



**Wisconsin Institute for Sustainable Technology**

# **Annual Report**

**December 2019**



**Wisconsin Institute for Sustainable Technology  
College of Natural Resources  
University of Wisconsin - Stevens Point**

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Research, laboratory services and education provided by the Wisconsin Institute for Sustainable Technology (WIST) help businesses and organizations meet their goals in ways that make more sustainable use of natural resources. Technology and ideas developed by WIST and its partners will spur economic growth in Wisconsin and the region and help preserve a healthy environment for future generations.

WIST is an institute within the College of Natural Resources at the University of Wisconsin-Stevens Point. It is a multidisciplinary institute powered by the energy and expertise of faculty, staff and students across the UW-Stevens Point campus.

# A Note From the Director



Paul Fowler  
Executive Director

It's always very satisfying to reflect back on the year in the preparation of this note.

2019 was yet another busy year for WIST. For the first six months of the year, a couple of us were immersed in a study to quantify the economic contribution of the paper manufacturing industry in Wisconsin. Along with extracting data from government databases, Ron Tschida, WIST communication manager, and I spent many hours on the road visiting with, and learning from, industry experts throughout the paper and converting industry. We also held information gathering sessions that were facilitated by colleagues in the Wisconsin Paper Council. Our work culminated in the publication of a 111-page report, which is available for download on the website of the Wisconsin Economic Development Corporation, which funded the study.

Another milestone this year was securing the status of our Compostability Testing Laboratory as an approved lab of the Biodegradable Products Institute (BPI). This is the outcome of several years of hard work, due diligence and method development and documentation on the part of our laboratory manager, Amber Davidson. We are one of only three labs in the United States recognized by the BPI for carrying out these tests.

This year also saw the conclusion of our Economic Development Administration funded effort to seek new uses for the processing residuals of potatoes and vegetables. Two follow-on projects have emerged from the work, one funded by the Wisconsin Potato and Vegetable Growers Association, the other by the Wisconsin Cranberry Board. The first is focused on method development to improve the purity and yield of antioxidants from potato vines, while the second targets natural dyes from cranberry concentrate.

The laboratory services and education divisions both had phenomenal years. Lab services revenues are up around 30% on last year and our flagship education conference, Focal Point, attracted the largest number of paying delegates since its inception in 2011. These outcomes are the results of the outstanding staff we have in WIST.

Please read more about these highlights in the following pages and should you have questions or wish to learn more about WIST, please do not hesitate to contact me at 715-346-3767.

*Paul Fowler*



# Education Update

## Papermaking courses continue attendance growth

WIST education had its best year ever, with some classes filling to capacity and generating wait lists. Course offerings drew students from across the U.S. and internationally.

The institute offered each of its core courses twice over the year: Hands-On Papermaking; Advanced Papermaking: Formation; Advanced Papermaking: Additives; Coating and Lamination in Packaging Applications. A similar schedule is posted for 2020.

This was the fourth year of a collaborative marketing arrangement with TAPPI, in which TAPPI members receive a discounted tuition rate and TAPPI helps publicize the courses by hosting information on its website. The joint marketing arrangement has extended the audience reach and has contributed to attracting attendees from Europe and Australia, as well as from Canada and every region of the U.S.

As WIST has continued to offer these courses, attendance has also been driven by word of mouth. Roland Gong, an associate professor of paper science and chemical engineering, teaches the coating and lamination course. He said feedback from prior course attendees has been excellent and has led to many referrals. The July class included at least a half-dozen attendees from companies that had sent students in the past.

“Now the word is slowly spreading out,” Gong said. “I get professionals in the industry calling me because they are aware of my course and workshop now. In the past I didn’t hear that.”



Professor Karyn Biasca, chair of the UW-Stevens Point Department of Paper Science and Chemical Engineering, instructs students during a WIST course in paper formation.

## 2019 Midwest Compost School

UW-Stevens Point was the site of this annual school for the third consecutive year. Since 1995, the Midwest Compost School had rotated between locations in Midwest states including Illinois, Iowa, Minnesota and Wisconsin. However, the Stevens Point location and hosting provided by WIST and the university’s soils and waste resources discipline has proved a winning combination. Plans are underway to host the school at UW-Stevens Point again in 2020.

The 2019 course was held July 9-11 and drew 27 students. It featured 10 instructors drawn from universities, government agencies and compost facilities who over the three days addressed topics ranging across feedstock characteristics, odor management, equipment and marketing.

# You’re Looking at Paper All Wrong

## An interview with WIST Education instructor Gerry Ring



Gerry Ring

Gerry Ring taught papermaking at UW-Stevens Point for nearly 30 years and led its paper science department (now the Department of Paper Science and Chemical Engineering) for 10 of those years. With all that background, if there is one area of papermaking Ring would list as most important, it would be formation.

