In this issue:

Message from the Department Head
PAGE 2

FST Integrates Sustainability into Program
PAGE 3-5

Research Spotlight - Zhao Lab - Food Processing and Sustainability
PAGE 6-7

News from Food Innovation Center
PAGE 8

News from Seafood Research and Education Center
PAGE 9

New Faces in FST
PAGE 10

FST Faculty in the News
PAGE 11-12

Congratulations FST Masters Graduates
PAGE 13

Alumni Spotlight - Bigger™ Bites Foods
PAGE 14

Alumni Spotlight - Charlie Cook
PAGE 15

2019 CAS Distinguished Legacy Award Recipient- Dr. Grant Schoenhard
PAGE 16

Happy Holidays from Beaver Classic™ Cheese
PAGE 17

Help Transform FST!
PAGE 18

Fun with Food and Spirits
BACK COVER
Dear Alumni, Stakeholders, and Friends

Covid-19, forest fires, and climate change – so much is happening around us in 2020. Surely, I’m not the only one feeling that the world is off-balance. Each of us is called upon to make a difference, both professionally and personally.

The team in Wiegand Hall has embraced the call for action and we are integrating the science and practices of sustainable food systems into our Department DNA with a special focus on sustainable food manufacturing.

In this newsletter, we present to you what this means for our education, research, and outreach programs.

We did our homework at the beginning of this transition and surveyed employers, students, alumni, and faculty. The support transcends all stakeholder groups. In fact, our stakeholders are asking that we move forward with these changes as quickly as possible.

We are still the same Food Science program. We focus on fermentation, food safety and quality, innovation, flavor & sensory sciences, dairy, and food and health. But we are also changing.

The focus on controlling inputs, optimizing manufacturing, and minimizing waste already permeates everything we do. We are RETHINKING HOW FOOD IS MADE.

We are planners, so we have a strategic plan. Nevertheless, it is critical that we listen to stakeholders’ advice and guidance along the way.

How do we get this right?

How do we best support the food and beverage industries in Oregon and beyond?

How do we set our students up for success and assure that they have attractive options upon graduation?

We need to get this right, for the sake of our students, industry, faculty, and the planet.

We also need your support. This is an ambitious initiative during challenging times. Your investment in our program will help us deliver powerful impact.

Please read this newsletter and reach out to us. A good place to start is through an e-mail to me: lisbeth.goddik@oregonstate.edu.

We will listen!

Dr. Lisbeth Goddik, Department Head
Paul & Sandy Arbuthnot Professor
and Jacobs-Root Professor
From post-harvest to post-consumption, our food manufacturing systems are complex. It follows that the challenges and opportunities to change these systems to be sustainable are also complex.

OSU Food Science & Technology believes it has the responsibility and the opportunity to be a leader in evolving our food systems to better incorporate sustainable practices, technologies and information, and to catalyze impactful connections across stakeholders.

Sustainability in Teaching

Over the past years, our student cohort has consistently suggested a shift of FST undergraduate curriculum towards sustainability. Such a shift is also recommended by our alumni as well as the FST Advisory Board.

Led by Dr. Glen Li, a team of FST faculty surveyed subject area experts and identified 10 pertinent sustainability learning outcomes that our students should gain from our new curriculum.

These learning outcomes include:

- Describe environmental impacts for a given food processing system (pre-production and post-production) in terms of carbon footprint, water footprint, water/soil health, animal/plant health, food loss/waste, biodiversity, and environmental toxicity.

- Apply chemistry and engineering principles in identifying sustainable practices in food processing.

- Evaluate, using data and evidence, the environmental, social, and economic impact of regulations and certification programs related to food production systems.

Based on these learning outcomes, we identified corresponding curricular changes that include adding existing OSU courses offered through the Sustainability Double Degree, and our own new courses.

Most notably, Dr. Yanyun Zhao is creating a new course, titled “Introduction to Sustainable Food Processing”, which will be offered via Ecampus Spring 2021.

We have also added a course titled “Food and Climate Change” that will be offered for the first time this winter quarter.

We are confident that the new curriculum will prepare our students to step up and help the food and beverage industry introduce changes and drive implementation of diverse sustainability initiatives.

To fulfill this role, we are integrating Sustainability into all parts of our mission – Teaching, Research and Outreach.

