



Northeast
Regional
Center for Rural
Development



*Enhancing the capacity of
land-grant universities to foster regional
prosperity and rural development*

2019
Annual
Report

The Northeast Regional Center for Rural Development

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Cover image credits, L-R, top row: 1) National Park Service's Bob Ratcliffe addresses the audience at the NET-STOR conference. Credit: Trav Williams, Broken Banjo Photography. 2) Allie Smith via Unsplash 3) Gemma Evans via Unsplash. L-R, bottom row: 1) Marius Ciocirlan via Unsplash 2) Kat Maryschuk via Unsplash 3) Participants at Delaware Strengthening Health and Farm Vitality forum. Credit: Maria Pippidis, University of Delaware.



United States
Department of
Agriculture

National Institute
of Food and
Agriculture



Northeastern Regional
Association of State
Agricultural Experiment
Station Directors

Overview 2019

One of last year's highlights was the establishment of the First State African American Farmers Association, supported by Andy Wetherill, Extension Educator at Delaware State University and member of NERC RD's Technical Advisory Committee. This project demonstrates how a NIFA 1890 Capacity Building grant generated science-based outreach materials and insights instrumental to establishing a farmers' organization. The farmer members have already benefited from the organization through educational programs and outreach to a state legislator, and in turn have contributed to the food-security of DESU students (see p. 11).

Another highlight was the success of our small-grants projects. One project, led by Virginia Brown, UMD, in collaboration with a UDE and

a former UVM faculty member, helped farm communities create their own solutions to health care problems. One early outcome includes leveraged funding in excess of \$1 million from a small grant of \$19,500 (pp. 7-8).

The Center was privileged to host Charlie French of UNH for four days of his mini-sabbatical. The Center's support has been essential to advancing Dr. French's edited book project on *Rural Innovation* within Routledge's Community Development Research and Practice Series (p. 15). We also supported the National Extension Tourism conference in Astoria, OR, and continued to deepen our ties with that group.

Scientific papers published last year included new methods of analysis that shed light on changing rural economic

conditions and opportunities. We were pleased that the Center's research was featured in the US President's 2019 Economic Report (p. 13), and that three scientific papers were recognized with awards (p. 20).

I am deeply grateful to our funders and Center collaborators in the region and beyond; without their support, talents, and energy this work would not be possible. Over two decades serving as the Director, I have also learned firsthand the importance of a talented and dedicated staff; they are listed on the inside cover of this report, and below. My sincere thanks to all of them – the Center's work would not have come to fruition as smoothly as it did without them!

Stephan J. Goetz
Director



The NERC RD Team
Shown here at a monthly staff meeting.

Clockwise from bottom left: Stephan Goetz, Anne Põdor, Zheng Tien, Yuxuan Pan, Kristen Devlin, Kim Boonie, Tanji Hwang, Devon Meadowcroft, Elizabeth Dobis, Sarah Rucker.

NERCRD Direct Outcome and Impact Data FY 2018-19

Leveraging Federal Investments To Advance Rural Prosperity

The Northeast Regional Center for Rural Development links the research and educational outreach capacity of the region's public universities with communities, local decision-makers, entrepreneurs, families, and farmers to help address a wide range of rural development issues.

Federal Base Funding

\$474,880

Outcomes

Advancing Scholarship

21 major presentations by NERCRD staff
3 international presentations

11 scientific papers published

10 graduate students and postdocs trained

6 briefs, reports, news releases

2 new national data sets published for public use

Multi-State Activities

640 people from **37** states (plus Canada) & **13** universities

engaged with **5** multi-state projects

Issues addressed: local foods and food systems, community and economic development, sustainable tourism and outdoor recreation

NERCRD staff supported:

120 hours of one-on-one consulting sessions in support of 55 local foods projects.

70 online discussions in a new peer-learning platform for leaders of local-food projects

7 webinars on topics related to successful local-foods project implementation

1 national conference that convened 80+ to share knowledge about rural tourism and recreation economies

Reach

 **28,488** unique web page views

 **765** newsletter subscribers

 **460** social media followers

Outreach Initiatives: Helping Extension Help Communities

AMSTA 2.0: The Agricultural Marketing Service Technical Assistance Project

Supporting local foods projects nationwide

During the second phase of the Agricultural Marketing Service Technical Assistance (AMSTA) Project, we carried out a multi-faceted initiative aimed at growing capacity for and strengthening outcomes of community-based local foods projects by helping recipients of the Farmers Market and Local Foods Promotion Programs (FMPP and LFPP) access the resources they need to successfully carry out their funded projects.

Program Coordinators Sarah Rocker and Bryan Moyer (Penn State Extension) convened a team of six food systems experts from around the country. These mentor consultants conducted seven webinars, each on their own respective area of expertise. Webinars served as the gateway for grantees to connect with the project; they typically learned about a topic through a webinar, and then followed up for one-on-one support or to connect to the mentor for targeted consulting.

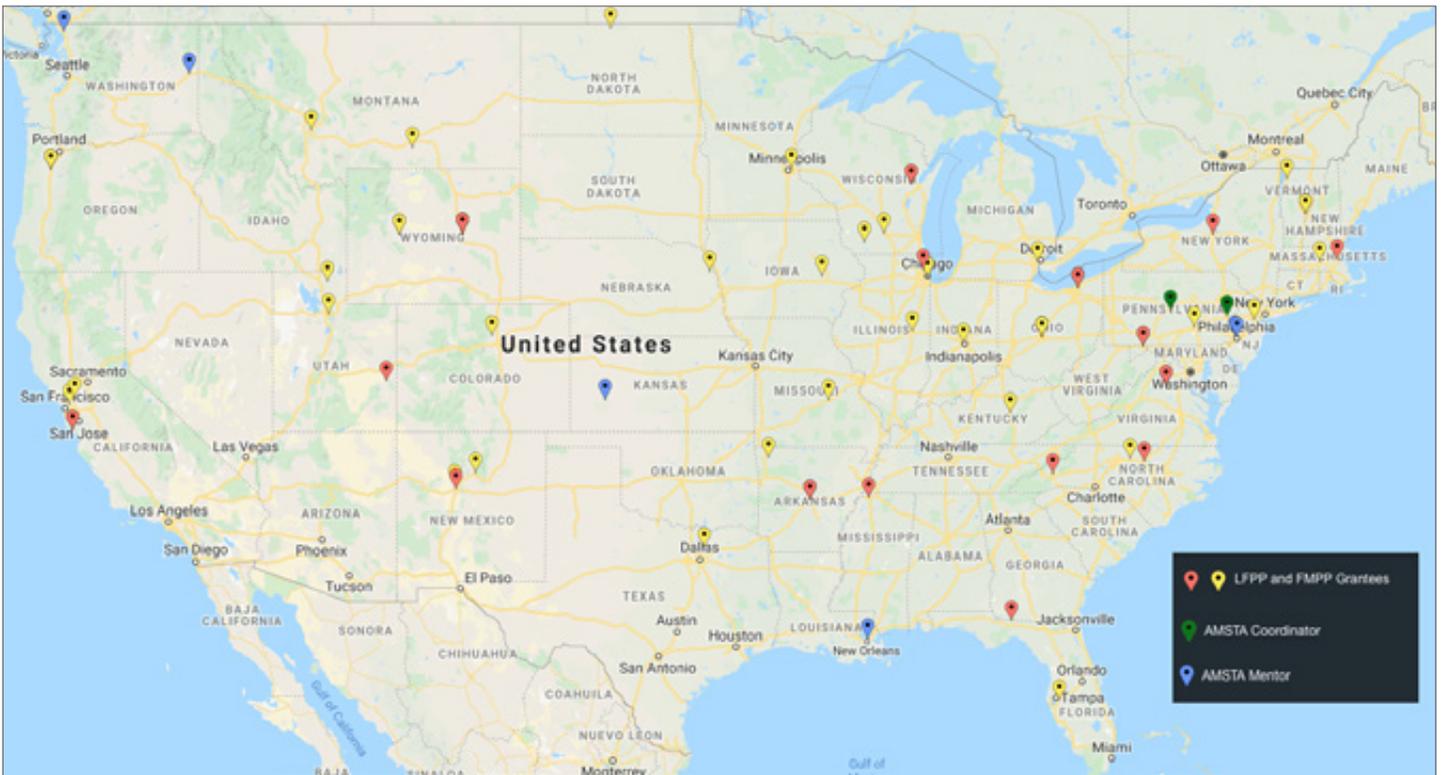
Mentors and program coordinators delivered 120 hours of one-on-one consulting to more than 55 FMPP and LFPP grantees via email and phone in areas such as evaluation strategies, convening stakeholders, farmers market recruitment and retention, metrics and evaluation, client management software, project activities and objectives changes, and collaborating with and maintaining working relationships with community stakeholders. The project team also developed a series of four Mini-Group Consulting Workshops, fostering peer learning among approximately 18 grantees and providing direct consulting on topics including institutional sales, metrics and evaluation.