His research has shown that the key to formation is not fiber alignment but rather control of the size of fiber matrices called flocs, along with the size and shape of the pores between those flocs.

Ring says this view of papermaking represents an entirely different and more effective way of understanding and creating quality paper. He hasn’t “written the book” on this new way of thinking of formation, but he has written an award-winning paper on the subject. Published in 2011, “The hyperbolic theory of light scattering, tensile strength, and density in paper” was named Best Research Article of the year by TAPPI Journal.

Ring followed that up with a 2014 paper detailing results of an experiment he conducted on the UW-Stevens Point pilot paper machine. Using a single paper run with a single furnish to take fiber characteristics out of the equation, Ring varied setup factors such as the jet to wire ratio on the fly to demonstrate how changing the size and density of flocs affected formation.

“The first paper says that the strength is based on the average size of the pore,” Ring says, “and the second paper says that the mechanical differences in the two directions are due to the shape of the pore.

“Basically, [the two papers] changed the paradigm of what you know about paper,” Ring says. “Most papermakers think of paper as being a matrix of fibers.

They think about the fibers being the actual structural element. Whereas, I don’t. And it’s based on, when two fibers bond it’s a well-known fact that the surface area disappears. So, you don’t have a fiber-to-fiber bond.”

Ring gets the chance to spread the gospel of floc formation twice a year in the WIST course, “Advanced Hands-On Papermaking: Formation.”

“And in my course, I go through the calculations showing you how close the fibers are and how many are in actual contact with each other all the time. So, papermaking is not a matter of distributing fibers, but breaking what we call flocs. And then the whole process of making paper is positioning the fiber flocs.”

Ring says the change in perspective has practical implications in papermaking.

“One thing you’ve got to stop doing is playing around with the refiner, cutting fibers,” Ring says. “You’ve got to concentrate on the equipment that breaks flocs.”

In the formation class, students make trial runs on the university’s Fourdrinier pilot paper machine.

“What I think is truly unique about our paper machine is that we can isolate the fiber factor,” Ring says. “The fact that we can setup on-the-fly jet to wire ratio is, I think, very powerful.”

Ring says that papermakers typically think of formation as an appearance property when in fact formation is a strength property.

“I’m saying, if you don’t form it correctly, it won’t perform,” Ring says. “Formation is the number one fundamental paper property.”

*A version of this story appeared in WIST’s August e-newsletter. You can subscribe to receive updates on WIST activities; a subscription link is on the home page of the institute’s website at [www.uwsp.edu/wist](http://www.uwsp.edu/wist).*



# Research Update

## Grants from Wisconsin Potato and Vegetable Growers Association and the Wisconsin Cranberry Board continue work on value from processing residuals

A long-term research project to develop commercially viable products from residual agricultural materials is continuing at WIST, thanks to grants from two different organizations.

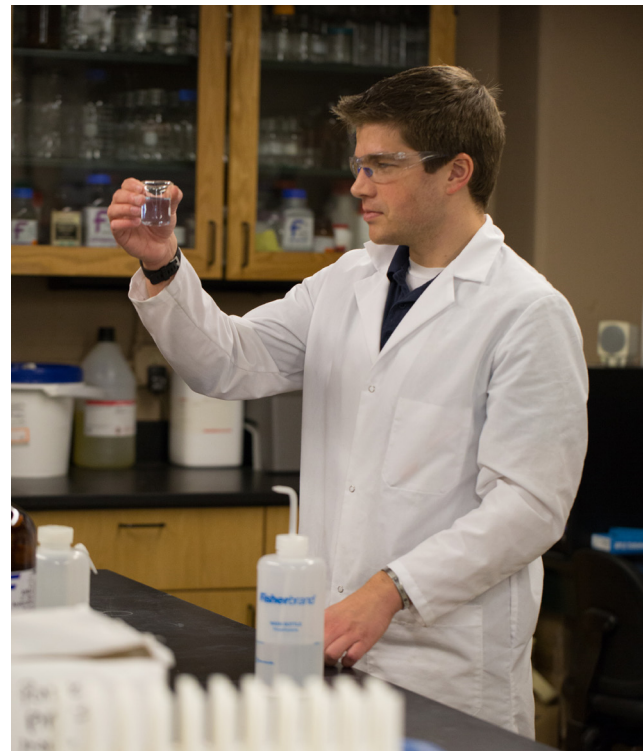
In 2016, WIST initiated research funded by a three-year grant from the U.S. Economic Development Administration. Matching funding and collaborative assistance were provided by producers and processors as well as agricultural support organizations. The institute analyzed residuals such as potato peels and onion skins and identified promising candidate chemical extracts.