This strategic shift has been endorsed by OSU’s College of Agricultural Sciences’ leadership, our FST Advisory Board, and our faculty and students.

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New FST Ecampus Course - FST 455x and FST 555x - Food and Climate Change, offered Winter 2021.

See entire list of FST Ecampus courses.
Sustainability in Research

A Sustainable Food Manufacturing Consortium is being established to address technical challenges facing the food and beverage industry pursuing sustainable manufacturing.

From post-harvest to post-consumption, the scope will span processes, energy, raw materials, products, food safety or create new learning models. All of which aim to reduce waste, improve health, enhance access, and address financial viability.

The resulting research will be pre-competitive, meaning that all consortium members will influence priorities, have early and equal access to the outcomes and be connected to non-consortium Sustainability efforts across all three FST sites: Wiegand Hall, Food Innovation Center, and Seafood Research and Education Center.

Research priorities will be established by intersecting priorities most relevant to industry with the diverse capabilities and research interests that span Food Science and Technology.

Food Science and Technology is singularly qualified to lead these research efforts due to its capabilities that span multiple food, beverage and health related disciplines from strengths in:

- Every food commodity
- By-product utilization
- Consumer science
- Alternative packaging materials
- The human microbiome
- Food safety of fresh and novel foods, and more

Funding will come not only through consortium membership but, importantly, through grants, particularly large federal grants, that will increase the impact of membership investment.

Current efforts are focused on conducting industry ‘needs assessments’, developing FST’s recommended research focus areas and organizing for competitive positioning for grant proposals and philanthropic gifts.

For decades, FST research has increasingly focused on sustainable food manufacturing.

Today, all faculty lead projects that aim to produce food and beverages in a more efficient manner with less waste. Examples of such projects include:

- Use of sub-micro fish bone as bioavailable calcium supplements
- Control of enzymatic browning to minimize food waste
- Conversion of watermelon rind into value added dietary fiber
- Reuse of spent hop materials from dry-hopping
- Fermentation and distillation of whey into distilled spirits
- Control of smoke off-flavors in agricultural commodities
- Consumer acceptance on using food processing byproducts as functional food ingredients and perception of Clean Label

This newsletter features a summary of projects in Dr. Zhao’s research program and demonstrates how FST food scientists can make a real difference as we RETHINK HOW FOOD IS MADE.
Sustainability in Outreach

Being actively connected with local, regional and global stakeholders is essential to drive the right change and to do so in concert across the diverse food and beverage and sustainability ecosystem.

FST will do this in two ways – first, acting as a hub and convener bringing information, opinions and capabilities together to identify areas of collaboration as well as to catalyze conversations through fact- and science-based communication. This will serve to enable stakeholder learning and influence decision making and engagement.

A key example of the hub and convener role is the first Annual FST Sustainable Food Manufacturing Forum planned for September 2021.

Conference objectives, design and attendees will be influenced by stakeholder input including that of FST Advisory Board members Sam Tannahill (Founder A to Z Wineworks), David Gremmels (President, Rogue Creamery), Sarah Beaubien (Director US Operations, Quantis Int’l) and Rebecca Field (consultant), who also serve as FST’s Sustainability Committee.

The intentions of the Forum are threefold:

1. Further connect stakeholder groups to expand and strengthen relationships in this ecosystem,
2. Create a common knowledge base that extends and deepens our understanding, and
3. Identify priorities and potential collaborators to define and drive the resulting outcomes.

The intention is to host the Forum in person on campus in Corvallis.

The second area of focus is on fact-and science-based communication. One example is the OSU FST Farm 2 Fork Fridays, a webinar series focused on bringing stories of the people, technologies and collaborations that are enabling positive change to make our food systems more sustainable.

COVID created a unique opportunity to foster conversations about how our food is made, how it gets to our tables and the ways in which that is changing.

People around the globe all experienced disruptions in their food supplies, fear of scarcity or the need to find new means of getting what they needed.

These circumstances created the opportunity to bring relevant stories to a broad and attentive audience.

The F2F series features stories from across FST, elsewhere in OSU and outside our walls. And though it’s based in science, it’s important to note that people don’t have to be a scientist to understand the stories that are shared.

Lastly, the F2F series comes from a place of service to the community we intend to engage. It’s not about us, but about what people are interested in learning more about.

FST Farm 2 Fork webinars began in September with topics ranging from how science is influencing a more sustainable dairy industry, hop terroir in Oregon’s Willamette Valley and the journey of a food ingredient to the table.

The 2021 calendar is in development and we encourage you to visit the Farm 2 Fork Webinar Series site and register for your favorites!

For more information about the Sustainable Food Manufacturing Consortium, Annual FST Sustainable Food Manufacturing Forum, or the Farm 2 Fork series please contact:

Sheri Cole, Assistant Professor of Practice
Department of Food Science and Technology
email: sheri.cole@oregonstate.edu
Dr. Yanyun Zhao has been an internationally recognized researcher in Food Technology for many years, specializing in food processing and sustainability areas.

Her work is focused on four different areas. We’ve included some highlights from her “Sustainable Food Processing and Packaging Lab”.

Area 1: Reducing food loss during production, postharvest storage and processing using a novel edible coating technique.

Dr. Zhao’s lab is continuously studying novel edible coatings for 1) decreasing postharvest senescence and prolonging storability of a wide range of fruit crops, 2) delaying quality deterioration and extending shelf-life of tree nuts, and 3) retaining anthocyanins, quality and nutritional value of thermally and non-thermally processed blueberries and cherries in aqueous media.

Dr. Zhao just received a USDA NIFA Foundation grant for “Investigation of principles and technologies to stabilize fruit anthocyanin pigments for retaining integrity, nutritional and sensory qualities of processed whole fruit”.

Right, Postdoctoral Scholar, Dr. Sam Wang is developing active coatings and active packaging for delaying lipid oxidation and extending shelf-life of tree nuts.
Area 2: Develop environmental-friendly (sustainable) food packaging to reduce impact to the environment.

Dr. Zhao’s lab is emphasizing on scale-up the technology of developing compostable packaging containers using fiber-rich food processing byproduct (fruit pomace). Dr. Zhao recently received an ODA Specialty Crop Block grant for building up a pilot-scale mold-pulp machine and using the patent pending technology to manufacture various packaging containers and evaluate their performance and applications.

Dr. Zhao’s lab is also continuing development of edible packaging with targeted applications, such as edible, active oil pouches and edible muffin liners for not only reducing single use packaging, but also extending product shelf-life and providing convenience to consumers.

Area 3: Valorize food-processing byproducts for novel food and packaging applications.

Dr. Zhao’s lab is continuously studying value-added utilization of fiber-rich food processing byproducts (pomace, Brewer’s spent grains, hemp fibers, etc.) as functional food ingredients in a wide range of food products, extract cellulose for novel packaging applications, and as bulk materials to produce biodegradable and compostable packaging.

Area 4: Investigate emerging green food processing technology for saving energy and reduce greenhouse gas emission.

Zhao’s lab recently obtained financial support from the Oregon Hazelnut Commission to purchase a pilot scale radio frequency heating equipment for continuing the research and development of using this novel technology for drying and potentially pasteurizing hazelnuts.

This technology is environmental-friendly and has high-energy efficiency. This equipment also provides huge potential for processing other food commodities and will be used for teaching food processing courses and student lab activities.

Above, three of Dr. Zhao’s Graduate Research Assistants at the laboratory bench (left to right): Clara Lang, prepares compostable packaging materials using fruit pomace; Rachel Rosenbloom, produces edible, antioxidant, and heat sealable films as edible oil pouch; Yi-Ting Shih, develops edible films as water resistance and edible muffin liners.

Above, Postdoctoral Scholar, Dr. Taoran Wang, produces high quality celluloses from fruit pomace and makes into biodegradable films.

Right, Postdoctoral Scholar, Dr. Chandrashekhar R. Sonar, works on sustainable radio frequency heating technique for processing Oregon hazelnuts.
Congratulations to MS student Rebecca Bland for placing first in the 2020 International Association for Food Protection (IAFP) J. Mac Geopfert Developing Scientist poster competition.

The title of her poster is: “Emerging and Multidrug Resistance of Listeria spp. Recovered from Produce Handling and Processing Environments”.

Kudos also to the Western Regional Center to Enhance Food Safety (WRCEFS) for receiving the 2020 OSUEA Search for Excellence Award. This award recognizes outstanding accomplishments in Extension Education. Dr. Kovacevic presently serves as a project director for the WRCEFS.

Dr. Kovacevic received $300,000 to lead a project that will help produce industry better implement cleaning and sanitizing programs to mitigate microbial risks and achieve compliance with the Produce Safety Rule.

Drs. Joy Waite-Cusic and Dave Stone are collaborators on this project titled “Cleaning and Sanitizing Surfaces on Produce Farms: Optimizing What, How, and When”.

On the extension side, in September 2020, Dr. Kovacevic wrapped up research that investigated sources and control of Listeria in the Pacific Northwest (PNW) produce.

The overall objective of this study was to investigate the prevalence and diversity of Listeria spp. in produce handling and processing facilities in the Pacific Northwest states of Oregon and Washington.

Together with Drs. Waite-Cusic and Stone, Dr. Kovacevic’s food safety team delivered four workshops on Pathogen Environmental Monitoring Programs, with 79 people trained. Pre- and post-test data indicated overall 15% knowledge increase for 72 participants, immediately following the training.

When the COVID-19 pandemic and wildfire disasters occurred, food safety resources specific for these events were needed.

The Western Regional Center to Enhance Food Safety (WRCEFS) team, led by Dr. Kovacevic, created two webpages: https://agsci.oregonstate.edu/wrcefs/covid-19-resources, and https://agsci.oregonstate.edu/wrcefs/article/food-safety-and-wildfires to address these topics.

The work of Stephanie Brown, WRCEFS Coordinator and Food Safety Specialist at the Food Innovation Center, was instrumental in getting these projects off the ground.

To learn more about WRCEFS, one of four U.S. regional centers that supports food safety-related training efforts in 15 states/territories in the Western U.S., please visit: https://agsci.oregonstate.edu/wrcefs.
OSU Seafood Research and Education Center Hosts Pacific NW Coast Environmental Regulatory Updates Webinar for Industry, Agencies

While the pandemic has changed many of the ways that we all do business, FST faculty in the OSU Seafood Research and Education Center (SREC) continue to provide critical information, resources and venues for interaction to our industry and agency partners.

In 2018, FST faculty in SREC, Dr. Christina DeWitt and Dr. Jung Kwon, worked with Aqua-Terra Consultants and the Oregon Department of Environmental Quality to develop a conference aimed at helping Oregon’s seafood processors improve their processes by exploring best practices for minimizing product loss to water used during processing.

This conference also provided a forum that facilitated seafood processors, service provider, and agency communication.

The success of the 2018 conference led to the suggestion by stakeholders that this effort be continued in 2019 and 2020.

Of course, 2020 led to some logistical challenges in holding an in-person conference.

Working with the conference advisory committee,
New Faces in FST

Dr. Jovana Kovacevic joined Food Science & Technology at OSU in September 2016, as an Assistant Professor and Food Safety Extension Specialist. She is located at the Food Innovation Center (FIC), in Portland.

Jovana earned her Ph.D. in Food Science with a specialization in Food Microbiology from the University of British Columbia (2014).

Prior to joining OSU, Jovana worked as a lecturer at the University of British Columbia (Canada), a Food Safety Consultant with the B.C. Ministry of Health, and a Food Safety Scientist at the British Columbia Centre for Disease Control.

At the FIC, Jovana directs the Food Safety Program, focusing on Listeria research, and Food Safety Modernization Act (FSMA)-related food safety training, education and outreach activities.

Jovana's research uses molecular methods and whole genome sequencing to trace, better understand and prevent contamination events in the food chain, with particular focus on Listeria monocytogenes.

Her other interests include sanitizer and antimicrobial resistance in the food chain, pathogen stress survival and biofilms, and understanding and prevention of food contamination.

Jovana is actively involved in extension efforts, leading OSU’s Farm Food Safety Team, conducting Listeria and FSMA-related trainings across the Pacific Northwest, and directing the USDA-funded Western Regional Center to Enhance Food Safety.

Right, Jovana Kovacevic, OSU microbiologist and food safety specialist, working in her laboratory at the OSU Food Innovation Center in Portland, Oregon.
The Specialty Coffee Association is doubling down on coffee research. On Thursday, November 12, the SCA announced not one but two years-long research projects they will be funding as part of their Coffee Science Foundation, both of which tackle notions of flavor but from very different perspectives.

For the first project, the Coffee Science Foundation, in conjunction with the Simonelli Group, awarded a grant to a research group comprised of professors from the University of Oregon, Oregon State University, and the University of Portsmouth in the United Kingdom. Led by Dr. Christopher Hendon, the team will undertake a four-year long deep dive into espresso extraction. For their work, Hendon along with professors Elizabeth Tomasino, Jung Kwon, Michael C. Qian, and Jamie Foster aim to identify key chemical compounds in espresso as well as analytic methods to detect them and how these markers correlate to the overall cup quality.

From there, the research group hopes to better optimize extraction parameters and develop a "dynamic coffee brew control chart."

Per the press release, “the team will develop a suite of new tools that promise to transform the way espresso is measured, including the creation of a device that will allow for the rapid assessment of coffee chemistry and flavor."

For the second project, the Coffee Science Foundation along with Savor Brands will be looking into how packaging affects the flavor perception in coffee. Led by a multi-disciplined group of PhD coffee researchers, the two-year study will explore further the multisensory nature of coffee. Per Peter Giuliano, SCA Chief Research Officer and Executive Director the Coffee Science Foundation:

*Multisensory perception is one of the most exciting fields of consumer research, and at a time when more people are consuming coffee at home, it's essential that we understand the ways packaging influences how people experience specialty coffee.*

For the project, researchers will conduct a “thorough exploration of how different packaging variables, including package shape, size, color, texture, sound, and imagery affect the sensory perception and consumer acceptance of specialty coffees, potentially across multiple geographies” while also taking an “in-depth look at consumer preference and value, including sensory attributes, preferences, price tolerance, and premiums.”

Both projects are expected to yield papers and series of lectures for various coffee-focused events like the Re:Co Symposium and the SCA’s Sensory Summit as well as modifications to current SCA handbooks.

For more information about the two new initiatives, visit the Coffee Science Foundation’s [official website](#).
Here’s an interesting report from Tom Shellhammer regarding his research program and video conferencing:

Last month, Tom gave a lecture for Lallemand, a global yeast producing company, about how yeast can biotransform hop aroma. It’s a hot topic in the brewing realm and Tom’s research group is one of the few in the world studying it.

Tom agreed to give a lecture for Lallemand as a part of their scientific outreach series. Although not really knowing exactly who the audience might be, it was assumed there certainly would be some brewers attending. As Lallemand has funded some of the work ongoing in the Shellhammer Lab, it made sense to help them get see our research results disseminated to the public.

Everyone was quite surprised to see over 500 people registered for the talk, and when attendees logged in for the meeting, it was eventually determined that over 350 attended... from all over the world!

As attendees viewed the text stream accompanying the presentation, one could see the following quickly rolling by: “greetings from Huddersfield, England, from Sydney, Australia, Prince Edward Island, Canada, Belgium, France, Norway, Germany, Brazil. And others, too!

Off screen greetings came from South Africa, Argentina, Poland, Wales, Slovenia, New Zealand, Netherlands, Finland, Greece, Estonia, and from closer by, from Indiana, Wisconsin, and California, and other states, too. The webinar has a truly global reach. In the end, people from 44 countries on 6 different continents tuned in to the webinar, especially surprising when you consider the time of day, or night, it was in some parts of the globe.

After nine months of dealing with the Covid quarantine, it seems many more people are at ease in joining in one video meetings and webinars from wherever they may be. Tom reports to us, that nineteen years ago when he first started work at OSU, nothing like this was happening.

Congratulations to Professor Shellhammer for having established a research program that is viewed around the world with great interest!

Above: Map showing the location of attendees who joined Dr. Shellhammer’s webinar for global yeast company, Lallemand, on how yeast can biotransform hop aroma.
Congratulations FST Masters Graduates
Spring and Summer terms 2020

Jungmin Choi
High-throughput sequencing to characterize the microbial diversity and functional properties of cheese
*Spring term 2020*

Gavin Pierce
Metabolic implications of red raspberry polyphenol supplementation in high fat-fed C57BL/6J mice
*Spring term 2020*

Kaitlin Kornberg
Development of a high throughput method for screening of clean-label mold inhibitors in cheddar cheese
*Spring term 2020*

Sebastien Ramirez
Impact of butterfat content and composition on the quality of laminated pastries
*Spring term 2020*

Chris Letchworth
Reduction of *Salmonella* spp. on in-shell hazelnuts using continuous steam blanching and the impact on product quality and sensory characteristics
*Spring term 2020*

Lindsey Rubottom
Hop kilning temperature sensitivity of dextrinreducing enzymes in hops
*Summer term 2020*

Brandon Selover
Investigating potential environmental sources for Coliforms in cheddar cheese production
*Summer term 2020*

Yunyao Qu
Analysis of intact glycomacropeptide derived from bovine Kappa-casein in whey protein isolate and intestinal digesta
*Summer term 2020*
Alumni Spotlight

Bigger™ Bites Foods

Bigger™ Bites Foods is a unique new food company started by FST alums Mary Graham and Trung Tran, and current undergrad Alex Varga.

Bigger™ Bites Foods features products that will change the way people think about their food by encouraging them to learn where their food comes from, how it affects the body, and how foods affect the planet.

Bigger™ Bites Foods Company Founders

**Mary Graham, CEO** - Graduated from Oregon State University with a B.S. in Food Science and Technology and a minor in Chemistry.

Mary's background incorporates industry experience in food safety, quality assurance, food productions, and research and development. Her special contributions to the team include product innovation and formulation, interpersonal communication, and business relations.

**Trung Tran, COO** - Graduated from Oregon State University with a B.S. in Food Science and Technology.

Trung's background incorporates industry experience in food technical services, research and development, product development, and operations. His special contributions to the team include culinary experience, project management, planning, and logistics coordination.

**Alex Varga, CMO** - Will soon graduate from Oregon State University with a B.S. in Food Science and Technology and Sustainability and a minor in chemistry.

Alex's background incorporates industry experience in food sensory, food safety, research and development, and sustainability. His special contributions to the team include social media management, marketing tactics, website design, and trend analysis.

Bigger™ Bites Foods is proud to announce the launch of its premier product: Crick-Itz Crackers.

Crick-Itz Crackers are a tasty, healthy, and sustainable snack cracker that harness the power of cricket protein, available in two flavors: Original and Herbed Balsamic.

Pre-sales will open on Cyber Monday, November 30th with an expected delivery date of January 2021.

A variety pack option includes a cute Crick-Itz sticker! Follow the Bigger™ Bites Foods social media platforms to see updates on the pre-order launch and on other products and flavors.

**Instagram: @biggerbitesfoods**

**Facebook: Bigger Bites Foods**

**Pre-orders available at:** biggerbitesfoods.com
Alumni Spotlight

Charlie Cook

In 1954, wide-eyed 17-year old Charlie Cook flew from Sydney, Australia into Corvallis airport on a beautiful fall afternoon and began his experience at Oregon State College with a greeting from Dr. Harold W. Schultz, Chairman of the Food Science Department and John Siegle, an Australian graduate student.

Charlie took full advantage of all the opportunities OSC provided, being active in sports, college clubs and campus politics.

In the summers of 1956 and 1957, he interned with Armour & Co. in the Chicago Stockyards. During his second internship, Charlie had the fortune to meet Dr. Robert W. Bray who nudged him to consider graduate studies at University of Wisconsin-Madison.

Charlie became a Wisconsin Badger and completed a M.S. in Food Science and a Ph.D. in Meat Science (1963). However, home was calling so Charlie returned to Australia and joined the Animal Science faculty of the University of Sydney. In 1967, Charlie returned to the US for post-doctoral studies at the University of Missouri in Columbia, MO.

Charlie’s career path transitioned from academia to industry when he was hired at joined Louis Rich Co. (later acquired by Oscar Mayer) in 1971. For the next 24 years, Charlie held senior executive positions in Research & Development, Quality, and Regulatory Affairs at Oscar Mayer. Charlie was also engaged beyond his employment in numerous Trade Association Committees.

When Charlie retired in 1995, he and wife (Jean) founded and managed Cook & Thurber, a food safety and quality consulting and auditing firm. Cook & Thurber was instrumental in developing process-based food safety audits.

In 2001, Charlie and Jean sold the company to NSF and transitioned to a founding and managing a consulting firm, Country Fare Consulting, specializing in supplier food safety programs for a Global QRS. Throughout Charlie’s career, he has served in an advisory capacity to both USDA and FDA and as an expert witness in litigation. Currently, Charlie and Jean reside in Madison, WI and maintain an active lifestyle.

Charlie and Jean both have a passion for supporting the training of students interested in food safety and quality management.

Recently, they have decided to provide seed funding to OSU FST to develop a curriculum to support practical food safety and quality management training for both undergraduates and people working in the food industry.

Left to right: Charlie Cook, Dick Colgan, and Jerry Heddinger
Dr. Grant Schoenhard

Grant earned his M.S., ’72, and Ph.D., ’74, degrees from OSU in Food Science & Technology, with Professor Russell Sinnhuber and Dr. Donald Lee, respectively. His research focused on aflatoxins.

Dr. Schoenhard has worked in food, agriculture, and pharmaceuticals as toxicologist/drug metabolism, biochemist, inventor, and executive. His professional research was instrumental in getting NutraSweet and, later, rBST approved.

Following a start in the food industry with General Foods, he moved to the pharmaceutical industry. Dr. Schoenhard holds a patent, “Inhibitors of ABC drug transporters at the blood-brain barrier’, along with being an inventor on 33 additional patents for oral drugs. He has over 100 peer-reviewed publications.

Prior to retirement Dr. Schoenhard served as Chief Scientific Officer for Pain Therapeutics. He also worked for Genentech, a Roche subsidiary, and G. D. Searle, a Pfizer division, earning a dozen FDA drug approvals.

Along with a distinguished career, Dr. Schoenhard has served his communities, most recently as president of SpiritCare Ministry to Seniors, which assists thousands of frail elderly. Dr. Schoenhard and his wife Alice have two sons and nine grandchildren.

Dr. Schoenhard credits much of his success to an excellent beginning with FST. He is grateful for the fact that the professors allowed him to work independently while providing advice as needed and NIH grant support.

He is giving back to FST by serving on its Advisory Board. In this position, he enthusiastically supports the department’s aim to improve their research program and national standing.

In addition, he has established the Grant & Alice Schoenhard Faculty Excellence Fund at OSU that helps assistant professors get a successful start in their research program. The first two awardees are Dr. Jovana Kovacevic, Food Innovation Center, and Dr. Jung Kwon, Seafood Research and Education Center.

FST sincerely thanks Dr. Schoenhard for his service to FST.
Thank you for your continued support during these challenging times. Our number one priority throughout the COVID-19 pandemic has been and continues to be the health and safety of our students and faculty. While we work to prevent the spread of the disease, we are working diligently to maintain seamless operations, fulfill customer orders and continue the hands-on education of our student crew.

In ten years, Beaver Classic™ has expanded to a range of cheddars, Swiss, Provolone and Gouda. Our cheddars also come in a variety of soaks - pinot, porter, hard cider and rosé, all made by our fermentation students.

This year we released our Smoked Gochu Cheddar, made with Korean red chile flakes. Not spicy but very flavorful. We have some exciting changes coming to Beaver Classic™ in 2021. Stay tuned!

The students take pride in the cheese they produce and learn all aspects of production, from pasteurization to sales. OSU’s program has become a key provider of dairy processing graduates to the industry. It has also become a center of innovation, providing a space for Oregon’s dairy processors to work on new products with a staff of students eager to learn from Oregon’s dairy industry leaders.

Beaver Classic™ is not only a fantastic award winning selection of cheeses, it represents the excellence of dairy in Oregon – now and for the future.

You can purchase Beaver Classic™ Cheese online at: https://oregonstate.edu/main/cheese

EXPLORE SOME OF OUR NEWEST VARIETIES...

THE GOUDAS
Thank you for staying with us and catching up on our sustainability initiative and other news. We believe that our transformation will have a positive impact on our students, stakeholders and the earth.

If you want to help us advance more effectively, there are several ways to help:

1. **Endowment supporting Sustainable Food Program**
   This endowment will help us expand our sustainable food program and attract the best and brightest students and faculty, including the Sustainable Food Processing Specialist position we hope to launch. Multiple contributions can be made towards endowments that begin at $50,000. We have the goal of raising $250,000 to directly support a new Food Processing Specialist.

2. **Annual FST Sustainable Food Manufacturing Forum**
   The first annual conference is scheduled at OSU in September 2021. This conference will showcase state-of-the-art sustainable food manufacturing research from OSU and beyond and will provide opportunities for food and beverage manufacturers to explore new progressive technologies. All beginnings can be hard, and we need help to get this conference established and welcome donations as well as sponsorships. We hope to collect $30,000 to support the conference for each of the first two years.

3. **Taste of Research**
   This is our industry outreach event that showcases FST faculty and graduate student research. We would like to invite an alum back each year to present their current research. Bringing alumni researchers back to FST helps inspire current graduate students and demonstrate impact of our graduate program. We need $4,000 to make this happen.

4. **The Alumni Scholarship**
   This scholarship supports FST students with great financial needs. Alumni helped fundraise to establish the scholarship endowment and each year we select a recipient who otherwise might drop out of FST due to financial hardship. Help us grow this endowment to provide help to multiple students. It is our goal to raise $15,000 each year to continuously grow the endowment. To make a donation to this scholarship, please go to: Invest in the Alumni Scholarship Endowment.

With your help, we can continue to make FST better. Private donations are behind many of the great changes in FST such as the dairy and brewing pilot plants, our professorships, and our scholarship endowments. You can make a difference by supporting the 4 priorities above, or other initiatives.

Please reach out to me for further discussions:
Lisbeth.goddik@oregonstate.edu

There are many ways to support the Department of Food Science and Technology, including the initiatives above.

You can click here to make a gift online, send a check to the OSU Foundation, or talk to someone on our team about other creative ways to give including appreciated assets, beneficiary designation, IRA charitable transfer, and many more.

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Fun with Food and Spirits

Mulled wine is old news... this holiday season, stay warm with Glühbier or Glühcider!

What’s that you say, “Warm beer?!” Don’t be scared, this interesting twist on a holiday classic combines dark beer, fresh & dried fruits, and warming spices to create a complex beer-tail that will be a perfect pairing for cozy winter nights.

The best part is that you get to save all of the fruit and spices used for mulling and turn them into a jam that “tastes like the Holidays”, according to Robin Adams (Mike’s Mom). Perfect for gift giving or enjoying with crackers & cheese!

Recipes by:
**Michael Adams**, Food Scientist
**Jason Ball**, Research Chef/Sr. Faculty Research Ass’t. 1 FIC Product Development Team

Mulled Fruit Jam

**Ingredients:**
- All retained fruit from Mulled Beer/Cider
- ½ cup dried cranberries
- Zested satsuma or mandarin orange (from Mulled Beer/Cider)
- 1 cup sugar (or more to taste)

**Method:**
1. Put apples and satsuma/mandarin orange into blender and puree. You can add some of the mulled beer or cider if needed to puree.
2. In a medium saucepan, combine puree, remaining dried fruits, and sugar.
3. Using a candy or probe thermometer, cook over medium high heat while stirring constantly until mixture reaches 215°F (102°C). Pour into glass jam jars, seal, invert, and cool.
4. Serving options can include (but are not limited to): charcuterie or cheese board with crackers, cheese, & salami; gruyere & jam grilled cheese; warmed over vanilla ice cream; or served alongside smoked duck breast.

Featured Cocktail

“Winter Spice”1 Mulled Beer (Glühbier) or Cider

**Ingredients:**
- 36 fl. oz. of dark beer or cider (beer below 30 IBU recommended)
- ¾ cup Brandy, Cognac, Applejack, or Whiskey
- ¾ cup packed Brown sugar (amount can vary depending on beer bitterness or cider sweetness)
- 1 cup dried tart cherries (or unsweetened cranberries)
- 2 sweet eating apples – peeled, cored, and quartered
- 8 dried black figs, quartered
- 1 cinnamon stick
- 4 cloves, whole
- 2 allspice berries
- 1 cardamom pod, whole
- 2-4 rasps fresh nutmeg (or ½ tsp pre-ground)
- Zest of one small satsuma or mandarin orange (retain the zested fruit)

**Method:**
1. Open the beer or cider and take a sip. Turn on some holiday tunes.
2. Put whole spices in small muslin bag or wrap in cheese cloth.
3. Pour beer/cider and spirit into saucepan or crock pot. Add dried fruit, brown sugar (if using), and spices.
4. Simmer (~180°F) until flavors from spices and fruit infuse into the liquid (approximately 5 minutes).
5. Strain fruit and set aside for jam recipe.
6. Either keep warm and serve immediately or allow to cool and refrigerate until serving. If reheating, warm mulled beverage back up to 130-160°F (54-71°C) before serving.
7. Enjoy!

References