In partnership with the Wallace Center at Winrock International's Food System Leadership Network (FSLN), the project team launched a peer-to-peer online network for current, past, and prospective FMPP and LFPP

grantees. Mentor consultants posted relevant resources following their webinars, and peer grantees and other technical assistance providers (including USDA AMS staff) posted updates and resources to this site. As of August 2019, the peer network had over 70 posts and 90 individual active users.

Some early impacts include grantees making changes to their budget line items and activities; increasing communication with their project stakeholders; securing assistance with event planning; amending their evaluation plans; and integrating new technologies or resources into their projects, such as sales and customer management systems.

In partnership with the Agricultural Marketing Service and the Regional Rural Development Centers (RRDCs), the project is led by the Northeast Center. Learn more at: <http://sites.psu.edu/amsta>.



Map Data © 2019 Google, INEGI

AMSTA Highlights by the Numbers:

- Hosted 7 webinars with over 425 attendees.
- Developed the new AMSTA listserv, which has grown to more than 500 members.
- Fostered an online community of technical support and peer learning, partnering with the Wallace Center Food System Leadership Network. This FMLFPP discussion group has grown to over 90 members with over 70 discussion posts.
- 6 Mentors and 2 Coordinators delivered 120 hours of one-on-one customized consulting to over 55 FMPP and LFPF grantees.
- In spring of 2019, we launched the Mini-Group Consulting Workshops, providing direct consulting on topics including institutional sales, metrics and evaluation. By the end of August we hosted 4 sessions in this new format, providing outreach and fostered peer learning among approximately 18 grantees.
- Since its launch in November 2018, our web portal has received more than 600 unique visits and 5,000 page views, with top page views in webinars, tools, and resources for project evaluation.

Small Grants Program: Three Project Teams Share Their Learnings

Our small grants program is designed to help Northeast land-grant university faculty and educators document the impacts of their work while also encouraging collaboration across state lines. Three funded teams completed their proposed projects this year, resulting in new resources to share with the region.

1 Downtowns and Trails

3 Community Risk Management Approach to Health and Health Insurance among Farm Enterprises

2 Farm Fresh Food Boxes

1 Downtown and Trails Team

- Shannon Rogers, University of New Hampshire (UNH) (PI)
- Molly Donovan, UNH
- Charlie French, UNH
- Casey Hancock, UNH
- Laura Brown, University of Connecticut
- Lisa Chase, University of Vermont
- Rebecca Sero, Washington State University
- Collaborator: Jayoung Koo, University of Kentucky

The Downtowns and Trails Team formed a multistate, collaborative knowledge-sharing network to explore the connections between downtowns and trails. They developed an infobrief to share their findings with community and economic development professionals. The infobrief distills the one-year co-learning process that took place through multiple team meetings, including a train-the-trainer trip to assess Kentucky's Trail Town program and visit four Trail Town communities. Through meetings with various stakeholders in each Trail Town, the team learned about the multi-faceted community characteristics necessary to establish a Trail Town program.

In addition to sharing their findings at the 2019 National Association for Community Development Extension Professionals (NACDEP) conference in Asheville, NC, they also were honored for their work with a NACDEP Northeast Regional Cross-Program Team Award. In October, two team members

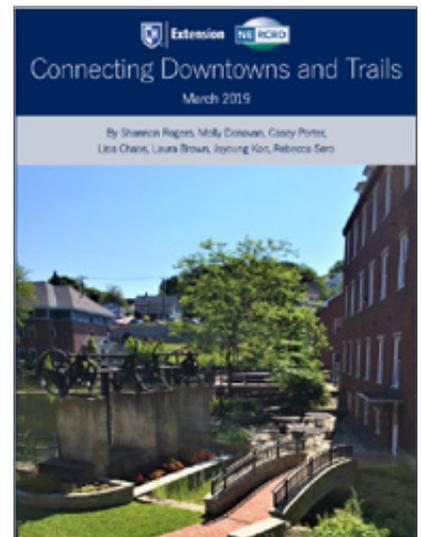
presented on the project at the National Extension Tourism conference in Astoria, OR.



Downtowns and Trails Team

Pictured from left: Charlie French, Lisa Chase, Casey Hancock, Laura Brown, Kristina Kelly, Shannon Rogers (PI) and Molly Donovan. Team members not pictured: Rebecca Sero, Washington State University, and collaborator, Jayoung Koo, University of Kentucky.

Image credit: Jayoung Koo



2 Farm Fresh Food Boxes Team

- Jane Kolodinsky, University of Vermont (UVM) (PI)
- Lisa Chase, UVM
- Marilyn Sitaker, The Evergreen State College
- Julia Van Soelen, University of California, Davis
- Diane Smith, Washington State University
- Hans Estrin, UVM
- Weiwei Wang, UVM
- Lauren Greco, UVM
- Mary Peabody, UVM
- Christa Alexander, Jericho Settlers Farm (VT)
- Teresa Snow, Salvation Farms (VT)
- Mike Trackim, Jolley Mobile (VT)

The Farm Fresh Food Boxes (F3B) team explored the feasibility of implementing the impact reporting system described in the “Impact Indicators Tips Booklet” (NERCRD, 2016) for their established multi-state Extension program, F3B. F3B is a collaboration between extension and research that tests an innovative model in which farmers and rural retailers partner to offer pre-ordered boxes of fresh local produce to local consumers.

In addition to the metrics they were collecting already for evaluation of their project, they used NERCRD funding to collect data on four additional impact indicators related to the number of farms and rural retailers making business improvements as a result of the project, as well as the number of businesses and jobs retained and increase in unpaid/volunteer hours. They developed an infographic (pictured at right) and report to share what they learned, available at: <http://bit.ly/2luFz38>.

Team members shared their findings at the NACDEP conference in Asheville, NC, in a roundtable format, in which they discussed challenges of creating new markets for local food purchasing and the role of F3B in addressing these issues. Team members also gave two presentations that included findings from their study at the 2019 Joint Conference of the Agriculture, Food and Human Values Society and the Association for the Study of Food and Society in Anchorage, AK.

Farm Fresh Food Boxes Team

Pictured from left: Hans Estrin, Julia Van Soelen Kim, Jane Kolodinsky, Marilyn Sitaker, Diane Smith, Lauren Greco, Lisa Chase, Weiwei Wang, UVM. The dog belongs to Jericho Settler Farm, which the group visited as part of the project. Team members not pictured: Mary Peabody, Christa Alexander, Teresa Snow, Mike Trackim.



FARM FRESH Food Boxes Community Economic Development Indicators

In 2018, the Farm Fresh Food Boxes project received a grant to test selected community economic development indicators developed by the North East Regional Center for Rural Development (NERCRD). These indicators are designed to ascertain the degree to which specific programs are making a difference in communities being served. Four indicators were tested, related to the number of farms and rural retailers making business improvements as a result of Extension technical assistance, as well as the number of businesses and jobs retained, and increase in unpaid/volunteer hours.

What is a Farm Fresh Food Box?

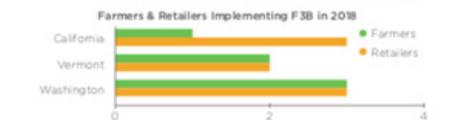
Farm Fresh Food Boxes are Community Supported Agriculture (CSA) style boxes of produce customers can order and pick up at small, rural grocery stores and other community spaces that don't typically carry fresh produce without the commitment of a season-long subscription. We asked shoppers to share their opinion of this new way to buy fruit and vegetables as part of a national survey of locally grown foods.



NERCRD Indicators

Number of Farm and Retail Businesses Making Changes in Marketing or Business Management

As a result of Extension outreach and technical assistance, a number of farmers in California, Vermont, and Washington State incorporated F3B into their marketing plans and strategies.



