

# 2019 ANNUAL REPORT

*your* **CPS**



## about CPS

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**A unique partnership:** The 501(c)(3) nonprofit Center for Produce Safety (CPS) brings together leaders from industry, government, and the scientific and academic communities, to work together toward the common goal of enhancing fresh produce food safety.

**That's all about the science:** CPS funds credible, independent research worldwide that provides science-based solutions to enhance produce safety that can be implemented in the real world.

**Knowledge closes the loop:** CPS then transfers that knowledge and tools to industry and other stakeholders through our annual Research Symposium, our website, webinars, guest columns in key trade press outlets, and other outreach.



# INVEST *in your* CPS

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Crisis clarifies what's vital, doesn't it? 2020's COVID-19 pandemic has brought profound challenges. But it also spurs us to prioritize what's important, including family and safety.

As you consider your future priorities, I urge you to invest in the Center for Produce Safety.

Wegmans invests in CPS because the center wakes up every morning thinking about how to improve the food safety of fresh produce, across the entire supply chain. Wegmans stays close to the science coming out of CPS to protect what's most important to us: our customers.

We invest our company leaders and experts to volunteer with CPS because personally we want to make a difference, and professionally we understand the industry impact when a buyer steps up.

And CPS gets results, bringing together diverse stakeholders to advance the science. Industry, associations, even governments look to CPS as reliable and reputable.

Now it's your turn to invest in CPS. Learn about all we do. We've probably answered some of your produce safety questions, or we're about to. Tap into the [research reservoir](#) on CPS's website. Read our knowledge transfer [articles](#) to learn

how industry companies have applied CPS research in their operations. Take CPS's work back to your organization to bring change. Tell your industry colleagues.

If you agree CPS makes a difference – and you must! – then come to the table with your gift and volunteer your time. We have much more work to do. More change is not just needed, it is required. CPS's mission must become our industry's mantra: fund science, find solutions, fuel change.

I step down as CPS chair in June 2020. Because we do our best work when surrounded by great people, I thank my fellow board members and volunteers, our generous contributors, our researchers and of course Bonnie.

This report highlights some of the great people who make up today's CPS. Let's add your name.

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**Dave Corsi**

*Chair, CPS Board of Directors*



***“I urge you to invest in your CPS. More change is not just needed, it is required. CPS’s mission must become our industry’s collective mantra: fund science, find solutions, fuel change.”***

## 2019 year in review

### Bold **VISION** begets bold **ACTION**

Reflecting changing times in fresh produce food safety, in 2018 CPS's volunteer-led Board of Directors imagined a visionary new strategic plan for the organization.

That bold vision became bold action in 2019, immediately changing:

- how CPS approaches our research and researchers, and
- how we then transfer our research learnings to produce safety stakeholders

### More **SCIENCE** finds more **SOLUTIONS**

#### CPS's produce-specific food safety research program was transformed in 2019.

**More nimble:** CPS overhauled the program to be even more flexible and responsive to industry's emerging priorities:

- New Challenge Grants brought science and technology experts together to create tools to help growers evaluate risks from animal agriculture in real time.
- Specialized grants funded groundbreaking research to guide growers when and how to treat agricultural water. This work will also create a template to guide similar future research. Results due in 2020.

**More needs-based:** For the first time, CPS's 2019 annual call for research proposals prioritized science needs by supply chain sector, from field to point of sale. Priorities were chosen based on industry input.

**More clarity:** These changes help CPS to communicate more clearly with industry, about your needs and research priorities. We can also more effectively interact with researchers, about where we need your help, and how you can tap industry partners to inform and aid your work.

## the numbers

2019 annual research award projects funded:

11

value:

\$2.7 million

annual award projects funded to date:

172

value:

\$30 million

institutions funded:

44

countries:

5

2019 challenge grants awarded:

3

value:

\$135,000

2019 rapid response research grants funded:

1

value:

\$200,000



## More **OUTREACH** fuels industry **CHANGE**

To reach a larger audience to better fuel produce safety change, CPS expanded the ways we convey research to industry and other interested stakeholders, with the help of a new [Knowledge Transfer Task Force](#).

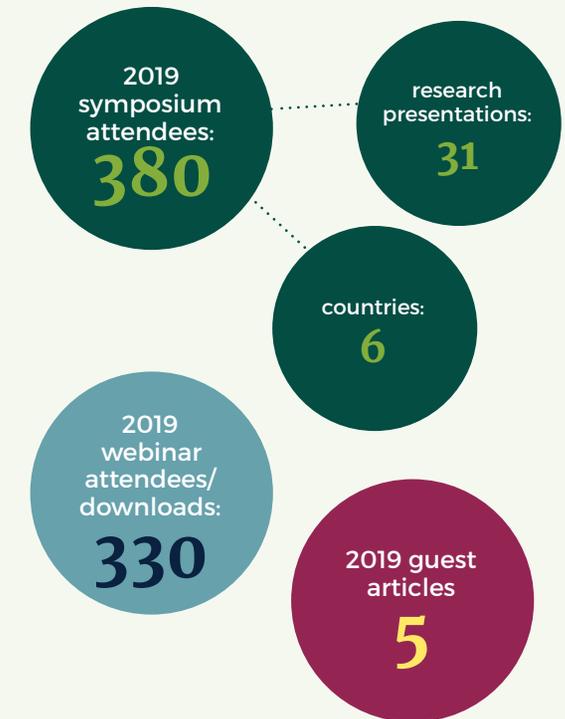
**More engagement:** Our [Research Symposium](#) in Austin, Texas, attracted the most attendees in the symposium's 10-year history – all coming together to have frank conversations about produce safety.

**More 24/7/365 access:** CPS better harnessed technology to deliver research updates and findings anywhere, anytime, including:

- Expanding [webinar programming](#)
- Producing short “CPS Minute” [videos](#) from researchers about their ongoing research

**More media reach:** CPS partnered with top industry media outlets to publish [articles](#) transferring CPS research findings on produce safety hot topics to the fresh produce supply chain.

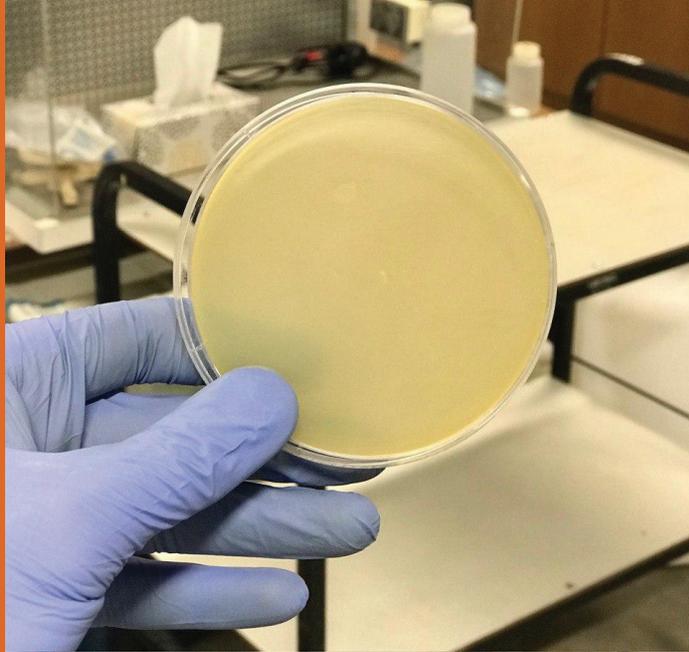
## the numbers



# MEET THE PEOPLE

## behind CPS's research program

*For CPS, it all starts with the science. Our research program relies on talented researchers who share our industry's passion for fresh produce, and for fresh produce safety. Meet three of the researchers who bring CPS's research program to life.*



## A newcomer brings a fresh look

**Matthew Stasiewicz, Ph.D.**, grew up in Detroit's suburbs. So when he showed an early aptitude for science and mathematics, a future in auto engineering seemed likely. Then at a career fair, a biosystems engineering professor offered him coupons for free ice cream.

"He said hey, our program will teach you to run a dairy plant. I thought that was pretty cool," he says. "Yes, free ice cream is very motivating," he laughs.

Stasiewicz earned a bachelor's degree in biosystems engineering at Michigan State University, then a master's and Ph.D. in food science and technology at Cornell University. He is an assistant professor of applied food safety at University of Illinois Urbana-Champaign.

Stasiewicz did not grow up or have a background in the fresh produce industry. He is motivated to focus on fresh produce safety for two reasons, one practical, one scientific.

"People need to eat fresh produce, that's important — for nutrition, for food security. So there's a need to have more scientists working on fresh produce to get the safe product that we want and need," Stasiewicz says.

The technical challenge also attracts him. "In a food production facility, a food processing plant, even a dairy plant, there are fewer variables and they are much more controlled. In produce, you are working in open environments throughout the world. That provides a lot of interesting science," he says.

The industry is already benefiting from the fresh, critical eye that this young researcher brings to the topic of fresh produce safety.

CPS awarded Stasiewicz \$250,470 to seek to harness computer simulation to better understand the role of in-field preharvest sampling to enhance produce safety. The project began January 2019, and will conclude in late 2020. His co-investigator is Cornell's Martin Wiedmann, Ph.D.

"What I hear from talking to growers is that buyers are demanding many different kinds of testing to try to manage risks. That creates a lot of confusion," Stasiewicz says. "We hope to provide some clarity on what preharvest sampling can and can't do. Then growers and buyers can work together to have the right sampling plans to manage risks ... and drive down the incidence of pathogens in produce."

Ultimately, Stasiewicz wants to create an online simulation tool. A grower could answer simple questions about a field — the product grown there, the hazard to be



controlled and the sampling plan being used — and the software will evaluate the likelihood of detecting that hazard with that plan. "Then they can play with it — change their assumptions,

change their sampling plan, and see if that affects [the outcome]," he says. Eventually these models could be applied across the supply chain.

Stasiewicz will present a status report during CPS's 2020 research symposium webinar series, and a final report in 2021.

And working with CPS? "I really enjoy it," he says:

***"The amount of interaction they can facilitate between academics and industry partners is really exciting. And how those connections compound is really exciting."***

MEET  
YOUR  
CPS





## Food as a material - of life

**Nitin Nitin, Ph.D.**, was initially attracted to science from a materials standpoint – for example, how materials can impact and improve lives. While that initially drove him to study chemical engineering, as he advanced through that curriculum he grew interested in a specific type of material.

“I realized that food is a very interesting material to work with,” he says. “I started thinking about food as a way to address our societal needs.”

Nitin went on to earn Ph.D.s in bioengineering from Georgia Institute of Technology and in food engineering from Rutgers. Today, he is a professor at University of California at Davis, in both the departments of biological and agricultural engineering, and food science and technology.

CPS volunteer leaders facilitated Nitin’s interest in microbial food safety when he joined UC-Davis. CPS itself was in its infancy at the time.

“I was fortunate to have good mentors,” says Nitin, referring to then-CPS board member Linda Harris, Ph.D., department chair at UC-Davis, and then-CPS Technical Committee Chair Bob Whitaker, Ph.D. “They were very welcoming, and gave me insight into the industry. Their initial encouragement was vital.”

Nitin appreciates the value of industry engagement in research, having worked for industry himself, at a consortium that conducted research for industry and government.

In fact, he says, inspiration for his latest CPS research project came from industry. Nitin first ran his concept for a novel plastic technology by a tree fruit industry delegation visiting from Washington state. “They were very excited. That input was vital in understanding [industry] needs,” he says.

Recognizing that it can be a significant challenge to sanitize the industry’s ubiquitous reusable plastic containers (RPCs) to reduce the risk of cross-contamination, CPS awarded Nitin and his co-investigators \$281,967 to study developing a novel plastic material that has antimicrobial and antifouling properties – properties that can be easily recharged for repeated use. The project laboratory research and field-testing components.

“We do a good job of making sure our surfaces are clean *before* we begin operations. This technology will provide the ability to keep our surfaces clean *during* operations,” says Nitin.



“It will also act as a barrier for cross-contamination,” for example preventing transfer of pathogens or formation of biofilms on difficult-to-sanitize surfaces.

Nitin’s team began work in January 2018 and concluded in December 2019; final reporting is due in 2020. They have already begun to explore translating the technology into real-world applications, engaging plastics manufacturers and start-up companies in the antimicrobial space.

While the project is focused on bins and totes – the novel plastic could be formed into a liner to attach to existing RPCs or wooden bins, or into new RPCs – Nitin stresses the technology could apply across the supply chain, from farm to retail point of sale.

**“Mission critical is the next step of transmitting the research from the university space to the next level,” says Nitin. “We want to engage members across the supply chain. Surface sanitation is vital for everybody.”**

## Fruits of your labor

As a child on her family's farm in Croatia surrounded by animals and crops, all **Renata Ivanek, Ph.D.**, wanted was to become a veterinarian. After working as a vet for a time, she was introduced to the field of epidemiology risk assessment – and says that took her back to her roots.

“I was always good at math, so I found my calling in the quantitative aspects of epidemiology. [And] because as veterinarians a big role that we fill is to help public health, I have the opportunity to apply my quantitative skills to the problem of food safety,” she says.

In addition to her doctor of veterinary medicine degree, Ivanek earned a master's in veterinary epidemiology, and a Ph.D. in comparative biomedical sciences concentrating in epidemiology. She currently is an associate professor with Cornell University's College of Veterinary Medicine, in the Department of Population Medicine and Diagnostic Sciences.

Ivanek is drawn to fresh produce safety for personal and professional reasons.

*“There is only one future, that's a future with [much] more produce being produced and eaten because it is healthy and good for you, as evidenced by the growing trend of produce consumption,” she says. “But because produce grows outside, it is difficult to make completely pathogen-free. That's an opportunity for me to help.”*

Having prioritized agricultural water as a key research focus, CPS commissioned Ivanek *et al* to validate a Food Safety Modernization Act provision that allows growers to apply to fields ag water that does not meet standards for *E. coli* indicators, as long as they wait several days before harvest. Researchers also sought to develop a mathematical model to predict pathogen die-off under diverse conditions.

Work concluded in late 2019; Ivanek will deliver a final report during CPS's research symposium webinars in 2020.

Ivanek realizes the stakes for growers. “There are many things that farmers have to consider when planning harvest, this now becomes another issue – how much do you wait, and is that even a safe practice? ...



They may lose the opportunity to sell their crops.” she says.

The team conducted side-by-side field trials in three geographic areas, using two leafy greens and two bacteria: generic *E. coli* as a fecal contamination indicator, and attenuated (weakened) Salmonella.

“We discovered it is not always a safe practice to wait several days,” says Ivanek. “It depends on weather, and very strongly implicated was relative humidity. If it is high, then longer waiting times would be necessary, and even then crop safety would not be guaranteed. If relative humidity is low, waiting even less would be enough.”

Further, they found that wait times can be shorter for lettuce than spinach, while Salmonella persists longer in the field than *E. coli*.

Ivanek appreciates the role CPS plays in bringing scientific findings to industry. “When you complete a study [for CPS], you can expect... it will make a difference. It will not just sit in a journal somewhere,” she says. “Seeing how the fruits of our labor are served right away, that's an amazing feeling.”

*Credit: Rachel Philipson for Cornell University College of Veterinary Medicine*



# 2019 financials

**Funds in:** Center for Produce Safety is funded by diverse public and private sources. Industry funds come from across the fresh produce supply chain, from farm to grocer to foodservice. Public funds come from grants made by major specialty crop-producing states.

**Funds out:** The vast majority of CPS's funds are spent to sponsor produce safety research, and to transmit key learnings to the many and varied stakeholders of produce safety.



Research	\$2,609,605	79%
Operational	502,601	15%
Symposium	210,330	6%
<b>Total</b>	<b>\$3,322,536</b>	



Research	\$2,746,365	82%
Operational	338,788	10%
Symposium	253,653	8%
<b>Total</b>	<b>\$3,338,806</b>	

**Net income/loss (\$16,270)**



Research	\$3,227,975	79%
Operational	553,797	14%
Symposium	285,642	7%
<b>Total</b>	<b>\$4,067,414</b>	



Research	\$3,340,769	84%
Operational	364,701	9%
Symposium	286,764	7%
<b>Total</b>	<b>\$3,992,234</b>	

**Net income/loss \$75,180**

The 2019 Year End Financial Statements, Independent Auditor's Report and accompanying Federal Reports and Schedules are [publicly available](#), in accordance with the Federal Uniform Guidance Requirements for Federal Awards.



Technology has created both a powerful national foodborne illness monitoring capability and, thanks to the Internet, powerful and rapid sharing of information. Food safety concerns are now top-of-mind for everyone, and investment in science-based solutions is the only answer to the concerns we face.

—  
**Dave Puglia**

Western Growers, CPS contributor

A 501(c)(3) tax-exempt nonprofit organization, CPS's funding comes from across the fresh produce supply chain and from grants from major specialty-crop producing states. We thank the people who lead the following organizations for supporting CPS's vital and urgent work.

As of Dec. 31, 2019

\* denotes in-kind donation

## CONTRIBUTION OF \$1,000,000+

Produce Marketing Association  
Taylor Farms  
Western Growers

## CONTRIBUTION OF \$500,000–\$999,999

Washington State Tree Fruit Association  
California Citrus Quality Council  
California Fresh Fruit Association  
Dole  
Fresh Express, Incorporated  
United Fresh Produce Association

## CONTRIBUTION OF \$250,000–\$499,000

Georgia Pacific  
Promotora Agricola El Toro  
Sysco  
Tanimura & Antle  
The Wonderful Company

## CONTRIBUTION OF \$100,000–\$249,999

GreenGate Fresh  
JV Smith Companies  
Lipman Produce  
Melissa's  
Pacific International Marketing  
Target Corporation  
The Wegman Family Charitable Foundation  
Western Precooling Systems  
California Cantaloupe Advisory Board  
Bolthouse Farms  
California Melon Research Board  
Church Brothers/True Leaf Farms  
Florida Fruit & Vegetable Association  
International Paper  
Andrew & Williamson Fresh Produce  
Castellini Group of Companies  
Driscoll's  
Florida Tomato Committee  
Freshway Foods  
Markon Cooperative, Inc.  
McEntire Produce, Inc.  
Ocean Mist Farms  
Organicgirl  
Ready Pac Foods, Inc.  
The Oppenheimer Group  
Wish Farms  
The Produce News\*

## CONTRIBUTION UP TO \$99,999

Sunview Marketing International  
4Earth Farms  
Amigo Farms  
Coastline Family Farms, Inc.  
Food Marketing Institute  
H-E-B  
L&M Companies  
Martori Farms  
Mission Produce, Inc.  
National Watermelon Association  
New York Apple Association  
Tree Top, Inc.  
Loblaw Companies Limited  
California Avocado Commission  
Michigan Apple Committee  
Monsanto Company  
California Pear Advisory Board  
California Tomato Farmers  
Georgia Fruit & Vegetable Growers Association  
J&D Produce, Inc.  
Texas International Produce Association  
Pennsylvania Apple Marketing Program  
Giant Eagle  
Knouse Foods Cooperative, Inc.  
Pasquinelli Produce Company  
Procacci Brothers Sales Corp.  
Duda Farm Fresh Foods, Inc.  
Santa Rosa Produce  
Diversified Restaurant Systems, Inc.  
New York Apple Sales, Inc.  
Rice Fruit Company  
California Pepper Association  
Food Safety News\*

# CPS board of directors

CPS is largely volunteer-run, with just one full-time paid staff and minimal overhead. Our success is directly attributed to the people who volunteer their time and resources to support us. Our board members hail from across the supply chain, and keep CPS focused on our mission: fund science, find solutions, fuel change.

As of Dec. 31, 2019

\*denotes Executive Committee members

**Dave Corsi, *Chair\****

Wegmans Food Markets

**Tony DiMare, *Secretary\****

The DiMare Company

**Bob Whitaker, *Treasurer\****

Produce Marketing Association

**Timothy York, *Past Chair\****

Markon Cooperative

**Samir Assar**

U.S. Food & Drug Administration

**Jimmy Bassetti**

J & D Produce

**Jim Brennan**

SmartWash Solutions LLC

**Natalie Dyenson**

Dole Food Company, Inc.

**Paul Fleming**

Produce Industry Consulting

**Hank Giclas**

Western Growers

**Doug Grant**

*Knowledge Transfer Task Force Chair\**

The Oppenheimer Group

**Craig Hedberg**

University of Minnesota School of

Public Health

**Michael Joyner**

Florida Fruit and Vegetable Association

**Steve Kenfield**

HMC Farms

**Art Liang**

Centers for Disease Control and

Prevention

**Jim Lugg**

Consultant

**Steve Martori III**

Martori Farms

**Drew McDonald**

*Technical Committee Chair*

Taylor Fresh Foods

**Mark Mignogna**

Sysco

**Dave Murry**

Andrew & Williamson Fresh

Produce/Good Farms

**Stephen Patricio**

Westside Produce

**Mark Powers**

Northwest Horticultural Council

**Toby Purse**

Lipman Produce

**Timothy Riley**

The Giumarra Companies

**Martha Roberts\***

Roberts Associates

**Chuck Ross**

University of Vermont Extension

**Victor Smith**

J.V. Smith Companies

**Michael Spinazzola**

DRS Inc.

**Thomas Stenzel**

United Fresh Produce Association

**Tammy Switucha**

Canadian Food Inspection Agency

**Craig Wilson**

Costco Wholesale



*Finding solutions through scientific research is the key to understanding and controlling risks inherent to fresh produce. The health and safety of consumers depends on it. I volunteer for CPS because I believe in the vision of funding the brightest minds and sharing the findings for everyone's benefit.*

**Tammy Switucha**  
Canadian Food Inspection Agency  
CPS board director

# CPS technical committee

CPS's Technical Committee is an unparalleled group of produce safety subject-matter experts. They provide the scrutiny and controls needed to ensure that the research we fund is practical and translatable to the real world.

As of Dec. 31, 2019

**Drew McDonald, *Chair***  
Taylor Fresh Foods

**Tony Banegas**  
Bonduelle - Ready Pac

**Monica Bazan**  
Dole Food Company, Inc.

**Jim Brennan**  
SmartWash Solutions LLC

**Donna Lynn Browne**  
Naturipe Farms LLC

**Jennifer Clarke**  
California Leafy Greens Research Board

**DeAnn Davis**  
Commercial Food Sanitation

**Suresh DeCosta**  
Lipman Family Farms

**Pascal Delaquis**  
Agriculture and Agri-Food Canada

**Bryan DiMenna**  
BASF

**Sammy Duda**  
Duda Farm Fresh Foods

**Barry Eisenberg**  
Miles Chemical Corporation

**Thea Eubanks**  
Organic Girl

**Hank Giclas**  
Western Growers

**Robert Gravani**  
Cornell University

**Emily Griep**  
United Fresh Produce Association

**Maha Hajmeer**  
California Department of Public Health

**John Headrick**  
Monsanto

**Lianna Kelly**  
Markon Cooperative

**Susanne Klose**  
Fresh Leaf Farms

**Sharan Lanini**  
Pacific International Marketing

**Jim Lugg**  
Consultant

**Afreen Malik**  
International Food Safety and Quality Services

**Robert Mandrell**  
Research Scientist

**Johnny Massa**  
Comgro

**Jennifer McEntire**  
United Fresh Produce Association

**Anne Morrell**  
Hansen Fruit

**Gurmail Mudahar**  
Tanimura & Antle

**George Nikolich**  
Gerawan Farming

**Melissa Ortner**  
Heinzen Manufacturing/  
Channelized Integrated Solutions

**Elis Owens**  
BIRKO

**Mickey Parish**  
U.S. Food and Drug Administration

**Courtney Parker**  
EJ Gallo

**Walter Ram**  
Giumarra Companies

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*I choose to work with CPS because it makes a difference. Much of the research generated is leading to better produce safety practices and new tools for industry. And we are paving the way for future research that we have not imagined yet."*

**Walter Ram**  
Giumarra Companies,  
CPS Technical Committee

## CPS technical committee *(continued)*

**Keith Refsnider**

Driscoll's

**Joan Rosen**

JC Rosen Resources

**Sonia Salas**

Western Growers

**Curjit Shergill**

Consultant

**Rusbelina Silva**

4Earth Farms

**Stacy Stoltenberg**

Hygiena

**Steve Strub**

Wegmans Food Markets

**Trevor Suslow**

Produce Marketing Association

**Derek Tweedy**

Domex Superfresh Growers

**Rich Walsh**

ECOLAB

**Bob Whitaker**

Produce Marketing Association

**Devon Zagory**

Devon Zagory & Associates, LLC

## KNOWLEDGE TRANSFER task force

These industry influencers help CPS to better communicate what we know to industry, so that industry can implement CPS learnings to better safeguard fresh produce safety. Peers talking to peers – people sharing with other people – is at the heart of the task force's work.

*As of Dec. 31, 2019*

**Doug Grant, *Chair***

The Oppenheimer Group

**Dave Corsi**

Wegmans Food Markets

**Bonnie Fernandez-Fenaroli**

Center for Produce Safety

**Hank Giclas**

Western Growers

**Tom Stenzel**

United Fresh Produce Association

**Bob Whitaker**

Produce Marketing Association

**Tim York**

Markon Cooperative, Inc.



*Our industry is at a crossroads regarding fresh produce safety.*

*By volunteering with CPS, especially leading the Knowledge Transfer Task Force,*

*I have the opportunity to showcase the latest scientific and practical considerations behind CPS's food safety research, and thus help guide a clearer path forward.*

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**Doug Grant**  
Oppy

## A QUIET CHANGE

### *is happening in fresh produce food safety research*

I felt it at our Research Symposium in Austin. There is an ease of conversation among attendees – within a sector, across the supply chain – about difficult topics that did not happen 10 years ago.

I see it in a new willingness of industry to seek out and understand CPS research, and to actively participate in it. Even to stand on the symposium stage to moderate a session!

I hear it in the ways we are reaching people. The industry executive whose eyes were opened by a symposium speaker. The ag radio station that periodically broadcasts our research findings. Buyers who cite our knowledge transfer articles in conversation.

While we have much work to do, our industry is now in a strong place to address its food safety issues. And when your industry has a strong food safety focus, that spills over to other elements of a strong food supply. While this report covers 2019 activities, it was produced as our industry faces a global pandemic.

CPS succeeds because of our very unique community. The contributors funding our work, the researchers answering our questions, the Technical Committee guiding them, the Board of Directors that keeps us all focused on the mission. Many of them, though not all, appear in this report.

Thank you all for your contributions to and leadership of your CPS.

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**Bonnie Fernandez-Fenaroli**

*CPS Executive Director*



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[www.centerforproducesafety.org](http://www.centerforproducesafety.org)

 [Center for Produce Safety](https://www.facebook.com/CenterforProduceSafety)

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 **CENTER** *for* **PRODUCE SAFETY**