The EDA grant ended in May 2019, and WIST filed its final report with the agency. However, a grant from the Wisconsin Potato and Vegetable Growers Association has made possible further investigation. WIST Technical Project Manager Justin Hall is refining extraction techniques he developed during the initial phase of the research.

Hall is also working on methods to purify the extract of the most promising chemical identified, chlorogenic acid. This chemical is an antioxidant and is used commercially in applications ranging from cosmetic products to energy drinks. Research under the EDA project demonstrated that chlorogenic acid is present in potentially commercially viable quantities in some varieties of potato vines. It's also present in potato peels that are residual materials in processing. In commercial markets, chlorogenic acid brings substantially higher prices at higher concentrations and purity, so the ongoing research aims at increasing the potential value of the extract.

Separately, a grant from the Wisconsin Cranberry Board is funding work to develop natural dyes from cranberry processing residuals. A sports apparel manufacturer has provided product samples and WIST has successfully created a red and a green dye, the color varying depending on pH.

Paul Fowler, WIST executive director, said further work is needed to perfect practical application of the dye. For example, a heavy metal-free fixing agent is needed to make the dye color-fast.



Justin Hall, WIST technical project manager, holds a sample to be analyzed in the WIST laboratory.



Fabric swatches colored with dyes made by WIST from cranberry processing residuals.

## Research shows Wisconsin's pulp, paper and converting industries lead the nation

A major research effort at WIST in 2019 involved a deep dive into the economic contributions of Wisconsin's pulp, paper and converting industries. Under a contract from the Wisconsin Economic Development Corporation, the institute scoured publicly available data and interviewed dozens of industry experts to report on recent trends and current conditions in the industry.

A key takeaway is that the state's paper and related industries continue to lead the nation by many metrics, including in total production value and number of employees. (See sidebar for more data points.)

Beyond the headline numbers, the report revealed an industry continuing a transition driven by digital transformation. Printing and publishing papers have been in decline as more people switch to reading magazines and newspapers online. That decline contributed to a number of paper mill closures in the past 15 years. However, another internet-related consumer change is spurring growing production in a different segment.

That segment is packaging, where increased demand is attributed in part to the "Amazon effect." E-commerce and the associated millions of shipping boxes it requires has led mills to convert to production of "brown paper" instead of coated and uncoated white paper. Converters use the brown paper to make boxes and other packaging materials.

Another packaging trend is a response to consumer demand for more sustainable or environmentally friendly materials. Anti-plastic sentiment is creating opportunities for the paper and converting industry, which is innovating new materials such as food packaging with coated and laminated papers.

The report also showed strong contributions from the so-called "specialty" paper market. A broad and not precisely defined category, specialty includes products such as construction materials, labels, food packaging and even battery papers.

Industry experts including owners, CEOs, mill managers and others interviewed for the study generally agreed that Wisconsin's pulp, paper and converting industries had weathered the worst of an economic storm and were now better positioned to compete in what is a global industry.

The Wisconsin Paper Council assisted by facilitating contacts within industry. The complete report is available on the website of the Wisconsin Economic Development Corporation.



Specialty papers are a big part of Wisconsin's paper production and converting. Such papers include this wine bottle label made by Wausau Coated. Specialty papers like this are engineered to stand up to water and ice baths, deliver luxurious appearances and textures and with custom converting are scuff-resistant, adhere to glass, foil and plastic, and can be printed with digital printing equipment.

### Key data points

- Wisconsin's annual payroll of \$2.85 billion in the paper manufacturing industry (including pulp, paper and converting) is the most of any state.
- The industry employs 30,262 workers, the most of any state.
- Paper manufacturing directly contributes \$18.16 billion of economic output in Wisconsin.
- Total economic contribution of paper manufacturing in Wisconsin, including indirect and induced contributions, total 95,853 jobs, \$28.9 billion of economic output, and \$6.3 billion of labor income.
- 41 of Wisconsin's 72 counties are home to at least one paper manufacturing business.



# Compostability Testing Laboratory Sees Growing Demand

Amber Davidson has felt rather swamped all year. And as manager of WIST's Compostability Testing Laboratory, she wouldn't have it any other way.

"We've seen a huge uptick in inquiries about testing," Davidson said. "I think it's the fact that there's been this huge push for being more environmentally friendly, so they're trying to look at alternative options, rather than just throwing it in the garbage or even recycling. A lot of clients are starting to get a push from their vendors or their suppliers on 'what other certifications can we get.'"

WIST first offered compostability testing in 2012 and continued to upgrade its capabilities. In 2016, the laboratory achieved ISO 17025 certification, going through a rigorous process that took more than a year, as WIST staff examined every aspect of the testing laboratory and drafted a quality policy manual and standard operating procedures, created a record-keeping system and upgraded equipment where needed.

The CTL tests materials to determine whether they compost according to standards established by ASTM, the national standards organization. The tests are designed to establish whether the material will compost under industrial compost conditions. The lab tests plastics according to ASTM D6400 and paper to ASTM D6868.

The testing requests over the past year have comprised a mix including plastics, coated paper, films, and stand-up pouches that include either coated paper or film.

Another task adding to Davidson's busy year was the need to update the laboratory procedures and manuals to match a revised ISO 17025 standard. Davidson combed through the CTL's entire manual to make certain all required updates were made. Most

of the changes were minor, such as revising how data reporting forms referenced underlying procedures that generated the data.

With all that going on, Davidson was thrown an extra curve when it was announced that the wing of Trainer Natural Resources Building housing the CTL would be off-limits for part of the summer while electrical equipment was upgraded. She had to move all of her equipment to the Waste Education Center at the north end of campus. That move may come with a silver lining, however. Discussion is underway on renovating a larger space for the CTL when it moves back to the natural resources building. That would fit perfectly with the increased demand for testing.

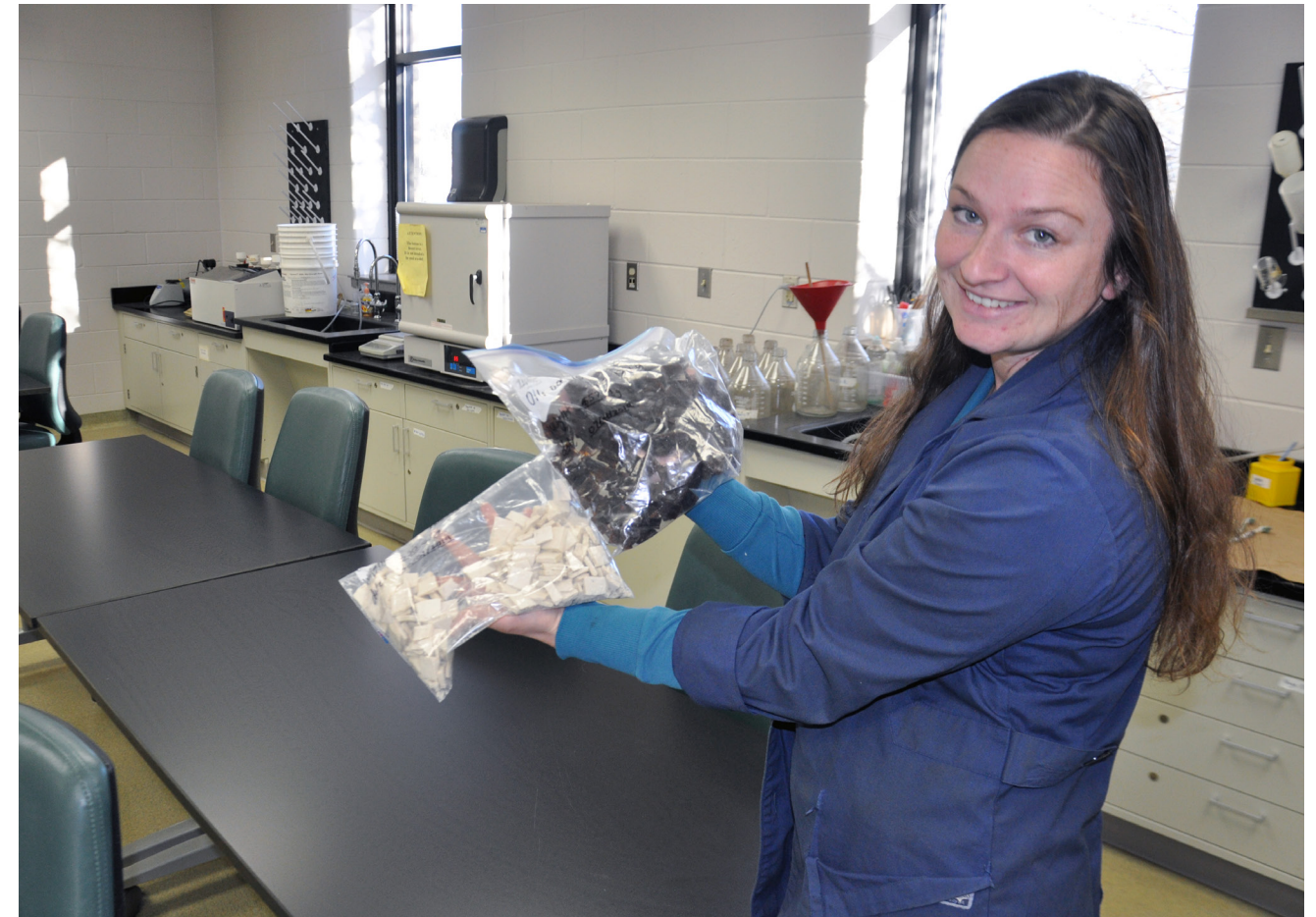
## WIST Compostability Testing Laboratory achieves BPI certification

Brand owners whose products pass WIST's compostability testing can now advertise that compostability using the logo of the Biodegradable Products Institute, or BPI. The BPI logo means a product has been independently tested and assures consumers that a product does not have to be sent to a landfill for disposal but can be composted instead.

Paul Fowler, WIST executive director, said the BPI certification will help the institute's laboratory continue to grow.

"It opens up new customers to us and it's yet another validation of what we're doing in terms of technical competencies," Fowler said. "It overlays the ISO certification we got back in 2016 and which has been recertified every year."

The BPI certification doesn't change anything about the way WIST tests materials. But consumers face many confusing choices in the marketplace and it's



Amber Davidson, WIST Compostability Testing Laboratory manager, displays samples submitted for testing. The material is coating to be applied as a liquid to paper. WIST tests it in solid form as prescribed by ASTM standards. Davidson said increased interest in alternatives to plastic packaging that can be diverted from landfills is one factor driving increased demand for WIST compostability testing.

often difficult to determine whether one product may be better environmentally than another. A recognizable, third-party endorsement can cut through the chaos. In the past, some companies went elsewhere for compostability testing in order to have the BPI logo available.

An independent Germany-based firm, DIN Certco, audited WIST's procedures and data reports to ensure they met BPI requirements. Now WIST has become just the third laboratory in the U.S. approved by BPI, and the only university-based laboratory.

"The timing is really good because we've seen a lot of new interest in compostability testing as retailers and brands announce their intent to ensure their single-use packaging is either recyclable, reusable or compostable," Fowler said.



Companies whose products pass WIST compostability testing may use this BPI logo, which tells consumers that the product on which it is affixed has been independently tested and approved for composting. Consumers may see the logo on single-use tableware, cups, leaf bags and other products. The BPI website, [bpiworld.org](http://bpiworld.org), hosts a catalog listing approved products.



# Laboratory Services Update

WIST laboratory services had a strong year in 2019.

“We saw an increase in orders for service both in number and in average dollar amount of projects,” said Paul Fowler, WIST executive director.

One significant project over the past year was a series of digester studies for a major chemical supplier to the paper industry. WIST laboratory staff tested additives designed to increase pulping yield at an affordable cost and with minimized environmental impact, working with the supplier over a period of months to evaluate different combinations. For each pulping “cook,” WIST provided data results for yield, kappa, viscosity, residual effective alkali, and liquor pH. If you’re not in the paper manufacturing business, just know that those tests measure characteristics that impact paper performance. WIST provides these and dozens of other tests according to applicable standards such as TAPPI, ASTM and ISO.

As with the digester study, much of the work was assistance in product development, whether for large multinational corporations or solo entrepreneurs. Among the dozens of contracted services over the past year, for example, WIST provided coating test runs on the university’s pilot coating and laminating line, worked with an entrepreneur exploring uses for industrial hemp (WIST in 2018 became one of the first laboratories licensed by Wisconsin for research on industrial hemp), tested cat litter made from recycled paper, helped a company recreate a legacy paper, and worked with a company developing a filter pad.

While the pulp, paper and converting industries are primary drivers of demand for WIST services, the institute also provides a variety of chemical analyses for a wider range of industries. Equipment includes a fermentation laboratory and advanced analytical instruments including mass spectrometry and gas, ion and liquid chromatography.

WIST laboratory services provide help for Wisconsin industries, but also benefit UW-Stevens Point in several ways. Income from services provided by WIST help sustain the institute and its research activities. It also supports maintenance of the



The pilot paper machine at UW-Stevens Point is used not only to train students in the paper science and chemical engineering program but for trial and small-scale production runs by WIST laboratory staff.

university’s pilot paper machine and paper testing laboratories, which are used by students and faculty in the Department of Paper Science and Chemical Engineering. WIST also employs paper science and chemical engineering students part time, providing them experience working on real-world projects while they earn their degrees. In 2019, nine UW-Stevens Point students worked for the institute.

While a majority of the work is for Wisconsin-located companies, the institute also receives work orders from throughout the U.S. and the world.

# Advisory Board Update

The WIST Advisory Board has met twice annually since its formation in 2011. Board members represent a spectrum of businesses and economic development agencies, including from the agricultural and paper manufacturing sectors.

In 2019, Alan Rudie retired from the board, as he also retired from his work as supervisory research chemist at the U.S. Forest Service Forest Products Laboratory in Madison.

Joining the board in 2019 is Mary Gage, executive vice president of business and economic development at the Wisconsin Economic Development Corporation. Brief biographical notes are below.

Gage replaced Barb LaMue at WEDC when LaMue took a new post as executive director of The New North, a marketing and economic development organization representing 18 counties in northeast Wisconsin. LaMue, a charter member of the WIST Advisory Board, has agreed to continue to serve on the board.



Mary Gage

Mary Gage, vice president, business and community development, Wisconsin Economic Development Corporation, started this position in July 2019. Prior to taking this role, she was a senior economic development director with WEDC overseeing a staff of seven covering 50 counties. She also held the role of regional account manager for six of the counties (Columbia, Sauk, Dane, Dodge, Jefferson and Rock). She assumed this role in the fall of 2011 after serving 15 years at the Department of Commerce as director of business finance in charge of underwriting for most business-to-business programs. Prior experience includes credit manager at Sallie Mae in Washington D.C., as well as credit analyst positions at consumer and commercial banks.

Gage is a graduate of UW-Madison with a Bachelor of Science in economics and holds a MBA in finance from DePaul University, Chicago. She is also certified by the National Development Council as an Economic Development Finance Professional and has the Certified Economic Development designation from the International Economic Development Council.

## Advisory Board Members

Dean Benjamin  
Director of Product Development  
Verso Corporation  
Stevens Point, Wisconsin

Mary Blanchard  
Associate Director  
Wisconsin Energy Institute  
Madison, Wisconsin

David Boardman  
Government Relations Specialist  
University of Wisconsin System  
Madison, Wisconsin

Gordon Crow  
Executive Director  
Centergy Inc.  
Wausau, Wisconsin

Mary Gage  
Vice President of Business and Economic Development  
Wisconsin Economic Development Corporation  
Madison, Wisconsin

Tamas Houlihan  
Executive Director  
Wisconsin Potato and Vegetable Growers Association  
Antigo, Wisconsin

Meleesa D. Johnson  
Director  
Marathon County Solid Waste  
Ringle, Wisconsin

Barb LaMue  
Executive Director  
The New North  
Green Bay, Wisconsin

Leon Ostrowski  
President  
Ostrowski Ventures  
Plover, Wisconsin

Richard Pavelski  
CEO and Owner  
Heartland Farms  
Naples, Florida

Francis J. Podvin  
Podvin Law Firm  
Wisconsin Rapids, Wisconsin



# Focal Point 2019

**Paper-Based Food Packaging and Serviceware**  
Enhanced performance and reduced environmental footprint

**October 29/Dreyfus University Center, UW-Stevens Point**

## McDonald's, Kwik Trip Among 2019 Presenters

American consumers are concerned about the amount of material that ends up in landfills, and single-use food packaging has become an area of intense interest in recent years. The 2019 Focal Point conference offered a full day of industry-expert presentations examining issues and opportunities in this arena.

In order for food packaging and food serviceware to avoid the landfill, work is needed from the product development stage to the end-of-product life disposal.

Anne Rutanen, innovation manager with CP Kelco, addressed the first part of that equation in a presentation on her company's work to develop sustainable coatings that provide important properties such as grease resistance in food packaging. Jim Fogg, North America business development manager for barrier coatings at Solenis, described a biobased coating the company has developed to replace paraffin products.

Natha Dempsey, president of the Foodservice Packaging Institute, described how her organization works with businesses and material recovery facilities to increase recovery rates for recyclable materials. The institute helps overcome barriers such as dealing with contamination in single-use food packaging, confusion about what is recyclable and development of end markets for recovered material. They provide



Jessica Marshall, manager of global sustainability for McDonald's, discusses the company's "Scale for Good" program, in which it leverages its huge corporate footprint to foster sustainability improvements such as recyclable single-use food packaging.

technical assistance, residence education, research data and more. In related presentations, Christine Miller, director of solid waste for Adams County, Wisconsin, and Mark Bond, recycled fiber sales manager with Sustana, discussed materials handling and end-use markets.

In other presentations, Jessica Marshall, global sustainability manager for McDonald's, described the company's "Scale for Good" program that leverages the company's size to promote sustainability improvements; Steven Wrobel, public relations with Kwik Trip, described the Wisconsin-based company's vertical integration business model; and Paul Fowler, executive director of WIST, provided an overview of the changing landscape of paper for food packaging and serviceware use.

The 2019 conference was the ninth annual Focal Point event and it drew its largest paid attendance ever. The 2020 conference date has already been set for October 22.

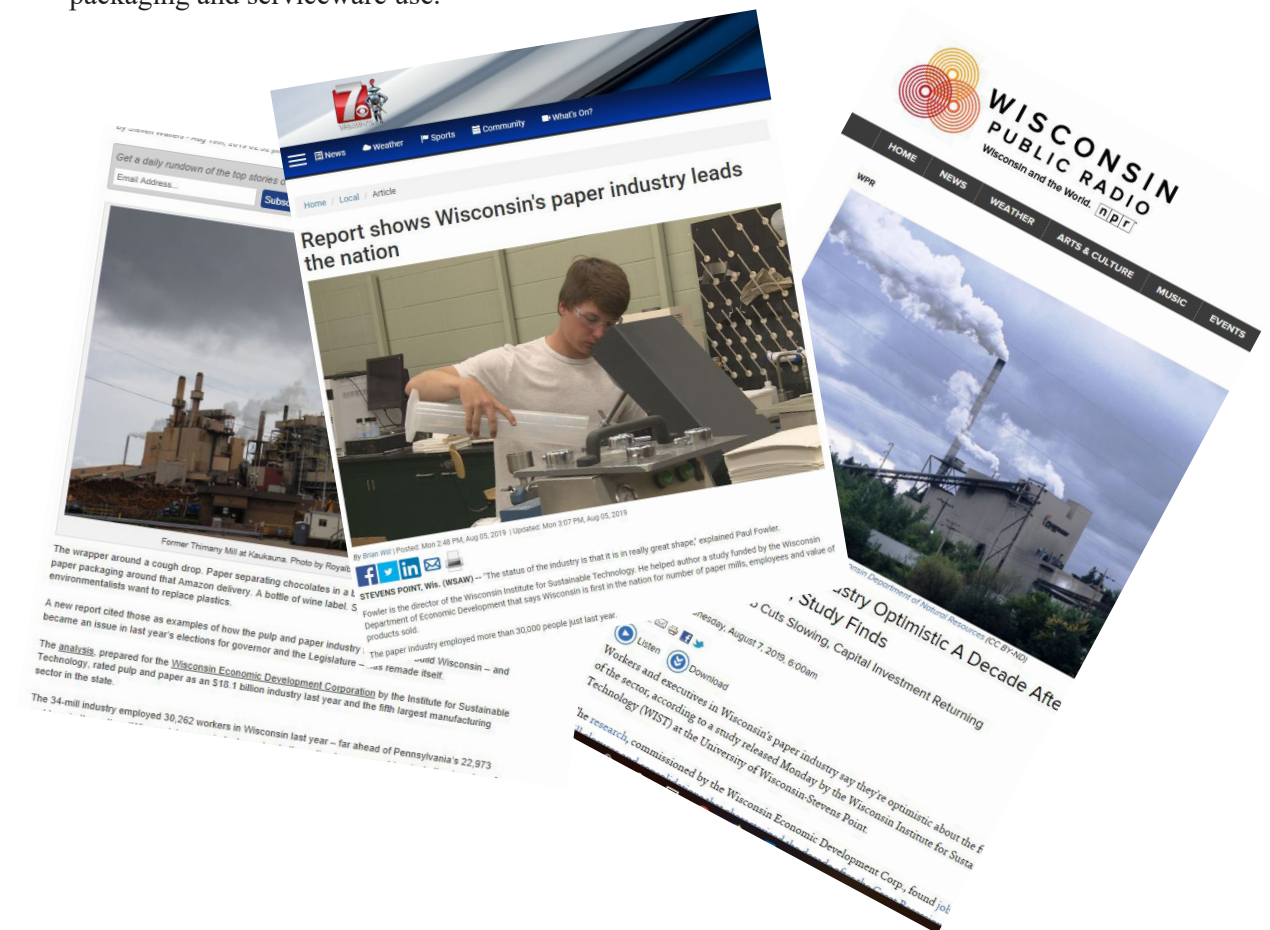
## Other events, outreach and media coverage

Paul Fowler, WIST executive director, and Ron Tschida, WIST communications manager, made several presentations to industry, government and economic development groups to provide insight into and gather input for a WIST research study examining the economic contributions of Wisconsin's pulp, paper and converting industries. These included:

- January 17: Presentation at Midwest Paper Group, Combined Locks, titled: An assessment of the economic impact of pulp, paper and converting to the state of Wisconsin.
- March 8: Presentation at UW-Stevens Point, titled: An assessment of the economic contribution of pulp, paper and converting to the state of Wisconsin.
- May 22: Presentation to New North, Fond du Lac, titled: An assessment of the economic contribution of pulp, paper and converting to the state of Wisconsin.

Fowler also made separate presentations to various groups throughout the year focused on WIST activities:

- February 28: Presentation at Wisconsin Integrated Resource Management Conference, Stevens Point, titled: Selection and trends in use of plastics for consumer-packaged goods.
- May 3: Presentation to Wisconsin Paper Caucus, Wisconsin Rapids, titled: An assessment of the economic contribution of pulp, paper and converting to the state of Wisconsin.
- July 11: Presentation to 2019 Midwest Compost School, Stevens Point, titled: Compostable Packaging.
- October 29: Presentation at Focal Point 2019, Stevens Point, titled: Changing landscape of paper for food packaging and serviceware use.



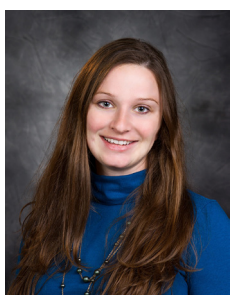


# WIST Staff



Brian Bandow

Brian Bandow is WIST's paper machine and laboratory specialist. Bandow's duties span activities in both WIST and the paper science and chemical engineering department. He assists in operating and maintaining the pilot paper machine and equipment in support of the paper science and engineering undergraduate program. For WIST, Bandow supports the institute's industry-focused contract research laboratory projects. His work includes outreach, research, testing, analytical and paper machine services to industry and other clients. Bandow brings a wealth of experience in papermaking and in related industries. He has a bachelor's degree from UW-Oshkosh and did post-graduate studies at UW-Eau Claire.



Amber Davidson

Amber Davidson is the compostability testing laboratory manager at WIST. She oversees the compostability testing services provided by the institute and performs laboratory tests to determine how well certain packaging composts under industrial composting conditions. In addition to laboratory work, she assists WIST in public outreach for compostability testing. She is a December 2012 graduate of the UW-Stevens Point with a Bachelor of Science degree in water resources and a minor in soil science and business administration.



Paul Fowler

Paul Fowler, WIST executive director, has 18 years of experience in contract research and development of new products and opportunities from biobased materials. At WIST, Fowler networks with public- and private-sector organizations and companies to develop new sustainable technologies with commercial applications to benefit the economy and the environment. Before taking the helm at WIST in 2010, he was director of the Welsh Institute for Natural Resources, a financially self-supporting unit at Bangor University in Wales, UK. Fowler has a doctorate in organic chemistry and extensive knowledge of biobased, renewable materials and applications.



Justin Hall

Justin Hall is a technical project manager at WIST. His duties include analytical work on WIST research projects. He also provides support for WIST research projects by maintaining and operating analytical instrumentation. Hall is experienced in ion chromatography, gas chromatography, liquid chromatography, and mass spectrometry. In addition to research support, Hall provides laboratory services for outside companies. He is a 2011 graduate of UW-Stevens Point with a bachelor's degree in water resources and a minor in chemistry.



Angie Hauer

Angie Hauer, WIST program development coordinator, coordinates daily office activities, supplies and correspondence, as well as WIST events such as the annual Focal Point conference and its course offerings. She has a bachelor's degree in resource management from UW-Stevens Point and a master's degree in outdoor recreation administration from Southern Illinois University at Carbondale.



Lindsey Hoffman

Lindsey Hoffman carries out industry-focused projects and work performed on the UW-Stevens Point pilot paper machine as well as paper testing provided to industry by WIST. She also coordinates student and contract work, along with providing support for the paper science and engineering undergraduate program. Hoffman graduated in 2014 with a bachelor's degree in paper science and engineering and a minor in chemistry from UW-Stevens Point.



Ron Tschida

Ron Tschida, WIST communications manager, handles public relations, marketing and outreach, institute publications and the WIST website. Tschida has worked as a beat reporter and feature writer at several daily newspapers in the West, and before coming to UW-Stevens Point in 2005 he was city editor of the Bozeman Daily Chronicle in Bozeman, Montana. He has a master's degree in journalism from the University of Montana.



Rebecca Vagts

Rebecca Vagts, WIST business manager, is responsible for the fiscal management of WIST grants and contracts including developing budgets in grant narratives, budget review, account reconciliation and fiscal reporting. Vagts has an MBA with a global emphasis and a bachelor's in business management from Upper Iowa University.

**State funds were not used to print this publication**

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The Wisconsin Institute for Sustainable Technology –

*Creating sustainability solutions  
and economic opportunities*

WIST is an institute within the College of Natural Resources at UW-Stevens Point. Offices and laboratories are in the Science Building and the Dan Trainer Natural Resources Building on the UW-Stevens Point campus.

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