Small Grants Program Outcomes and Impacts (continued)

3 Community Risk Management Approach to Health and Health Insurance among Farm Enterprises

- Virginia Brown, University of Maryland Extension (PI)
- Maria Pippidis, University of Delaware Cooperative Extension
- Shoshanah Inwood, The Ohio State University

This team organized and hosted “Strengthening Health and Farm Vitality” forums in each of their respective states, bringing together representatives from the agriculture, health and mental health, insurance, and financial sectors to engage in discussions about healthcare issues facing rural populations and farming communities. At each forum, participants were encouraged to develop short-term, collaborative efforts to address the issues discussed, which have already resulted in several outcomes and impacts:

- A team at the Maryland forum pursued seed funding from the University of Maryland to assess stress felt by Maryland’s farmers. This assessment ultimately led to a \$1M Rural Opioid Technical Assistance grant awarded to the University of Maryland.
- The Ohio State University funded \$4,000 in mini-grants to implement strategic doing activities developed during the Ohio forum.
- A special supplement published by *Delmarva Farmer* provided health and economic information to farmers and agricultural professionals (see next page).
- Mental Health First Aid (MHFA) training was provided to agricultural service organizations around Maryland. Delaware Extension received funding to underwrite three MHFA trainings in 2019 and six in 2020. Agriculture, health care, school and faith-based professionals have been attending these sessions.
- A radio show, which aired on Baltimore’s public radio station WYPR raised awareness about the stresses of farming: <http://bit.ly/2UjOUK4>.
- A new University of Maryland Extension website is dedicated to providing resources related to managing farm stress: <http://bit.ly/38ky1TO>. In Delaware, resources have been added to the “agribusiness” website: <http://bit.ly/2RRQT6E>.
- A “Linking Farm Vitality and Health” self-assessment tool was developed that can be used with a short video entitled “How Healthy Is Your Farm?” These curriculum pieces were developed as a result of Delaware forum discussions.
- The Delaware Division of Libraries developed a “LibGuide” website that hosts farm and farm family health and finance related topics: <http://bit.ly/3b9e8Re>.
- During the 2019 Delaware Ag Week programming and Women in Agriculture Conference, on-site health screenings were provided free of charge by two area hospitals. Over 100 individuals took advantage of this opportunity.



Participants collaborating at the Delaware forum.
Credit: Maria Pippidis, University of Delaware.

(Continued on next page.)



One outcome of the Strengthening Health and Farm Vitality forums is a collection of articles aimed at providing health and economic information to farmers and agricultural professionals, published in *The Delmarva Farmer* in January 2019. Topics covered include:

- Health and Farm Vitality
- Healthcare Insurance
- Paying for Insurance and Healthcare
- Managing Financial Stress
- Stress and Crisis Management
- Succession Planning

The publication is a resource for those working with farming communities, and is available on the NERCRD website: <http://bit.ly/2vSA432>.

NERCRD Invests in Four New Multi-State Collaborations Through Its 2019-2020 Small Grants Program

Building on the success of this popular funding program, NERCRD issued a new call for proposals in 2019, and selected four projects for funding:

Best Practices in Bike/Pedestrian Trail Data Collection and Monitoring

- PI: Laura Brown, University of Connecticut (UConn)
- Charles Tracy, UConn
- Sohyun Park, UConn
- Sungmin Lee, UConn
- Ryan Faulkner, UConn
- Anita Morzillo, UConn
- Shannon Rogers, University of New Hampshire (UNH)
- Charlie French, UNH
- Emma Tutein, UNH
- Greg Lindsey, University of Minnesota
- Lisa Chase, UVM

Main Street Revitalization: Strengthening the Economy, Bringing Vibrancy and Expanding Leadership in Rural Communities

- PI: Molly Donovan, UNH
- Casey Porter, UNH
- Suzanne Cagle, UNH
- Charlie French, UNH
- Julien Kouame, UNH
- Kristen Grant, University of Maine
- Adam Hodges, West Virginia State University (WVSU)
- Christopher Zeto, WVSU
- Jennifer Bunner, WVSU

Connecting Entrepreneurial Communities

- PI: Carla Snyder, Penn State Extension (PSU)
- Tanya Lamo, PSU
- Glori Hyman, University of Maryland (UMD)
- Temitope Fajingbesi, UMD
- Andy Hayes, Michigan State University (MSU)
- Diane Loganbach, MSU
- Jason Weigle, University of Nebraska

Marketing Hometown America

- PI: Peter Wulfhorst, PSU
- PI: Michael Dougherty, West Virginia University Extension (WVU)
- Tanya Lamo, PSU
- Neal Fogle, PSU
- John Turack, PSU
- Linda Falcone, PSU
- Doug Arbogast, WVU
- Daniel Eades, WVU
- Penny Whitman, UNH

Learn more about the newly funded projects at: <http://bit.ly/37R2YO9>

Sustainable Tourism and Outdoor Recreation Conference Offered Industry, Agency, and Extension Perspectives

The RRDCs continued their partnership with the National Extension Tourism team, supporting and participating in the planning process for the team’s biennial national conference.

More than 70 people attended the 2019 Sustainable Tourism and Outdoor Recreation Conference, which took place in Astoria, OR, in October. The conference theme emphasized the “triple bottom line” approach to supporting tourism and outdoor recreation development, which emphasizes the ecology, economy, and people involved in destinations and experiences.



*Bob Ratcliffe, US National Park Service, addresses the audience.
Image credit: Trav Williams, Broken Banjo Photography.*

The coastal venue was fitting, given that Oregon’s coastline is entirely accessible to the public, making way for myriad outdoor recreation and tourism opportunities. But the state’s tourism isn’t limited to the coast, as conference-goers heard from representatives of Travel Oregon, the state’s Destination Management Organization, who spoke during the opening session. More than half of Oregon’s land is public, they said, and the outdoor recreation and tourism industry generates \$12.3 billion annually and employs 115,400 Oregonians.

The lineup of invited speakers also included Astoria’s mayor, a local historian, members of the Oregon State University Sea Grant, a National Park Service representative, and two State Representatives. Western Rural Development Center Director Don Albrecht spoke on how tourism fits into the changing economy and shared research showing that community characteristics that attract tourists are also attractive to mobile workers: high-quality amenities, recreation opportunities, good schools, and a culture of inclusion. *(Continued on next page.)*



Save the Date!

International Workshop on Agritourism

October 27-29, 2020

Burlington, Vermont

www.agritourismworkshop.com

(Continued from previous page.)

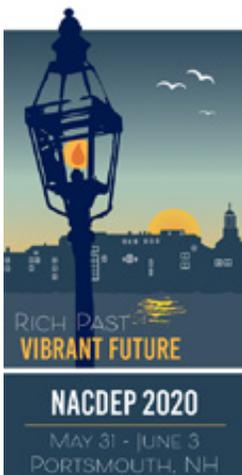
The conference included several concurrent sessions featuring outdoor recreation and tourism research and programming from around the country. The conference program, available at <http://bit.ly/33SGCKv>, contains a complete list of talks and speakers.

Included among them was a presentation by West Virginia University's Daniel Eades and Doug Arbogast and Northeast Center Director Stephan Goetz on "The State of Extension and Tourism: Capacity and Opportunities for Cooperative Extension." Their session highlighted results from a survey conducted in partnership with the Northeast Center that identifies the types of Extension tourism programs offered across the U.S. and programmatic gaps and challenges.

Lisa Chase (University of Vermont) and Charlie French (University of New Hampshire) presented on their experience of working on a team funded by the Northeast Center to explore connections between trail systems and downtown economic development. (See p. 5 for more on this work.)

The conference was organized by the National Extension Tourism Design Team, co-chaired by Miles Phillips and Frank Burris of Oregon State University. The Northeast Center provided administrative and logistical support to the group throughout the planning

process, including organizing monthly calls, publicizing the Call for Presentations and the conference, communicating with speakers, and designing the conference program. The conference was sponsored by Oregon Sea Grant, Oregon State University Extension Service, and the Regional Rural Development Centers.



Save the Date: NACDEP is coming to the Northeast!

The National Association for Community Development Extension Professionals annual conference will be held May 31-June 3, 2020 in Portsmouth, New Hampshire.

www.nacdep.net

Research Grant Lays Groundwork for New Farmer Network to Form

When grants expire and projects come to a close, it's not always easy to track their ongoing impacts, but a recent example from Delaware shows how one project can lead to another.

Andy Wetherill, an Extension Educator at Delaware State University (DSU) and a member of NERCRD's Technical Advisory Committee, knew from his participation in a USDA-funded capacity-building grant that farmers who work together can take advantage of economies of scale and can benefit from learning together. Using an output from that project—a manual that guides Extension educators through the process of conducting network analyses of farmer groups—Wetherill helped a group of minority farmers in Delaware form a new network: The First State African American Farmers Association (FSAAFA).

Wetherill said his approach to helping the group coalesce was informed by the manual (pictured below). It was developed by the project partners including NERCRD, which played an integral role in



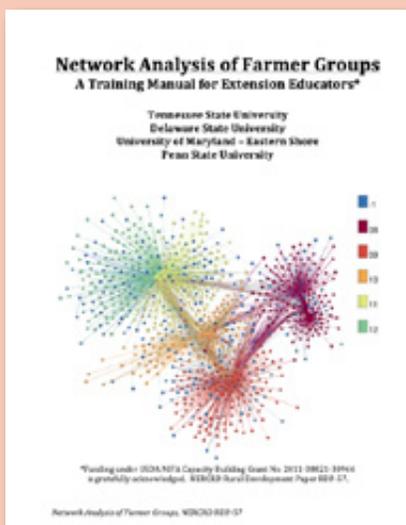
Members of the FSAAFA, pictured with Delaware Congresswoman Lisa Blunt Rochester (center), who met with the group in 2019. Credit: Andy Wetherill.

convening the states involved in the capacity-building grant.

"The framework laid out in the manual helped me to figure out the best ways to both support the formation of the actual association, and to identify challenges that they face collectively and ways in which we can help them act as a group to become more profitable," Wetherill said.

As a member of the team that developed the manual, Wetherill was involved with conducting a survey of minority farmers in three states. Nine of the Delaware farmers he surveyed are among FSAAFA's members.

FSAAFA, now in its second year, is already spawning its own impacts. The group has held regular monthly meetings where members in attendance have learned about soil health, soil testing, farm management, animal and crop production, and federal- and state-funded programs and opportunities. They organized a meeting with State Representative Lisa Blunt Rochester, and conducted a charitable event benefiting food-insecure DSU students. At 35 members strong, they currently are in the process of obtaining legal entity status.



"Network Analysis of Farmer Groups: A Training Manual for Extension Educators," is an output of a USDA-funded capacity-building grant that was led by Tennessee State University with partners from Delaware State University, University of Maryland Eastern Shore, and the Northeast Regional Center for Rural Development. The project, titled "Enhancing the Viability of Underserved Small Farms and Rural Communities Using Insights from Emerging Network Science," ran from 2011-2016, and focused on promoting networking among underserved farmers.

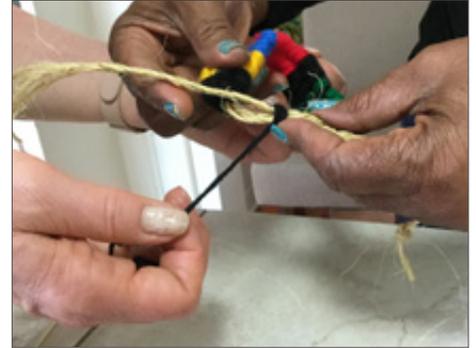
To download the manual, visit: <http://bit.ly/2l66pyc>

For more information about the project, visit: <http://bit.ly/2lJ0eAv>

Intergenerational Fair Designed to Strengthen Families, Enhance Communities

In June, the Center sponsored an Intergenerational Friends Fair in State College, PA, to highlight some ways in which the skills, knowledge, and experience of older adults help to strengthen families and contribute to community quality of life for all residents, regardless of age. The event was organized by Matthew Kaplan, professor of intergenerational programs and aging in Penn State's College of Agricultural Sciences and coordinator of the

Intergenerational Leadership Institute. One outcome of this event is a curriculum, which will be available in early 2020 and will provide an event strategy for creating new opportunities for intergenerational communication, understanding, and civic engagement in any given community. It will be made available to educators on the NERCRD website, thereby contributing to our community capacity building objective.



Participants at the 2019 Intergenerational Friends Fair engaged in games, music, and crafts. Credit: Darcy Long

Research Initiatives: Advancing Science for the Good of Communities

Economic Development, Mobility, and Resilience Research

NERCRD Research Cited in the 2019 Economic Report of the President

NERCRD research is being used at the highest level of Federal Government. The 2019 Economic Report of the President cited three scientific papers written by NERCRD and collaborating researchers. One examines the economic conditions of Rural America during the current administration. The other two focus on the determinants of self-employment and its effects on the local economy.

The NERCRD conducts timely, policy-relevant research on issues facing Rural America. The range of years of papers cited (2009-2018) demonstrates that NERCRD research has short- and longer-term impacts. For more information on how the research was used in the report, please visit: <http://bit.ly/2vmqUZc>

Papers cited:

- Goetz, S., M. Partridge, and H. Stephens. 2018. "The Economic Status of Rural America in the President Trump Era and Beyond." *Applied Economic Perspectives and Policy* 40, no. 1: 97–118.
- Rupasingha, A., and S. Goetz. 2013. "Self-Employment and Local Economic Performance: Evidence from U.S. Counties." *Papers in Regional Science* 92, no. 1: 141–62.
- Goetz, S., and A. Rupasingha. 2009. "Determinants of Growth in Non-Farm Proprietor Densities in the U.S., 1990–2000." *Small Business Economics* 32, no. 4: 425–38.



The Economic Report of the President is available at: <http://bit.ly/2lXgWff>

“We found your research to be insightful and critical to the completion of the 2019 Economic Report of the President.”

Kevin Hassett, Chairman
U.S. Council of Economic Advisers
March 19, 2019 via email

Promoting Economic Resilience in Appalachia: Lessons From Successful Communities

Research conducted on behalf of the Appalachian Regional Commission in collaboration with Downstream Strategies, of West Virginia, Dialogue + Design Associates, of Virginia, and West Virginia University will help guide economic development strategies across Appalachia.

The Appalachian communities that enjoyed persistent economic growth following the 2008 Great Recession have a number of factors in common, according to researchers who analyzed all 420 counties in the Appalachian region.

“Economically resilient communities can teach us about strategies for promoting resilience elsewhere in the region,” said NERCRD Director Stephan Goetz. “By identifying the resilience-promoting factors these communities share, our findings will help other communities select strategies and policies to enhance their own future economic prospects.”

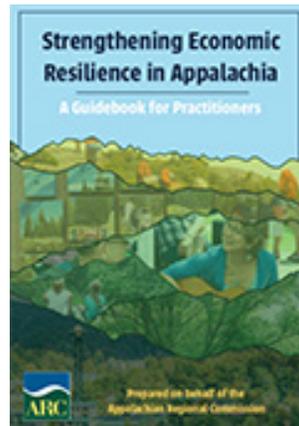
The results of the analysis were published this year by the Appalachian Regional Commission (ARC) in a report titled “Strengthening Economic Resilience in Appalachia.”

Using a novel, county-level measure of economic resilience developed by Goetz and Yicheol Han, formerly at NERCRD and now at the Korea Rural Economic Institute, the researchers examined the relationship between a county’s resilience ranking and 35 individual variables hypothesized to be associated with resilience, such as broadband availability, natural amenities, and the number of resident college graduates.

Through statistical analysis, they looked at each variable in isolation while holding others constant, allowing them to determine which variables have the strongest relationship with resilience. They also examined how the interaction of certain variables with one another affects resilience.

Through further analysis and field interviews, the researchers identified seven common strategies adopted by the counties with higher resilience scores:

- Investing in education, technology, infrastructure and broadband
- Engaging the community over the long term
- Growing youth engagement and next-generation leadership
- Identifying and growing the assets in the community and region
- Building networks and fostering collaboration
- Moving multiple sectors forward for economic development and growing value chains
- Cultivating entrepreneurs and developing resources for business startups



The research team also conducted case studies of selected counties in the Appalachian region and across the country to gain additional insight into how some communities have rebounded from the recession and other economic disruptions in mining, manufacturing, hospitality, education, transportation and similar industries. The case studies are featured in a “Guidebook for Practitioners,” intended for use by economic development professionals, local

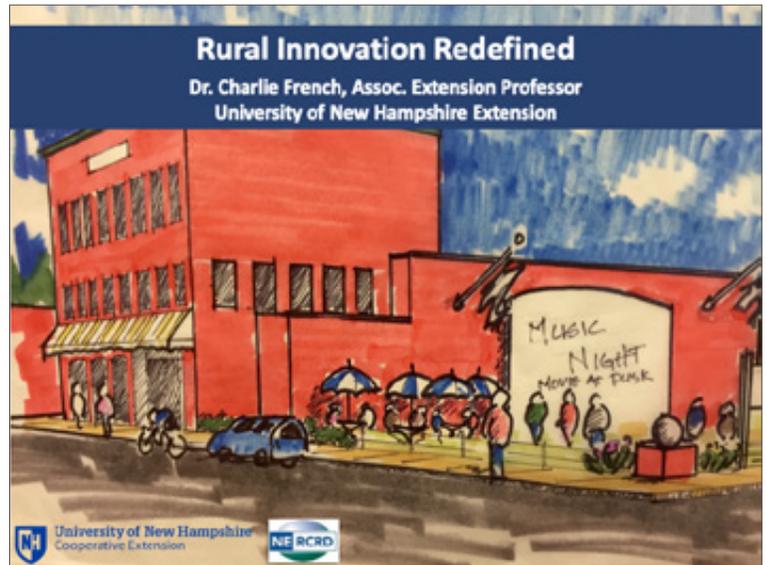
government officials, nonprofit organizations, and others working in the Appalachian region. Both publications are online at: <http://bit.ly/2THOcFS>.

In addition to Goetz and Han, the study’s authors include Fritz Boettner, Evan Fedorko and Evan Hansen, Downstream Strategies; Christine Gyovai, Emily Carlson and Alexandria Sentilles, Dialogue + Design Associates; and Alan Collins and Brianne Zimmerman, West Virginia University.

New Research Initiative To Examine Resilient, Rural Communities

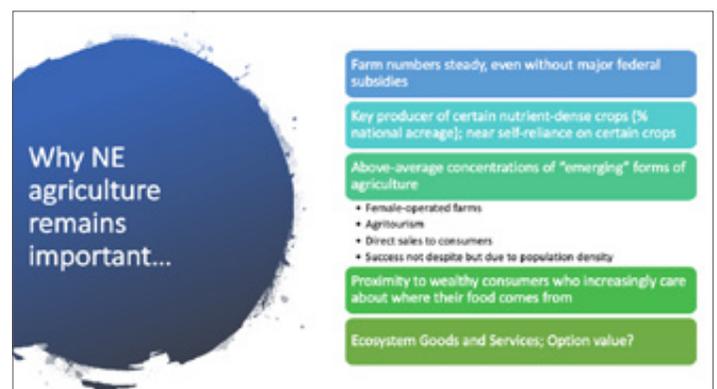
At the recommendation of our Board of Directors and Technical Advisory Committee, the Northeast Center has embarked on an initiative to better understand the characteristics of resilient, rural communities, and to this end has engaged Dr. Charlie French, University of New Hampshire, to conduct a research fellowship. Dr. French is collaborating with researchers at Penn State, other land-grant institutions around the country, and institutions and organizations internationally to identify and document characteristics maintained by rural communities that have rebounded from economic decline and to provide case studies that elucidate how those characteristics were manifest and the lessons that other places can glean. A particular focus of the research will be rural innovation and the ways in which innovation ecosystems lay the groundwork to support the growth of entrepreneurs and entrepreneurship in rural places. Dr. French's effort will entail:

- Background research on rural economic decline and revival
- Identification of key quantitative indicators/ characteristics of rural resiliency
- Analysis of datasets that examine resiliency indicators in comparison to the economic health of rural places
- In-depth case studies of communities/ places that demonstrate innovation ecosystems that foster resiliency
- Lessons learned and best practices for rural communities seeking to strengthen their innovation ecosystems



Rural Trends and Opportunities

Our research on rural trends, opportunities, and issues in the Northeast has generated great interest since it was originally presented at the 2018 joint summer meeting of Northeastern Regional Association of State Agricultural Experiment Station Directors (NERA) and Northeast Extension Directors Association (NEED). We have delivered several invited presentations to the National Governors Association, West Virginia University Extension, and the PA Planning Association, the latter of which was part of a special session organized by Stephan Goetz that focused on how rural areas can contend with the changing nature of the economy, and specifically on the potential roles of the planning community in supporting new opportunities. Goetz presented related work on rural-urban interdependency at



the Land-Grant mini-conference in Coral Springs, Florida, and also delivered the keynote at the Northeast Agricultural and Resource Economics Association (NAREA) conference in Portsmouth, NH, on Agriculture in the Northeast (an excerpt of which is pictured above).

New Method of Analyzing Networks Reveals Hidden Patterns in Data

A new way of measuring how relationships in a network change over time can reveal important details about the network, according to researchers at NERCRD and the Korea Rural Economic Institute. For example, when applied to the world economy, the method detected the greatest amount of network change during 2008-09, the time of the global financial crisis.

“Most existing approaches only capture relationship changes in a network one network member at time,” said NERCRD Director Stephan Goetz. “Our measure allows us to see how these relationships change over time across the entire network, which will give us potential new insights into how networks behave, as well as the impacts of those changes.”

According to Goetz, networks of all types are represented visually by individual nodes connected to one another by lines, or links. The familiar airline hub-and-spoke map is one example. Each node represents an entity in a network — an airport, a person, a business or a country, for example. The links between two nodes represent their connection or relationship.

“Think about your own network of relationships, with each person in your network represented by a node and your connection to them represented by a link. Over time, some people might drop



Credit: Alina Grubnyak via Unsplash

out, others might come in, some relationships get stronger, others weaken,” Goetz said. “Because most networks change over time, this configuration of nodes and links also changes.”

This change from one period to the next is represented by a change in the angles formed by the nodes and links, and these angles are the focus of the study.

Goetz and his co-author, Yicheol Han, a research fellow at the Korea Rural Economic Institute and formerly a research associate at NERCRD, turned to a familiar mathematical measure called the cosine similarity, which is traditionally used to measure the orientation of the angles between points and lines radiating from the points. When applied to network science, cosine similarity allowed the researchers to measure the size of the change in any given relationship, both relative to itself and to the overall network.

To test their new measure, the researchers applied it to several real-world networks, including

the World Input-Output (I/O) Table, which documents economic transactions on a yearly basis both across and within nations. Focusing on the years 2000-14, they found that the greatest amount of network change, which they refer to as “rewiring,” occurred during 2008-09. This was not unexpected, due to the Global Financial Crisis which occurred during those years.

“Rewiring is another way of thinking about reorganization, in this case,” Goetz said. “Our findings show what a tremendous shock the world financial crisis was. It’s interesting that the measure picked this up so strongly, and that it can be used as a new way of quantifying how the economy adjusted after the shock.”

Future research will look at how the measure can be applied to rural economies, to see how these areas may or may not benefit from rewiring.

Learn more about the study, which was published in *PLOS ONE*, at: <http://bit.ly/32J6HvL>.

Shining a Light on Rural Innovation

Through several lines of inquiry, NERCRD is bringing new knowledge to the conversation about rural innovation and how best to support it.

Innovation is Widespread in Rural Areas, Not Just Cities

Conventional measures of innovation suggest that only big cities foster new ideas, but a more comprehensive measure developed at NERCRD shows that innovation is widespread even in rural places not typically thought of as innovative. Published in *Research Policy*, this research shows that “hidden” innovation brings economic benefits to businesses and communities, and will help decision makers think in new ways about innovation and how they can support it.

These findings, shared widely through a companion press release, resonated: by early 2020, the story was picked up by several media outlets, including *Forbes* and *The Daily Yonder*, and received considerable attention on Twitter. Read the press release at: <http://bit.ly/3a5U94M>



“Innovation Issues” Research Brief Series Launched

Smaller and rural businesses innovate in ways that are often missed by traditional measures of innovation and, as a result, little is known about their innovation activity. However, through a funding program administered by NERCRD in collaboration with the USDA Economic Research Service, three research teams have broadened our understanding of how rural businesses are innovating and the effects such innovation is having on communities. With the goal of distilling some of their findings for a general audience, we launched a new series of research briefs in 2019. The first focuses on a new, broad measure of innovation that provides insight into the effects of innovation on the economic health of communities and businesses: <http://bit.ly/3aijDMv>.

The Role of Innovation in Rural Firm Emergence and Vitality

The goal of this three-year USDA NIFA-funded project is to study innovation in rural communities and to find ways for communities to support rural entrepreneurs, using data from the Economic Research Service’s Rural Establishment Innovation Survey, the first nationally representative survey of self-reported innovation in rural areas. Postdoctoral Scholars Devon Meadowcroft and Zheng Tien, who have received Special Sworn Status access to the U.S. Census Bureau Research Data Center, are both working on the project and carrying out preliminary data analyses.

Local and Regional Food Systems Research

Location, Location, Location: Where and How Do Food Hubs Flourish?

For a new food hub to succeed, it should be located in a community with a population sufficient to sustain it, according to a team of researchers including NERCRD Director Stephan Goetz. They found that a county seeking to establish its first food hub needs roughly 182,000 residents for that food hub to break even. Their findings could help funding agencies establish criteria to determine whether and where new food hubs should be added.

Food hubs are intermediary businesses in the food supply chain that connect small- and mid-sized farms to markets they wouldn't be able to access otherwise due to their relatively small scale of production.

"Food hubs have enjoyed public and private support because they play an important role in local and regional food systems," Goetz said. "What we've shown is that while there is a market to support food hubs in many places across the U.S., there also is a potential danger to unintentionally over-support and over-populate the sector, which poses a threat to the hubs that have found a business model that works and no longer need government support."

As the average U.S. county population is 99,530 residents, the findings suggest that most counties lack the capacity to support one food hub on their own, and only 129 U.S. counties have the population necessary to support two.

The team's findings also demonstrate the potential for market cannibalization: each successive food hub added takes sales away from the existing food hub. That raises concerns, given that food hubs are often partially funded using tax dollars, said Dawn Thilmany, Colorado State University, a co-author of the study.



Credit: USDA

"As a society, we've been investing in food hubs over the last 20 years, and the good news is that we have lots of them," Thilmany said. "More thoughtfully, though, how likely are these food hubs to survive, particularly if they are relying on grant funding that typically covers only part of the costs and only during a startup period?"

The researchers also examined a number of county characteristics to determine which ones are associated with food hub profitability, including economic activity, the presence of other food businesses, and social capital. A detailed explanation of their findings is available at: <http://bit.ly/3cNGkdj>.

In addition to Goetz and Thilmany, the study authors include Rebecca Cleary, Colorado State University, and Houtian Ge, Cornell University. Prior to their current positions, Cleary and Ge were postdoctoral researchers at NERCRD, working on a large-scale USDA-funded research project titled Enhancing Food Security in the Northeast through Regional Food Systems (EFSNE). The study was published in the *Journal of Agricultural and Resource Economics*.

Craft-Beer Boom Linked to Record Number of U.S. States Growing Hops

Center-led research offers the first systematic look at the link between craft breweries and hops production.

Craft breweries aren't just a fun place to meet up with friends. They may be fueling an unprecedented geographic expansion of hop production across the U.S., according to researchers at NERC RD and The University of Toledo. Their findings suggest that as more craft breweries emerge around the country, so may new opportunities for farmers.



expanding markets for farmers and providing an opportunity to diversify farm income."

Using data from the U.S. Census of Agriculture and ReferenceUSA, the researchers found that from 2007 to 2017, the number of breweries in the U.S. more than quadrupled from 992 to more than 4,000, and that the number

of breweries in a state is associated with more hop farms and hop acres five years later. The number of hop farms grew from 68 to 817, and hop acreage expanded from 31,145 to 59,429 acres.

Hops are a key ingredient in beer production, providing aroma and bittering characteristics. Before 2007, hop production in the U.S. was limited to only three Pacific Northwest states—Oregon, Washington, and Idaho—according to Claudia Schmidt, assistant professor of agricultural economics in Penn State's College of Agricultural Sciences and NERC RD Faculty Affiliate. Citing a report released this year by the Hop Growers of America, she said that 29 states are now engaging in hop production.

"This growth has not only led to interesting changes in the locations of hop farms across the U.S., but it has positioned the U.S. as the largest producer of hops globally, both in terms of acreage and production," said NERC RD Postdoctoral Scholar Elizabeth Dobis, lead author of the study.

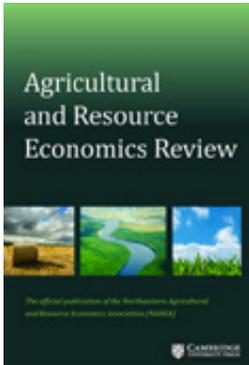
"Our study is the first to systematically show that the number of hop farms in a state is related to the number of craft breweries," said Schmidt. "It suggests that in areas where hop production is possible and not cost-prohibitive, breweries are

NERC RD Director Stephan Goetz and Neil Reid of The University of Toledo, also contributed to this research, which was published in the *Journal of Wine Economics*. Learn more online at: <http://bit.ly/37XdAMp>

Hemp and Hops: Center Researchers Are Exploring the Implications of the Growing Interest in Hemp-Related Products and Craft Breweries

- Dobis, Elizabeth A., Neil Reid, Anil Hira, Paul D. Gottlieb, and Stephan J. Goetz. 2019. "Trends in the Co-Location of Grapes and Wineries vs. Hops and Breweries: 2002 to 2017." Selected paper presented at the North American Meetings of the Regional Science Association International, Pittsburgh, PA, November.
- Dobis, Elizabeth. 2019. "The Role of Craft Breweries in Expanding (Local) Hops Production." Presented at the 13th Annual Conference of the American Association of Wine Economists, Vienna, Austria, July 15.
- Dobis, Elizabeth A., Neil Reid, Claudia Schmidt, and Stephan J. Goetz. 2019. "The Role of Craft Breweries in Expanding (Local) Hop Production." *Journal of Wine Economics*. 14(4). (Described above.)
- Reid, Neil, Stephan J. Goetz, Elizabeth A. Dobis, Paul D. Gottlieb, and Anil Hira. 2019. "The Fall and Rise of Hops in American Brewing." Presented at the Western Regional Science Association, Napa, CA, February 11.
- Schmidt, Claudia and Alyssa Collins. 2019. "Hemp and Hop Outlook." Presented at the Summer Outlook Meeting, Cincinnati, OH, August 15.
- Sarah Rocker is serving as a resource to the Philadelphia Grain and Malt Symposium, helping the group to understand the craft beer value chain.

Workshop Results in Peer-Reviewed Collection of Conference Papers



A 2018 workshop organized by NERCRD has resulted in a collection of papers published this year in a special issue of *Agricultural and Resource Economics Review* (ARER). The workshop, which convened scholars around the theme of “Advances in the Economic Analysis of

Food System Drivers and Effects,” was offered as a precursor to the Northeastern Agricultural and Resource Economics Association’s annual conference in Philadelphia, PA. Papers published in ARER (volume 48, issue 3) include:

- Embedding Economies of Scale Concepts in the Model of Optimal Locations of Fresh Produce Aggregation Hubs
(Houtian Ge, Patrick Canning, Stephan Goetz, Agnes Perez, Jie Li)
- Market Channel Procurement Strategy and School Meal Costs in Farm to School Programs
(Jill Fitzsimmons, Jeffrey K. O’Hara)
- Willingness to Pay, Quality Perception, and Local Foods: The Case of Broccoli
(Xiaoli Fan, Miguel I. Gómez, Phillip S. Coles)
- Using Field Experiments to Encourage Healthy Eating in Schools
(Joseph Price)
- Prospects for New England Agriculture: Farm to Fork
(Samantha Werner, Scott R. Lemos, Amanda McLeod, John M. Halstead, Todd Gabe, Ju-Chin Huang, Chyi Lyi Liang, Wei Shi, Lily Harris, James McConnon)
- An Examination of the Adequacy of Supplemental Nutrition Assistance Program (SNAP) Benefit Levels: Impacts on Food Insecurity
(Craig Gundersen, Elaine Waxman, Amy S. Crumbaugh)
- Can Dietary Fiber Intake Be Increased through Nutritional Education and through Subsidies on Selected Food Products?
(Mark Christopher Senia, Senarath Dharmasena, Oral Capps)

In addition, Stephan Goetz and Penn State Professor of Agricultural Economics Ted Jaenicke coauthored a foreword to the ARER special issue. Goetz and Jaenicke are co-PIs on a competitively awarded NIFA conference grant, which made the 2018 workshop possible. Workshop presentations and a link to the ARER special issue are available at: <https://bit.ly/2AZyBaL>.

Three Papers Recognized with Awards

A paper co-authored by Stephan Goetz was recognized recently by Emerald Publishing with an Emerald Literati Award for Excellence. The paper, titled “Farm business financial performance in local foods value chains,” published in *Agricultural Finance Review*, will be freely downloadable for one year as part of the award program. Another paper co-authored by Goetz, “Health Insurance and National Farm Policy,” won Honorable Mention for 2018’s Outstanding Choices Article. Goetz also was a member of a team recognized by the National Extension Association of Family and Consumer Sciences as the first place regional winners of the Program Excellence Through Research Award. This award recognized their research that documented the economic impacts of the Penn State Extension Dining with Diabetes Program.

- Ahearn, Mary C., Kathleen Liang, and Stephan J. Goetz. 2018. “Farm Business Financial Performance in Local Foods Value Chains.” *Agricultural Finance Review*, 78 (4): 470–88.
- Inwood, Shoshanah, Alana Knudson, Florence A. Becot, Bonnie Braun, Stephan J. Goetz, Jane M. Kolodinsky, Scott Loveridge, Katlyn Morris, Jason Parker, Bob Parsons, Rachel Welborn, and Don E. Albrecht. 2018. “Health Insurance and National Farm Policy.” *Choices*, Quarter 1.
- Griffie, Debra, Lynn James, Stephan Goetz, Brandon Balotti, Yau-Huo Shr, Marilyn Corbin, and Timothy W. Kelsey. 2018. “Outcomes and Economic Benefits of Penn State Extension’s Dining With Diabetes Program.” *Preventing Chronic Disease*, 2018;15:170407.

Staff Announcements

New Faces at the Northeast Center

We're delighted to welcome to the Northeast Center our new business manager, Kim Boonie, and three new postdoctoral scholars: Devon Meadowcroft, Anne Pöder, and Sarah Rocker.



Kim Boonie joined the Center in late June as our new business manager. In this role, Kim will be managing the Center's grants, coordinating meetings, and providing day-to-day administrative support to the Center. Kim has been a Penn State

employee for 19 years in various capacities, mostly within the College of Agricultural Sciences. Most recently, she was a financial coordinator for Penn State Extension serving the county Extension offices in the southern half of PA as well as the 4-H, Agronomy and Natural Resources, and Energy, Environment and Community Vitality program teams. Her duties included assisting the 60+ county business operations managers and financial assistants manage their complicated budgets, and developing and teaching the financial processes required to comply with Penn State policies. She also assisted Extension Educators from these program teams with grant management, especially in all financial aspects, including policies, special sponsor reporting, and invoicing requirements. Kim enjoys reading, the outdoors, and spending time with her family, especially her grandchildren.

Dr. Devon Meadowcroft

joined the Center in July 2019 as a postdoctoral scholar. Her research interests include regional economics, rural health topics, and spatial econometrics. She graduated from Oklahoma State University



in 2019 with her doctoral degree in Agricultural Economics. Her doctoral dissertation was composed of three studies focusing on the U.S. rural opioid epidemic. While at Oklahoma State, she also worked on the Northeast Center-funded project on rural innovation and its impacts on community and regional economic development. Devon also holds a master's degree in Agricultural and Resource Economics which she received in 2016 from the University of Delaware. At the University of Delaware, her department awarded her the Outstanding Graduate Student award. Her undergraduate degree is from the University of Vermont, where she majored in Animal Science with a minor in Economics and graduated in 2013. Being a native of the Northeast, Devon is excited to be working at the Center on issues important to the area.



Dr. Anne Põdor is joining the Center for one year as a visiting postdoctoral scholar from the Estonian University of Life Sciences, with funding from the Baltic-American Freedom Foundation (BAFF). BAFF provides fellowships for researchers to conduct

independent or collaborative research projects in the U.S. for up to 12 months. Anne obtained her doctoral degree in agricultural economics in 2017 from the Estonian University of Life Sciences. Her dissertation research focused on the socioeconomic determinants of entrepreneurship in Estonian rural municipalities. Her research interests are rural entrepreneurship and innovation and their relationship with rural development and demographic and socioeconomic challenges, and development and assessment of entrepreneurship education at the university level. She has a master's degree in marketing and management and bachelor's degree in sociology. During the last 10 years, Anne has worked on a variety of qualitative and quantitative research projects focusing on demographic and economic challenges in Estonian rural areas, effects of agricultural restructuring and farm exits on rural development and rural entrepreneurship, development and assessment of entrepreneurship education, and Estonian agricultural innovation and knowledge systems.

Although not new to the Northeast Center, **Dr. Sarah Rocker** has transitioned into a new role as a postdoctoral scholar. She holds a PhD in Rural Sociology from Penn State and an MPA with a focus on domestic food systems policy from the Evergreen State College.



Her recently completed dissertation examined roles and impacts of food value chain coordination as a regional entrepreneurial development strategy in the U.S. She uses a social networks framework to articulate how "soft" or "social" infrastructure in the form of relationships among producers, processors and buyers supports developing regional food economies. Sarah's broader research experience includes market channel approaches for small and mid-scale producers and processors, consumer preferences, food access, regional value chain development and evaluation strategies. At NERCRD, Sarah coordinates the Agricultural Marketing Service Technical Assistance Program (AMSTA), which provides national programming and support for current grantees of USDA's Farmers Market and Local Food Promotion Programs (FM/LFPP). She also is a member of the Pennsylvania Agroforestry Brain Trust, a recently joined member of the National Community and Economic Resource Development Indicators Team (CRED) and is currently serving on the advisory team with the Wallace Center for the 2020 National Good Food Network Conference.



The NERCRD Team

Shown here at a summer lunch outing in celebration of the arrival of several new staff members.

From left: Sarah Rocker, Zheng Tien, Kristen Devlin, Anne Põdor, Devon Meadowcroft, Kim Boonie, Elizabeth Dobis, Stephan Goetz.

Goetz Named President of North American Regional Science Council

NERCRD Director Stephan Goetz is serving a one-year term as president of the North American Regional Science Council (NARSC) through June 2020.

As president, in addition to delivering the Presidential Address in Pittsburgh, PA, in November 2019, Goetz will serve on the NARSC Honors Committee for a three-year period, including one year as Chair. The Honors Committee identifies the annual recipients of the Council's most prestigious awards – the Isard, Hewings, and Boyce Awards.

"As a member of NARSC, I have long benefited from the interdisciplinary exchange the organization fosters around methods and theoretical frameworks specifically designed for regional analysis," said Goetz. "I'm very pleased for this opportunity to serve as president of an organization whose mission aligns so closely with the regional research perspective of the Northeast Regional Center."

NARSC is an "international scholarly organization that focuses on regional analysis ranging from urban and spatial economic theories to applied problems and public policies," according to its website. Members represent a broad range of academic disciplines, including economics, agricultural economics, public policy, planning, civil engineering, geography, and demography.

"In searching for a President, the Nominations Committee looks for someone who is engaged in research that is both interesting and cutting-edge. Also, as that individual delivers the NARSC Presidential Address at our annual meeting, he or she must be an engaging speaker," said NARSC Executive Director Neil Reid, The University of Toledo. "In choosing Stephan, the Nominations Committee of NARSC felt that they found someone who checked all of these boxes."

Network Applications in Regional Science: New Insights From Old Tools? NARSC 2019 Presidential Address by Stephan Goetz

In his 2019 Presidential Address to the NARSC membership, Stephan Goetz examined the extent to which network analysis has been adopted in the field of regional science. He presented several examples from his own research using network-type data at the county level that are generated from secondary data sources. These studies demonstrate the potential of network analyses to provide important new insights into regional science. An abstract of the talk and his presentation slides are available online at: <http://bit.ly/3aKpuWY>.



2019 Publications, Presentations, and Meetings

Scientific Publications

- Berger, Aaron, Timothy W. Kelsey, Stephan J. Goetz, Robert C. Goodling, Jr., and Virginia A. Ishler. 2019. "Financial Impact of Penn State Extension's Know Your Numbers Dairy Program." *Journal of Extension*, 57 (1).
- Boettner, Fritz, Evan Fedorko, Evan Hansen, Alan Collins, Brianne Zimmerman, Stephan J. Goetz, Yicheol Han, Christine Gyovai, Emily Carlson, and Alexandria Sentilles. 2019. "Strengthening Economic Resilience in Appalachia. Two Parts: Guidebook for Practitioners and Technical Report." Appalachian Regional Commission.
- Cleary, Rebecca, Stephan J. Goetz, Dawn Thilmany, and Houtian Ge. 2019. "Excess Competition Among Food Hubs." *Journal of Agricultural and Resource Economics*, 44 (1): 1-S7.
- Dobis, Elizabeth A., Lionel J. Beaulieu, Andrey Zhalnin, and Indraneel Kumar. 2019. "Dimensions of Indiana Poverty." *Indiana Business Review* 94(3).
- Dobis, Elizabeth A., Michael S. Delgado, Raymond J.G.M. Florax, and Peter Mulder. Forthcoming. "Hierarchy and Spatial Contagion: Population in American Cities Between 1990 and 2010." *Journal of Economic Geography*.
- Dobis, Elizabeth A., Neil Reid, Claudia Schmidt, and Stephan J. Goetz. 2019. "The Role of Craft Breweries in Expanding (Local) Hop Production." *Journal of Wine Economics*, 14(4), 374-382.
- Dobis, Elizabeth A., Heather Stephens, Mark Skidmore, and Stephan J. Goetz. 2020. Explaining the spatial variation in American life expectancy. *Social Science & Medicine*, 246, 112759. Published online December 24, 2019.
- Dobis, Elizabeth A., Lionel J. Beaulieu, and Indraneel Kumar. Forthcoming. "The Study of Poverty in Places: Scope, Scale, and Space" *The Research Handbook on Community Development*, Rhonda Phillips, Eric Trevan, and Patsy Kraeger, eds.
- Ge, H., Goetz, S. J., Gomez, M., Gray, R., & Nolan, J. F. (2019). Modelling testing mechanism for mitigating genetically modified wheat contamination risks. *International Journal of Production Research*, 57(2), 582-598.
- Ge, Houtian, Patrick Canning, and Stephan J. Goetz. 2019. "Embedding Economies of Scale Concepts in the Model of Optimal Locations of Fresh Produce Aggregation Hubs." *Agricultural and Resource Economics Review*, 48(3), 365-387.
- Goetz, Stephan J., and Edward. C. Jaenicke (2019). Introduction to the Special Issue: Advances in the Economic Analysis of Food System Drivers and Effects. *Agricultural and Resource Economics Review*, 48(3), 361-364.
- Goetz, Stephan J., and Yicheol Han. 2019. "What Information Sources Do Entrepreneurs Follow? Network Analysis with Twitter Data." In *From Innovation to Entrepreneurship: Connectivity-Based Regional Development*, edited by Yasuyuki Motoyama. UK: Edward Elgar Publishing Limited.
- Han, Yicheol, and Stephan J. Goetz. 2019. "Latent Innovation in Local Economies." *Research Policy* 49 (2): 103909.
- Han, Yicheol, and Stephan J. Goetz. 2019. "Measuring Network Rewiring over Time." *PLOS ONE* 14 (7): e0220295.
- Han, Yicheol, and Stephan J. Goetz. 2019. "Overlapping labour market areas based on link communities." *Papers in Regional Science*, 98(1), 539.
- Han, Yicheol, and Stephan J. Goetz. 2019. "Predicting US county economic resilience from industry input-output accounts." *Applied Economics*, 51(19), 2019-2028.

(Continued on next page.)

Scientific Publications (continued)

- Hira, Andy, Paul D. Gottlieb, Neil Reid, Stephan J. Goetz, and Elizabeth A. Dobis. Forthcoming. "Understanding Clusters as a Source of Industrial Competitiveness." In *Oxford Handbook on Industry Dynamics*, edited by Matthias Kipping and Takafumi Kurosawa. (Accepted 2019)
- Khanal, A. R., Tegegne, F., Goetz, S. J. (Co-Author, 25%), Li, L., Han, Y., Tubene, S., & Wetherill, A. (2020). Small and Minority Farmers' Knowledge and Resource Sharing Networks, and Farm Sales: Findings from Communities in Tennessee, Maryland, and Delaware. *Journal of Agriculture, Food Systems and Community Development*. [In Press - forthcoming 2019].
- Li, Minghao, and Stephan J. Goetz. 2019. "The Intergenerational Persistence of Self-Employment across China's Planned Economy Era." *Journal of Labor Economics*, 37, no. 4 (October 2019): 1301-1330.
- Reid, Neil, Stephan J. Goetz, Elizabeth A. Dobis, Paul D. Gottlieb, and Anil Hira. Forthcoming. "The Impact of the Craft Beer Revolution on the American Hop Industry." In *Rural – Urban Linkages for Sustainable Development*, edited by Armin Kratzer, Jutta Kister, and Frank Zirkl. Taylor & Francis. (Accepted 2019).
- Tian, Zheng, Paul D. Gottlieb, and Stephan J. Goetz. 2019. "Measuring Industry Co-Location across County Borders." *Spatial Economic Analysis*, October, 1–22.
- Whitacre, Brian E., Devon Meadowcroft, and Roberto Gallardo. 2019. "Firm and Regional Economic Outcomes Associated with a New, Broad Measure of Business Innovation." *Entrepreneurship & Regional Development*, 31(9-10), 930-952.

Presentations

- Arbogast, Douglas, Daniel Eades, and Stephan Goetz. 2019. "The State of Extension and Tourism: Capacity and Opportunities for Cooperative Extension." presented at the National Extension Tourism Sustainable Tourism and Outdoor Recreation conference, Astoria, OR, October 9.
- Davlasheridze, Meri, and Stephan J. Goetz. 2019. "The Persistent Effects of Natural Disasters on Opioid Deaths." Presented at the Southern Regional Science Association, Arlington, VA, April 5.
- Devlin, Kristen, and Stephan J. Goetz. 2019. "Presentation to Extension on Our Small Grants Program." Presented at the Extension Lunch and Learn Webinar Series, June 3.
- Dobis, Elizabeth. 2019. "The Role of Craft Breweries in Expanding (Local) Hops Production." Presented at the 13th Annual Conference of the American Association of Wine Economists, Vienna, Austria, July 15.*
- Dobis, Elizabeth A., Stephan J. Goetz, Mark Skidmore, and Heather M. Stephens. 2019. "American Life Expectancy: Geographic Inequality and Community Interaction." Presented at the Southern Regional Science Association, Arlington, VA, April 6.
- Dobis, Elizabeth A., Neil Reid, Anil Hira, Paul D. Gottlieb, and Stephan J. Goetz. 2019. "Trends in the Co-Location of Grapes and Wineries VS Hops and Breweries: 2002 to 2017." Presented at the North American Meetings of the Regional Science Association International, Pittsburgh, PA, November.
- Firth, Brianne, Alan Collins, and Stephan J. Goetz. 2019. "The Influence of ARC Funding on Regional Economic Resilience in Appalachia." Presented at the Southern Regional Science Association, Arlington, VA, April 5.
- French, Charlie. "Rural Innovation Redefined." Presented at the Northeast Regional Center for Rural Development, September 16.
- Goetz, Stephan J. 2019. "Agriculture in the Northeast: Why It Still Matters?" Keynote address presented at the Northeast Agricultural and Resource Economics Association annual meeting, Portsmouth, NH, June 11.
- Goetz, Stephan J. 2019. "Community/Federal Partner Perspective: The Northeast Regional Center for Rural Development." Presented at the USDA Rural Development's Pennsylvania Community Prosperity Summit, University Park, PA, November 22.
- Goetz, Stephan J. 2019. "Rural-Urban Interdependency." Presented at the Mini Land-Grant Meeting, Coral Springs, FL, March 20.

* International travel supported by non-federal funds.

Presentations (continued)

- Goetz, Stephan J. 2019. "Network Analysis in Regional Science: New Insights from Old Tools?" Presidential Address to the North American Regional Science Council, Pittsburgh, PA, November 14.
- Goetz, Stephan J. and Claudia Schmidt. 2019. "Northeast U.S. Agriculture: Why It Matters." Webinar presented to Penn State Extension, November 20.
- Gottlieb, Paul D., Elizabeth A. Dobis, Anil Hira, Stephan J. Goetz, and Neil Reid. 2019. "The 'New Location Theory' Applied to Production Agriculture: A Multivariate Approach." Presented at the Agricultural and Applied Economics Association Conference, Atlanta, GA, July 23.
- Gottlieb, Paul D., Stephan J. Goetz, Neil Reid, Andy Hira, Elizabeth A. Dobis, and Zheng Tian. 2019. "The Relationship Between Innovative Business Practices and Geographic Clustering for a Large Sample of US Agricultural Commodities." Presented at the North American Meetings of the Regional Science Association International, Pittsburgh, PA, November 15.
- Gottlieb, Paul D., Karyn Malinowski, