to bottom: John Cifelli SEBS'08 with Unionville Vineyards, Rich Heritage SEBS'08 with Heritage Winery, Justen Beneduce Hiles SEBS'08 with Beneduce Vineyards, and Scott Quarella SEBS'13 with Bellview Winery.

Photography by John O'Boyle.

The Winemakers Co-op is yet another initiative that gets the word out. Founded by Beneduce Vineyards, Heritage Winery, Unionville Vineyards, and Working Dog Winery—all but the last boasting a Rutgers alumni connection—the co-op brings together winemakers focused on dry premium wines, made from classically European grapes grown in New Jersey soil. Together they share best practices and publicize innovators in the state. They also host two tasting events each year that are open to the public.

"It's a grassroots movement to get the word out," explains Heritage. "Pretty much all wine industries start with simple and easy-drinking wines, and they organically grow towards making finer and more prestigious wines. We would rather not wait 20 years for that to happen. So we're pouring a little fuel on that fire, to get people interested in fine wine that comes from the state, rather than out of the state."

Better for Jersey

An elite wine economy in New Jersey is great for wine lovers, but it's also lucrative for farmers.

Quarella explains that his father didn't think his three sons would be interested in taking over the family vegetable growing business that had been in production for 80 years. Competition was high, shipping was expensive, and the lifestyle was hard. So, in 2000, when Quarella was 10 years old, his father started growing grapes. "He thought it would be more enjoyable to run a winery than a vegetable farm," Quarella says. "I see a lot of younger people interested in this; they think it's such a cool job. But it's also an agricultural product that's selling enough to make a career."

Beneduce Hiles tells a similar story. The family's 51-acre farm was initially used to supply its garden center, but there were about 20 acres not being used. She and her brother got together, commissioned some climate research and soil testing, and found out that the site was well suited for grapes. Winemaking wasn't even on their radar. "But when we heard that grapes were well suited, we thought it was much more interesting than growing soybean or corn," she says.

"For millennials, farming wine is a lot cooler than farming other crops—nothing against the other crops," agrees Heritage. "We need new fresh blood in Jersey agriculture. And this will get people motivated to get an education, grow grapes, preserve land, and make wine." Heritage's farm, for example, had reached a crossroads as a struggling peach farm. By turning it into a winery, the family was able to preserve over 150 acres of New Jersey farmland.

It's all about tapping into people's interest in local food, and showing them that New Jersey can offer products that are just as good as those found elsewhere. "New Jersey hasn't had the greatest reputation thanks to shows like *Jersey Shore*," says Quarella. "People don't think that great beer, cheese, or wine can come from our state. But these industries are all making great products and proving people wrong. Wine is an industry that's on the rise in New Jersey with unlimited potential."

SEBS and NJAES: Supporting New Jersey's Wine Industry

Here are just a few ways how:

Online tools: At the New Jersey Center for Wine Research and Education's website, njvines.rutgers.edu, interactive tools allow prospective grape growers to determine the suitability of their land or any piece of land in the state. An interactive map makes available all kinds of data from precipitation by month to winter temperatures, number of growing days, first and last frost, and other insights, so growers can make the best decisions for their grapes.

Research: According to the Center's director, Dan Ward, since grape growing is such a new area for New Jersey, there is still so much to learn. Research questions include disease, pest, and weed control issues, as well as how well certain grape varieties grow and perform here, and how to make the best wine from them.

Hands-on education: Extension agent Hemant Gohil leads a program for aspiring and beginning grape growers that covers challenges and solutions, how to establish a vineyard, what materials to use, which clones will work locally, and more. "Wine grapes go into the ground and they're there for 40 years," he says. "There are so many decisions in the early years that will have an impact for a long time to come." Beginners can even go to Grape Camp, where they'll experience an on-farm demonstration and learn top growing practices firsthand.

Site visits: One-on-one site visits include soil testing and site-specific consulting. In one year, Gohil estimates that NJAES services up to 20 vineyards, often visiting two or three times to one farm to check progress.

Winemaking resources: Though much of NJAES' outreach is centered on grape growing, the Annual Wine Workshop is for winemakers. Participants walk away with information about barrels and yeast, fermentation, and aging. Plus, they do tastings with New Jersey winemakers, who are available to share best practices and information.

Hemantkumar Gohil and Daniel Ward at Rutgers Agricultural Research and Extension Center.

Photography by Dan Ward.

WELCOME CLASS OF 2021

This year, the School of Environmental and Biological Sciences welcomes 543 first-year students to Cook campus. Though they hail from different hometowns and backgrounds, and boast different academic and extracurricular interests, what unites them is their enthusiasm for the sciences and their excitement to join the school's family. Here, six of them share a little bit about themselves, why they chose the school, and their expectations for this first year and beyond.

Tugce Guven

Nutritional Sciences
Dietetics

Hometown: Ocean Township, New Jersey

Biggest worry: My major requires a lot of hard science classes, so that does make me nervous as I take more rigorous courses. But this can all be solved by more time spent studying!

Interested in: Currently, I am on the women's club lacrosse team and I do want to join more clubs like the Nutrition Club and the Democratic Club. It's hard to balance all the club meetings with my schedule but clubs are a great way to make new friends.

Post-graduation plans: I'm considering working for a sports team as their nutritionist, or opening my own practice.

Tom Caracappa

Environmental Policy

Hometown: West Caldwell, New Jersey

First-year goal: Get to know some of my teachers. It's always nice to talk to them and get a sense of what they know.

Interested in: The Outdoors Club organizes camping and hiking trips, and things like that. I am a former Boy Scout and always loved spending time outdoors, so it's great to get to know people with similar interests and visit some beautiful places in New Jersey.

Post-graduation plans: They're always changing! Right now, I'm thinking something in risk management would be interesting, considering my major. But I'm always changing my mind.

Luce Daphne

Bioenvironmental
Engineering

Hometown: East Orange, New Jersey

Looking forward to: Mentorships. Rutgers is very big and the world is very big and, as a minority, I don't always get the most opportunities. I'd love to find a mentor so I can learn directly from someone how to achieve my goals.

Interested in: Intramural volleyball. I know I should exercise but, honestly, I can get lazy about it. I like volleyball, and being a part of a team would motivate me to get moving.

First-year goal: Get good grades and settle into my classes.

Post-graduation plans: Field research. Maybe building mechanisms that reduce waste, or at least minimize it.

Manish Namburi

Environmental and Business Economics

Hometown: Allentown, New Jersey

Why our school? I like the small, close-knit community at SEBS, and how all the professors are clearly passionate about what they're teaching. It's a way to make a big school like Rutgers feel small.

Looking forward to: Research. Rutgers has such a huge amount of resources, and to harness those at a more community-centric place like SEBS is pretty special.

Four-year goal: I'm in the Honors Program, so hopefully I can write a senior thesis and publish a paper during my time here.

Post-graduation plans: I'd love to work at Apple or a creative startup, where there's a culture of innovation.

Danielle Slomko

Biochemistry

Hometown: Fords, New Jersey

Why our school? I chose Rutgers because my family has a history here. I chose SEBS because I didn't want to get lost in the crowd—it's smaller, and being in smaller classes gives me the opportunity to meet potential advisors.

Biggest worry: The first exam in all my classes.

Interested in: Joining a yoga club on campus. I like practicing yoga and, since I'm not much of an exercise fanatic, it's a great intermediate step between running on the treadmill and sitting on the couch!

First-year goal: Making Rutgers and SEBS a part of me. I don't want to just go to campus every day—I want to be a part of the community.

Ryan Crombie

Biology

Hometown: East Hanover, New Jersey

First-year goal: Keeping my grades up. I want to maintain A's and B's in all of my classes. I'd also like to get involved in student organizations and try new things.

Biggest worry: Mostly I'm worried about time management: managing the amount of work that I have, and being able to fit all of that in with everything else going on at college. But I'm planning things out day by day, and prioritizing.

Post-graduation plans: Medical school. I plan on going into sports medicine. I was an athlete—I played soccer, volleyball, and, mostly, basketball—and have always been interested in sports. So helping athletes in my career is a natural extension.

Photography by Jeff Heckman.

NEW Faculty FOR A Susta

LANDSCAPE ARCHITECTURE

FOOD SCIENCE

When alumni look back on their c
Almost always, it is a professor—or two or three—who inspired, ch
Today's new faculty at the School of Environmental an

Well focused in their scholarly fields, our school's new faculty members are entrepreneurial in how they approach scholarship and teaching, pushing ideas because of their passion for their work and dedication to succeed. As expressed by executive dean Bob Goodman, the new faculty are "driven to seek out and intersect with colleagues from other disciplines, departments, schools, institutions, and other parts of the globe. This creates an energy that transforms the student experience in the laboratory and the classroom."

They gravitate to and embrace the concept of a sustainable future. To some, sustainability means discovery of science-based knowledge to advance human health or improve conditions on Earth. For others, it is critiquing past practices to find better solutions for the present and future.

Featured in this issue of *Explorations* are four such faculty, all bringing leading-edge thinking into their labs and classrooms.

Anette Freytag

Though perhaps best known for her research on 19th and 20th century urban landscape gardens, Anette Freytag has recently turned her attention to applying contemporary tools to the age-old practice of landscape architecture. "Our general detachment from nature has coined too many of our past actions, and the result has been large suburbanized landscapes on one hand, and continuous natural disasters that originate in global warming on the other," she says. According to Freytag, landscape architects may have a big role to play in where we go from here.

Her approach merges the tradition of shaping and preserving nature with of-the-moment technologies, used to work with the landscape rather than against it. "Landscape architects have the set of skills needed to lead interdisciplinary teams of engineers, urban planners, environmental scientists, and others," she says, since they have broad knowledge of where and how plants grow, as well as how people respond to certain environments. "We need to move away from abstract planning decisions that are detached from what is really going on out there."

Ultimately, Freytag wants to harness the competencies of landscape architects to bring real change to our spaces. "We have made so many wrong decisions with urbanization because we didn't pay attention to nature," she adds. "Being in nature and collecting its fruits is not just for survival, because there's always an aesthetic dimension that we need very much—and should get back to."

Diana Roopchand

Plant phytochemicals are compounds that plants naturally produce to defend themselves against predators and environmental stressors. What if these compounds could also benefit humans?

As a postdoctoral fellow at Rutgers, Diana Roopchand was part of a team of researchers that published a study showing that grape polyphenols can positively affect metabolic health and gut microbiota of mice with metabolic syndrome, the precursor to type 2 diabetes. The team isolated polyphenols from Welch's Concord grape pomace—so that the mice were ingesting just the beneficial compounds without the fruit sugar—and stabilized it on a protein-rich matrix. They found that, while the mice consumed an unhealthy high-fat diet, grape polyphenol supplementation decreased inflammation and improved overall metabolic and gut health. While this initial study took place over 12 weeks, Roopchand has since discovered that you can see positive effects after just two weeks of intervention.

Photography by Brigitte Rumpf Klagenfurt and Jeff Heckman.

inableFuture

NUTRITIONAL SCIENCES

ANIMAL SCIENCES

ollege days, what comes to mind?
hallenged, encouraged, and generally helped students to succeed.
d Biological Sciences fill that role and go well beyond.

Today, Roopchand is developing an independent research program about the possible benefits of dietary polyphenols for maternal obesity and gestational diabetes.

It is her hope that these findings can translate into real-world nutritional applications. "If you can extract the beneficial compounds of fruits and vegetables and then stabilize them on a protein or fiber matrix, you can create healthy, low-sugar food ingredients," she says. "An additional advantage is that polyphenols sorbed to protein are stable for up to a year at 37 degrees Celsius, unlike fresh fruit which has a short shelf life."

Harini Sampath

Though antioxidants do provide protection, it's inevitable that oxidative species will react with cellular membranes, proteins, and fats to cause damage. It's a natural part of life. If left unrepaired, this damage is thought to be at the root of everything from wrinkles to cancer. Harini Sampath's research is focused on the oxidative damage of DNA, and how this damage may relate to the progression of metabolic diseases like fatty liver disease and type 2 diabetes.

At the core of Sampath's research is determining what happens to an organism when DNA is not repaired, and what happens when DNA is damaged in tandem with, for example, a high-fat or high-calorie diet. "Most human studies have looked at DNA damage as it relates to cancer, but we are starting to pay attention to the role it plays in metabolic disease," she explains. "We see now that people who have a decreased ability to repair damaged DNA are also prone to diabetes and obesity. So, there's a link there. "

Currently her focus is on the biochemistry, but the future could hold potential translational applications, including dietary antioxidants that could help boost DNA repair capacity. "The most exciting part of this research is that it bridges two different areas of inquiry," she says. "There are people working on DNA damage, and there are people working on obesity and metabolism. But what I work on is showing that these two areas are connected to each other."

Elizabeth Snyder

According to the Mayo Clinic, up to 15 percent of couples face infertility; and in about half of those cases, male infertility plays a role. On the flip side, men who are looking for an effective contraceptive method comparable to the female birth control pill have no options. Elizabeth Snyder's work aims to address a fundamental question at the root of these two issues: how might germ cell biology yield solutions for male infertility as well as family planning?

Germ cells, cells that eventually give rise to sperm, express more proteins than any other tissue in the body. Snyder looks to discover the types of proteins that germ cells make, as well as how that generation of proteins is regulated. Thanks to support from the National Institutes of Health Pathways to Independence Award, she may be able to discover possible causes of human male infertility and apply her findings to potential contraceptive solutions.

The key, she says, is identifying proteins specific to germ cells alone. "You don't want to target a protein also found in the skin and eyes, for example," she explains. "If we can find proteins that are specific to germ cells, we can target them therapeutically either for contraception or fertility. Eventually, we may be able to develop single molecule inhibitors down the line—but that's years and years away for now."

Photography by Jeff Heckman.

Photography by John O'Boyle.

lesterbrownreadin

groom.rutgers.edu

URBAN MYTHS: DEBUNKED

Many old wives' tales are silly (does anyone actually believe that if you cross your eyes they'll stay like that?). But there are also many urban legends that, on their surface, seem to actually make a great deal of sense—so much so that they become widespread habit. Don Schaffner, distinguished professor and extension specialist in food science, isn't content with that. So he took to the lab, and challenged two commonly held beliefs: the popular "five-second rule" and the idea that hot water is better than cold when it comes to removing germs. Here's what he found.

With cold and flu season upon us, public health professionals begin their familiar refrain: wash your hands to prevent the spread of germs. But don't turn up the heat just yet. A new Rutgers study, published in the June issue of the *Journal of Food Protection*, found that cool water is just as effective as hot for battling harmful bacteria.

During the course of the study, Schaffner and his team assessed how effective three different water temperatures were on removing bacteria from the hands of 21 participants. Over six months of observation, what they found was that 60-, 80-, and 100-degree water were equally effective at removing bacteria.

According to Schaffner, these findings can have far-reaching effects. In the restaurant industry, for example, FDA guidelines dictate that dishes be washed at a temperature of 100 degrees. And many states interpret these guidelines as a hand washing requirement, as well. If you ask Schaffner, this study indicates that there should be a policy change, and the results could be energy-saving. After all, washing at a warm or comfortable temperature saves energy as compared to using hot water exclusively.

"The key implication is to use the temperature that is comfortable for you," Schaffner says. "If you are comfortable, you will probably do the best job washing your hands."

THE 5 second rule

Photography by John O'Boyle.

Have you ever dropped food on the floor—a rogue vegetable during cooking, a bit of popcorn during movie night, or a late-night cookie? If you're like most people, you'll pick it up, inspect it for anything suspicious, maybe dust it off, and eat it anyway. And if you adhere to the popular "five-second rule," dictating that food dropped on the floor and picked up quickly is safe to eat, the parameters for food safety seem clear.

But if you ask Schaffner, there's more to the story. Much more.

Together with Robyn Miranda, a graduate student in his laboratory, Schaffner put the five-second rule to the test. They tested four surfaces: stainless steel, ceramic tile, wood, and carpet. They also tested four different contact times: less than one second, as well as five, 30, and 300 seconds. And they assessed a variety of foods from watermelon to gummy candy. The 128 combinations of food type, time, and surface were each tested 20 times, yielding 2,560 measurements.

Among the foods tested, watermelon had the most contamination. "We think this is because it is very wet," Schaffner explains. "The moisture from the watermelon absorbs the bacteria from the surface, and it is transferred to the watermelon." Ultimately, since bacteria move with moisture, the "wetter" the food was, the higher the risk of bacteria transfer. Longer food contact times also resulted in the transfer of more bacteria.

As far as which surface was the "safest," Schaffner says that carpet had a lower transfer rate than the others. "We think this is because most of the bacteria we added to the carpet sunk down to the lower levels, instead of staying available for transfer like they did with the stainless steel," he says. "On the stainless steel, they have nowhere to 'hide,' so they transfer more readily."

So while this study does indeed demonstrate that the five-second rule holds some water in the sense that the longer contact time results in more bacterial transfer, it also shows that the nature of the food and the surface it falls on are of equal or greater importance.

And now, the question we've all been wondering: would Schaffner himself eat something that fell on the floor? Sometimes, he admits. "Here is what I ask myself: how wet is the food? If it's a food like watermelon I never eat it off the floor," he says. "I also ask, how clean is the floor? If it's somewhere outside my house, I don't eat it. If it's a dry food on a fairly clean surface in my house—and it's something very tasty like a chocolate chip—I might eat it."

DRONES

Three ways Rutgers experts are using drones for real-world research.

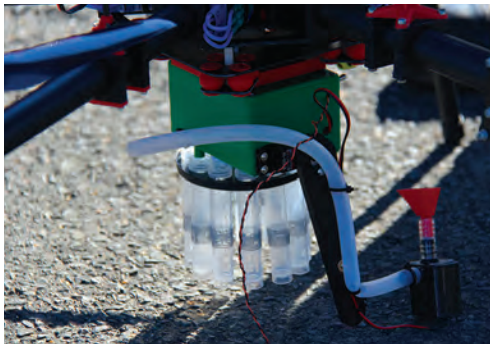
Hexacopter applying mosquito control granules.

Mosquito control: When Greg Williams, Department of Entomology, first started using drones to control mosquito populations, the focus was on larger machines that could spray pesticides over large swaths of land. Today, the approach has evolved to focus on smaller drones. They're cheaper, easier to fly, and can be used for much more than spraying. In fact, most programs are interested in using them to find water in places that would be hard to reach or see otherwise, for example, if there's a large marsh with 12-foot brush. Drones can not only find these mosquito-rich areas, but they can also drop larvicide tablets to treat individual pools pretty easily. Plus, they're helping with research, Williams adds: "We've developed a float for the drones that allows us to land on the surface of the water and, using a camera, see the mosquitoes, and then pump them into a vial for identification."

Crop monitoring: Before he began using drones to monitor New Jersey's cranberry bogs, Peter Oudemans, Department of Plant Biology, used satellite imagery. But its low resolution left much to be desired. Today, drones provide a resolution so clear that Oudemans can literally count cranberries from a bird's eye view. One way he's harnessing this technology is in disease control and, specifically, a disease called fairy ring that grows about 45 centimeters per year in radius. "We can evaluate different ways to treat these rings and prevent them from killing off the cranberry bog," he says. "We can assess progress from one year to the next by taking georeferenced images and comparing them over time."

Rescue missions: It started when Hugh Roarty, Department of Marine and Coastal Sciences, spotted a newspaper article reporting that Long Branch lifeguards wanted to integrate drones into their lifesaving operations. He met with them, and gathered their wish list: drones that could carry a camera to gather information on where a rescue is needed, be able to communicate with someone in distress, and drop a life vest. Currently, Roarty's prototype is able to do all but communicate (finding a speaker that's light enough to fit on a drone but loud enough to overcome the noise of the drone is proving to be a challenge). Still, he thinks the prototype is viable for the market; it's able to perform reconnaissance, drop a life vest, and cut rescue response time by over a minute.

Floating quadcopter transmitting live underwater video of mosquito larvae.



Close up of larval collection unit.

Hexacopter applying liquid larvicide to control Aedes sollicitans.

Photography by Greg Williams.

This is NOT your Parents' Dining Hall

No mystery meat here!

Rutgers Dining Services serves up culinary delights that are healthy, minimally processed, and fully customizable.

What comes to mind when you think of a college dining hall? When Rutgers Dining Services executive director Joe Charette CC'77 looks back on his college dining experience it was something like this: a choice of two or three entrées each night, prepared ahead of time, and loaded into pans on a buffet line. No one knew how long the pan had been out (or sitting in the back), and no one really knew what went into each recipe. Today? To say the story is quite different is an understatement.

Rutgers students have a choice of six entrées each night, but it doesn't end there. "The cooks today are making food to order," explains Charette, based on hundreds and hundreds of ingredients made available to students. That means students can collect the ingredients they like—grilled chicken and other proteins, a variety of fruits and vegetables, legumes, and more—and bring them to the Mongolian grill, sandwich station, sauté station, or pizza oven to be turned into countless entrées that aren't on the menu: wraps, salads, omelets, pizza, pastas, panini, anything they can dream up.

Plus, the ingredients may look a little different from what alumni remember. "In the last few years, student interest has grown immensely as far as where their food comes from, how far it has traveled, who grew it, how those people are treated, how the land and animals are treated, whether there are pesticides or GMOs used, and the nutritional value of the ingredients used," Charette says. The dining team responds with new and innovative

Full menu from Menus of Change.

ingredients like vegan cheese as well as healthy alternatives like whole grain flours and plant-based proteins. "The health of the students is very important," says Rutgers Dining Services chef manager Ian Keith. "They're here to sharpen their minds, and we're here to sharpen their nutritional needs."

Innovative Ingredients

Designing a menu for nearly 70,000 students (not to mention the 32,000-plus faculty and staff that frequent the dining halls) is about more than just serving the masses. It's also about reaching a nutritional benchmark, says Keith.

All of Rutgers' dining halls have moved towards minimally processed real food. That is, foods made with whole ingredients that you'd likely find in your pantry or garden. But diners will also find alternative ingredients like vegan mayonnaise or chickpea flour. They can choose from a variety of milks, from cashew to hazelnut milk. What they won't find is meat at the center of the plate. "We're looking at plant-based proteins over animal proteins," says Keith. "We want meat to be more of a condiment, so to speak, rather than the main component of the meal. We want plants to be the star of the stage."

But how do you get college students to choose nutrient-rich plant-based foods over unhealthy comfort foods? It's simple, says Keith: the trick is introducing these healthier ingredients into foods students already know and love.

Recently, Keith tested a macaroni and cheese made with whole grain pasta, soy milk, pureed celery root, and vegan cheese made with pea protein. It might sound out of the box, but the student feedback was resoundingly positive. Such taste-testing is an invaluable tool, and one that the students are glad to be a part of.

In the spring of 2017, Rutgers embarked on a research project centered around a fast food favorite: the hamburger. Students were presented with four different samples: 100 percent beef, 60 percent beef and 40 percent mushroom, a 50/50 split between beef and mushroom, and a 40 percent beef and 60 percent mushroom option. As it turned out, students preferred the 50/50 burger the best. And, as a result, this new "Sizzling Scarlet" burger is served every Wednesday in the take-out sections of the dining halls as well as at Harvest, an eatery on the Cook campus, focused on whole, minimally processed food prepared with "from scratch" techniques. Alongside the Sizzling Scarlet burger, Keith also offers a vegetarian burger and a creative third option—it might be a turkey and zucchini burger, a cod and potato patty, a salmon burger, a beet and bean burger, a jasmine rice burger, the list goes on.

"Rutgers Dining serves 6.7 million meals a year. Because of our size, changes that we make have a big impact," says Rutgers Dining Services nutritionist Peggy Policastro GSNB'93,'15. "If we can serve blended burgers instead of conventional burgers, that's a lot of beef we're saving. That's a lot of vegetables added to students' diets. And, it's better for the environment because the carbon footprint of beef is significantly larger than that of vegetables."

Made to order omelets at Neilson Dining Hall.

Joe Charette CC'77 and student Shannon Sy SAS'18 at Neilson Dining Hall.

Photography by John O'Boyle.

This type of swap is the cornerstone of Menus of Change, an initiative from The Culinary Institute of America that works to bring optimal nutrition, social responsibility, and environmental stewardship to the foodservice industry, including university dining halls. As a supporter of the pillars put forth by Menus of Change—indeed, this is an outlook that has guided Dining Services for years—Rutgers benefits from menu and recipe guidance as well as best practices that can help to make the menus even healthier for people and the planet.

Test Kitchen

Rutgers has recently joined the Menus of Change University Research Consortium, a select group of 40-plus universities that collaborate on best practices and research. Their goal? Choosing foods and creating menus that marry health, sustainability, and culinary insight. Since Rutgers has been conducting surveys and research in its dining halls for years, this exclusive membership was an excellent fit. Here are just some of the research projects guided by Menus of Change principles and affecting true change in Rutgers dining halls:

Student surveys: Understanding the common misconceptions students have about health and nutrition helps to guide Policastro's education and outreach initiatives. So surveying the students is an invaluable tool. One survey was designed to find out whether students' fruit deficiency stems from the fact that they pass on certain types, like canned or frozen fruits. After surveying student perceptions on fresh, frozen, and canned fruit, Policastro found that students perceive fresh fruits to be better in terms of taste, nutrition, and freshness—though, that's not always the case. Another survey, centered on sugar content, asked students to rank the nutritional values of breakfast cereals. They weren't always on the nose. By going right to the students with these types of questions, Policastro can see where the most education is needed and raise awareness accordingly.

Marketing insights: Findings out of Stanford University showed that how you label a vegetable in the dining hall impacts its popularity among students. As it turns out, calling out nutritional value isn't as motivating as providing a sensory-rich description that calls out texture or taste. Policastro wondered if the same could be said for a universally beloved dessert like chocolate cake.

Three descriptions were employed: a generic, a sensory-rich, and a nutrition description revealing the fat and caloric content. Would the students be interested in a smaller size of cake if the description was sensory-rich? "Yes," says Policastro. "Students were just as willing to pay for a small piece of cake as a large one, if it's marketed with a sensory description." Ultimately, this kind of

Continued on page 24.

Cupanion

RUTGERS' REUSABLE BOTTLE PROGRAM

A Cupanion bottle is a 16-oz. stainless steel bottle that can be used for both hot and cold beverages. The Rutgers University Student Assembly and The Daily Targum collaborated with Rutgers Dining Services on this new, innovative, sustainable way of handling takeout beverages by encouraging students to use reusable bottles, cutting down the waste of cups, lids, and straws.

Any student with a meal plan receives one during their first takeout meal at Brower Commons, Busch Dining Hall, Livingston Dining Commons, and Neilson Dining Hall, one bottle per student.

With each use, students scan the barcode with the ***Cupanion Barcode App*** to received points. Points can be earned to win gift cards to Amazon, Starbucks, and more!

Since January 2017, Rutgers Dining Services has prevented over 450,000 cups, lids, and straws from going to landfills, with the Reusable Bottle Program, *Cupanion.*

Eco-Initiatives

As one of the largest university dining services departments in the nation, sustainability initiatives in Rutgers' dining halls make a big impact. Here are just some of Dining Services' eco-friendly initiatives:

Pulping food waste: All the food waste in all the dining halls is pulped, reducing its overall volume by about 80 percent. Then, a local farmer picks up the pulp six times per week, to feed to his livestock. This saves countless tons of food from arriving in landfills.

Aerobic digesters: At Harvest, all organic waste is fed into an aerobic digester, which liquefies it so it can be run down the drain instead of going to the landfill. In addition to Harvest, aerobic digesters can be found at the Neilson Dining Hall and Henry's Diner, an eatery on the Livingston campus.

Local foods: At Rutgers Dining Services, produce that's in season in New Jersey must come from New Jersey. Local produce uses fewer resources to get to campus, helps the local economy, maintains open space, and provides students with fruits and vegetables at the peak of nutrition. All of the milk and chicken served at Rutgers is local, as is 80 percent of its pork and beef. Greenhouses on the corner of Dudley Road and College Farm Road provide wheatgrass and other greens, while the Student Farm at Rutgers Gardens provides produce for Harvest.

Harvest at the Institute for Food, Nutrition, and Health.

Shivani Srivastava RBS'21 ordering from the Mongolian grill at Harvest.

Harvest's Ruby Beet and Bean Burger with Golden Beet Crunch, Spicy Cress Salad, and Parsnip Baked Fries.

Photography by John O'Boyle.

Fast Track

Young Alumni on the Move!

In this continuing series *Explorations* profiles recent graduates who have launched successful careers and are making an impact on society. If you are—or know of anyone—on the fast track, please email discovery@sebs.rutgers.edu and share the story.

Q&A

Photography by John O'Boyle.

Ariana Tsiattalos

SEBS'12, Ecology and Natural Resources

After receiving her bachelor's degree, Ariana Tsiattalos earned a master of science degree in conservation and biodiversity from the University of Exeter in the UK. She is an environmental specialist and wetland scientist with the New Jersey Department of Environmental Protection, managing environmental assessments of proposed development projects within freshwater wetlands, riparian zones, flood hazard areas, and other environmentally sensitive areas.

***Q:* How have your experiences and personal contacts from your days at Rutgers contributed to your success in your career?**

A: As an early academic, I was in awe of the breadth of expertise and accomplishments of my science professors, which motivated me to begin carving a path under a mentor's guidance. I joined Dr. Rebecca Jordan's research lab to contribute to the study of behavior in Lake Malawi cichlids. Pursuing applied research so early enhanced my ability to think critically and creatively on how to best implement the scientific method.

***Q:* Does a pivotal, "ah-ha" moment come to mind when you look back on your time at Rutgers, as far as getting to where you are now?**

A: It was during a course entitled "Conservation Ecology" taught by Dr. David Ehrenfeld. While learning about various biological and social elements that underpin many major global environmental challenges, I realized for the first time that effective conservation inherently requires an ability to understand the multi-faceted interactions of novel problems to fairly critique proposed solutions. Today, this integrated framework has enhanced my capacity to engage in discussions about complex issues, communicate science in an inclusive, informed, and progressive manner, and assert evidence-based action.

***Q:* What memories of college do you hold dear?**

A: I used to love laying on my blanket by Passion Puddle on the Cook Campus in between classes to catch up on homework or take a nap–it was a wonderful way to feel productive while actively engaging in campus life–and amazing hikes with the Rutgers Outdoors Club. I am most grateful for the intellectual energy and limitless opportunities that were so easily accessible. It always seemed like there was everything and anything happening either nearby or a shuttle bus away.

***Q:* What is your favorite motivational quote?**

A: "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has." - Margaret Mead

***Q:* What is your next step?**

A: My "next step" is always to involve myself in as many platforms as possible to call for evidence-based action on developing practical, non-zero sum solutions to the most pressing environmental issues of our time. I joined the Union of Concerned Scientists (UCS) Science Network to continue discussing climate impacts in New Jersey and advocating for relevant solutions by organizing lobby days with my elected representatives and holding meetings with local community members. It's a true honor to be recently featured on the UCS's Science Network Spotlight website.

***Q:* What gives you the most pride about being a Rutgers graduate?**

A: I am most proud that we are recognized as a top public research university. It is crucial now more than ever that we protect funding for research and continue leading innovation; this direction is imperative in the development and cultivation of the future leaders of our world.

André Hudson, Ph.D.

GSNB'06, Plant Biology

An associate professor with Rochester Institute of Technology, André Hudson earned his Ph.D. under the supervision of Thomas Leustek, professor in the Department of Plant Biology and associate dean of academic administration. Hudson, who joined RIT in 2008, is head of the Thomas H. Gosnell School of Life Sciences, running his own research lab and teaching courses in cellular and molecular biology, plant biochemistry and pathology, and bio-separations.

***Q:* How have your experiences and personal contacts from your days at Rutgers contributed to your success in your career?**

A: My time was very rewarding and had an impact on my career because at Rutgers I learned how to be a scientist and teacher through interactions with faculty and my fellow cohorts. And I learned from Dr. Leustek to persevere, and that working hard will eventually pay off.

***Q:* Does a pivotal, "ah-ha" moment come to mind when you look back on your time at Rutgers, as far as getting to where you are now?**

A: Meeting and interacting with Dr. Charles Gilvarg, a retired professor at Princeton University. Dr. Gilvarg and Dr. Leustek were very instrumental in shaping my philosophy as a teacher/scholar. In addition, the day I discovered the missing link for the lysine biosynthesis pathway in plants was a very special day for Dr. Gilvarg, Dr. Leustek, and myself.

***Q:* What memories of college do you hold dear?**

A: The experience that stands out to me the most was our annual plant biology/pathology social event called "RootStock." It was fun interacting with the entire plant biology and pathology faculty, staff, and student body, in addition to families.

***Q:* What is your favorite motivational quote?**

A: "I do not want education, I want inspiration. If I was educated, I would have been a fool." - Bob Marley

***Q:* What is your next step?**

A: I am interested in becoming a dean and then president of a college or university.

Kelly Ann Cicalese

SEBS'11, Meteorology

Kelly Ann Cicalese is a member of Storm Team 5, the weather broadcasters of the ABC television affiliate WCVB in Boston. Starting her career in Cheyenne, Wyoming, she came to Boston via the Huntington-Charleston, West Virginia, market. Now working in a major US market, she has her own presence on the WCVB website with an online photo "bio" that's worth checking out.

***Q:* How did your experiences and personal contacts from your days at Rutgers contribute to your success in your career?**

A: The professors were always very honest with me after learning of my interest in broadcast meteorology. I was told it was an extremely competitive and challenging career. This sense of reality helped prepare me for the immense challenge of breaking into the field. Also, my college internship with a TV station was very insightful. Not only did I learn about the daily tasks and challenges that people in my field face, I also gained a few helpful contacts that have served as mentors during my journey.

***Q:* What challenges did you face when you graduated?**

A: At the time, the economy hadn't fully recovered from the recession of 2008. So finding work was difficult initially, especially in a field that's already competitive. But after a few months of searching, I quickly realized that I needed to expand my search radius and accept the likelihood of moving far from my home [in New Jersey] in order to get that "foot in the door." Moving across the country alone was frightening, but it was the best decision I ever made for my career.

***Q:* What memories of college do you hold dear?**

A: I would often take leisurely walks around Passion Puddle and the rest of the Cook/Douglass campus. I always loved the charm of the campus—so much so that I later got married there at Voorhees Chapel!

***Q:* What is your next step?**

A: I'm happy where I am right now, working as a broadcast meteorologist in Boston. However, changes are inevitable in this business.

***Q:* What gives you the most pride about being a Rutgers graduate?**

A: It's the reputation of Rutgers that gives me the most pride. I'm never shy to tell people that I graduated from there, and it's almost always followed by a response of "that's a great school." With Rutgers being a large university in the Northeast, it's common for me to run into other Rutgers grads and it's nice to have that common ground with people.

Photography by Grant Taylor Photography, Inc. and courtesy of WCVB, News Channel 5 Boston.

Agribusiness Training for the Next Generation

Photography by John O'Boyle.

This spring, The Clearing Corporation Charitable Foundation endowed $1 million to develop a new agribusiness scholars program at Rutgers School of Environmental and Biological Sciences. In addition, the Foundation recently announced a challenge grant matching all donations up to an additional $250,000.

Named the Clearing Corporation Charitable Foundation Agribusiness Scholars Program, it will equip high achieving students with the knowledge, leadership qualities, analytical skills, and experiences required for successful careers in the domestic and global agribusiness sector. Here, we chat with Ira Polk RC'71, RBS'73, a director at the Clearing Corporation Charitable Foundation, about this groundbreaking gift.

Q: *What attracted the foundation to SEBS?*

A: We are a Rutgers family! I went to Rutgers Undergraduate and Graduate School of Business, my wife went to Douglass, and my daughter attended Cook. I grew up in Hudson County, and like many students at Rutgers, I did not grow up wealthy and had to work many different jobs to pay for my college education. I began my career as a CPA and ultimately developed expertise in financial services, focusing on futures and the commodities markets.

Many of my fellow Foundation Board members have similar financial industry backgrounds. Although we have traditionally funded many esoteric research projects, recently we refocused our funding on student training and scholarship programs. We collectively believe that students who want to succeed need access to real world experiences and mentors who can bridge the gap between classroom learning and skill sets that are required on the job.

Because of my past ties to Rutgers and my current dealings with Rutgers Cooperative Extension, I approached Stephen Komar and Brian Schilling of Rutgers and asked, "What can we do?" "How do we get the next generation of students involved and trained?" From those simple questions, the Agribusiness Scholars Program was born. The Foundation Board unanimously endorsed the concept and made not only the core funding available, but also issued the $250,000 matching program challenge.

Q: *What need were you trying to fill?*

A: We are not only simply trying to bridge the gap between what students learn in the classroom and what employers require of today's students, but rather, demanding and challenging these students to think and perform at top management levels. They will be introduced to all aspects of global business. In addition, students will be introduced to problem solving and the decision making process that is required of today's executives.

Q: *What is your goal for this program?*

A: The goal is to broaden students' horizons. It's not just growing and producing things; there's a whole world beyond that. They will learn that agribusiness on a global basis is more exciting and challenging than they ever imagined. We want to train these students to be contributing to their employers from the outset. We want them to succeed and be the Next Generation of Agribusiness Leaders!

For further information, please contact Brian Schilling, agricultural, food and resource economics associate professor, at 848-932-9127; Stephen Komar, agriculture and resource county agent, at 973-948-3040; or Melissa McKillip, associate dean for philanthropy and strategic partnerships, at 848-932-4214.

Creating a legacy *now* that lives on *forever*

When most people think of philanthropic giving, they picture writing a check or charging their credit card to support a particular cause. At Rutgers, there are so many more opportunities to consider.

Scholarships and financial assistance

Study abroad

Research

Through a planned gift, you can have a meaningful, long-term impact on Rutgers' goals and interests while taking steps to benefit your own financial situation. Because of advantageous tax laws that provide powerful incentives to support charities, it is possible to reduce or eliminate federal and state taxes owed on the value of a gift. You can also make a gift to the university that pays you income for life—with a rate of return that's guaranteed, regardless of market fluctuations. And you can even donate real estate, mutual funds, life insurance, and other non-cash assets, so you don't need large cash reserves to make a big difference for Rutgers.

Giving by bequest costs nothing now, yet it may give you a great deal of satisfaction to know that your future gift will live on. You can create your own legacy by leaving a specific asset, a specific amount, or a percentage of the remainder of your estate, after taking care of any family obligations. The lasting impact of bequests—both large and small—has played a very large role in helping to shape the school today since these gifts generate funding year after year, providing the school with a stable source of capital for generations to come.

Why make a planned gift to the School of Environmental and Biological Sciences?

Does the school really need contributions? The answer is yes, because at SEBS, you know every dollar will support students and programs of excellence—programs that are innovative and groundbreaking.

When you make a planned gift, you leave a legacy that will ensure the institution's scholarships, educational programming, and community partnerships continue to flourish.

It's easy to put off estate planning, thinking that it can wait until the kids are out of college or until retirement. However, it's never too soon for you to consider where you want your hard-earned resources to go—and to reflect on the legacy you wish to leave for your community and world.

You can be a catalyst for change. With your support, anything is possible. Your generosity has an impact far beyond your lifetime. Your gift supports generations of students whose lives will be forever changed by their SEBS experience.

To discover the planned gift that best meets your goals, contact Melissa McKillip, associate dean of philanthropy and strategic partnerships, at melissa.mckillip@rutgers.edu.

Photography by John O'Boyle and courtesy of Kai Marshall-Otto.

To make a gift, visit: makeagift.rutgers.edu

The Rutgers University Alumni Association welcomes news about your professional accomplishments and personal milestones. Submit your information at ralumni.com/mynews on the web, send it to your class correspondent listed in the Class Notes section of Rutgers Magazine, or drop a note via postal mail (Rutgers Alumni Communications, Rutgers, The State University of New Jersey, 7 College Avenue, New Brunswick, NJ 08901-1280). Ag, CAES, Cook, and SEBS news will be posted and indexed at discovery.rutgers.edu.

Fred Braun AG'52, GSE'57 enjoys "golfing, bowling, fishing, and doing what I want with wife Audrey's OK" in retirement in Annandale, NJ. His advice for the Class of 2017: "eat healthy, exercise, and think positively." This report came from class correspondent **Bob Comstock RC'57** (robcomstock@yahoo.com).

Bob Koch AG'53 attended his granddaughter's graduation as she earned her doctorate from Rutgers May 2016. This is the third generation of his family graduating from Rutgers. Bob is looking forward to his 65th reunion next year, according to Bob's note to RUAA.

Class of 1953 correspondent **Jim Van Vliet ENG'53** (jcvsquare@verizon.net) added this to his recent report: "I forgot to mention in my winter column that I had a nice visit with **Fred Quick AG'53, GSNB'63; Carlton "Hap" O'Neill ENG'53; and Jack Salmon ED'53, GSE'65** at their annual Theta Chi reunion. Jack mentioned that he would be honored in October for his 60 years as a member of the Episcopal Church clergy."

Gordon Macdonald AG'55, GSNB'58, '61 asked for a plug for the Class of 1955 scholarship fund, stating that if each living classmate gave a tax-deductible gift of $100, the fund would be much better able to help deserving students. We have helped some remarkable scholarship winners graduate, a credit to all who have supported the class fund since its inception. This report was sent by **Robert McBride RC'55** (mojomom@surewest.net).

Robert went on to report that **Bruce Pyle AG'55, GSNB'64** and **Dick Gross AG'55, GSN'59** "worked together many years for the New Jersey Division of Fish and Wildlife. Dick also worked in similar positions for the states of Oregon and North Carolina and the U.S. Department of the Interior, where he was involved in water and land conservation. Dick died last year, but Bruce is doing well."

Robert further noted: "Hats off to **Lester Brown AG'55** for his wonderful contribution toward the Lester Brown Reading Room on the George H. Cook campus, already publicized nationally by Rutgers." (see Pages 11-12)

Rick Stier AG'74 and Class of 1974 correspondent (rickstier4@aol.com) reports that he was in Reno, NV, in January to teach a workshop for Nevada Industry Excellence. "To get there, I drove back and forth over the Sierra Nevada Mountains on I-80. All I can say is it is a skier's paradise up there; over 15 feet of snow on the summit. They figure that they will be skiing until July."

Gene McAvoy CC'74, GSNB'81 has been elected vice president of the National Association of County Agricultural Agents, a professional organization of extension educators and others who work in agriculture, 4-H youth development, community development, and related disciplines. He is the director of the Hendry County, Florida, Extension Office and has served with the University of Florida/Institute of Food and Agricultural Sciences Extension Service for the past 20 years as the regional agent for the commercial vegetable industry in southwest Florida.

Neal Jacobs CC'80, CLAW'84 received the Martindale-Hubbell AV Pre-eminent Rating for 2017. This is a peer review service of the Martindale-Hubbell publishing company.

David J. Blythe CC'81 is director of the School of Business and Management at Norwich University in Norwich, VT, where he also is an associate professor of management and teaches undergraduate courses in business, construction, and environmental law.

Susan McKeever CC'92 is project manager of the environmental group at Barton & Loguidice.

Jennifer Robertson CC'97 participated in Miami University's Earth Expeditions global field course in Mongolia, where she studied the ecology of steppe ecosystems with a focus on the Pallas's cat, Przewalski's horse, and participatory conservation media. Jennifer is a zookeeper at the Philadelphia Zoo.

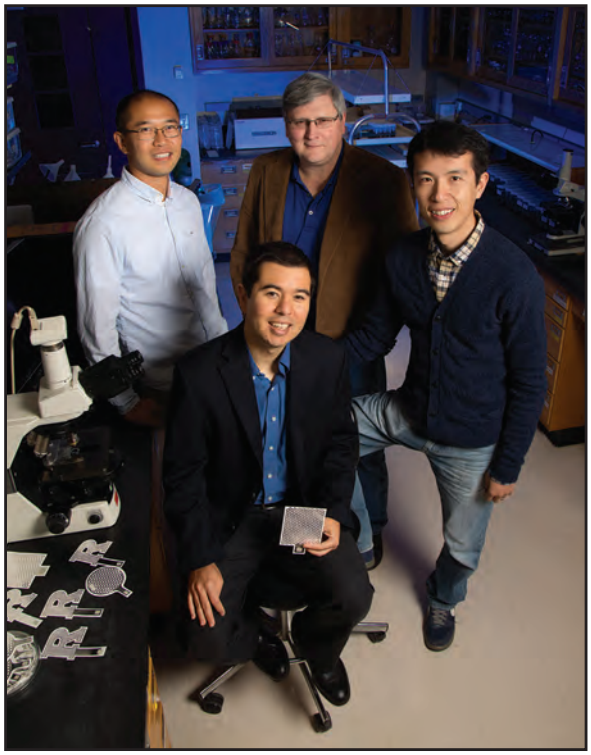
WE WANT TO HEAR FROM YOU.

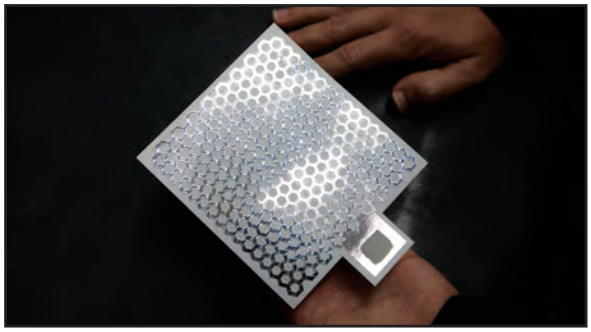
Send us your story!

School of Environmental and Biological Sciences
Alumni News
Rutgers, The State University of NJ
57 US Highway 1, Room 157
New Brunswick, NJ 08901-8554
or email Diana Orban Brown at
dorban@sebs.rutgers.edu

SANITIZERS 2.0: PAPER-THIN AND POWERFUL

What if something as simple as paper could help prevent the spread of bacteria and disease?





That was the question on the minds of Rutgers researchers who recently invented an inexpensive and effective way to kill bacteria and sanitize surfaces using metalized paper.

The material itself consists of paper coated with thin layers of aluminum—you may have seen it on beverage labels or in magazine ads. By applying high voltage to stacked sheets of this paper, the researchers were able to generate microbe-killing plasma, or a combination of heat, ultraviolet radiation, and ozone.

If you ask Jim White, professor of plant pathology and one of the researchers on this project, the ozone may be the dominant player. "Ozone is a reactive oxygen, and this is one of human and plant cells' main innate defensive systems," he explains. "When bacteria invade our cells or plant cells, these cells generate what's called superoxide, which is reactive oxygen that oxidizes the microbes."

As it turns out, all White and his team needed to do was place bacterial samples on or near the "zapped" paper, and the microbes were sanitized and killed. In experiments, the paper killed more than 99 percent of Saccharomyces cerevisiae cells (a yeast species) and more than 99.9 percent of E.coli bacteria cells. "The idea is that these outcomes can be translatable to other types of microbes," White adds.

Aaron Mazzeo, assistant professor of mechanical and aerospace engineering and part of the research team, is optimistic that this technology could be adaptable to larger and more flexible surfaces. Who knows—the future could hold paper protective equipment for first responders, or smart bandages that kill bacteria. And, according to Mazzeo, it was all possible thanks to the collaborative environment at Rutgers. "I'm not an expert in Mazzeo's area, and he's not an expert in my area," agrees White. "But we got together, and we were able to do something that neither of us could do independently."

Rich Chen, Jim White, Jingjin Xie, and Aaron Mazzeo with a sample of the 'zapped paper.'

This is Not Your Parents' Dining Hall: *continued from page 17.*

research can help Dining Services encourage better food choices, just by changing the ways they market a menu item.

The Power of Suggestion: Remember when fast food restaurants asked customers if they would like to super-size their order? Policastro wanted to know if the reverse was also true: would students lighten up their order if prompted? So she took to the Dunkin' Donuts on Livingston Campus. Anytime someone ordered a latte, the person taking their order would ask if they would like to order a light version instead. When she examined the numbers, sales of light offerings drastically increased over the course of the study—and beyond. Considering that the light latte has 200 fewer calories than the regular, this represents a significant reduction in calories over time.

In the end, the new foods in the dining hall and the way the team approaches nutrition are all part of a nationwide shift that Charette doesn't see changing anytime soon. "I've been at Rutgers for 28 years, and I've seen a lot of trends come and go," he says. "Today, America is finally changing the way it's going to be eating, and that's reflected in our students' preferences—and in what we serve them."

Photography by John O'Boyle.

RUTGERS
School of Environmental
and Biological Sciences

Rutgers, The State University of New Jersey
Office of Alumni and Community Engagement
57 US Highway 1
New Brunswick, NJ 08901-8554

ADDRESS SERVICE REQUESTED[2]

NON PROFIT ORG
US POSTAGE
PAID
NEW BRUNSWICK, NJ
08901
PERMIT # 157

FSC
Mixed Sources
Product group from well-managed forests and other controlled sources
www.fsc.org Cert no. SW-xxx-xxxxx
© 1996 Forest Stewardship Council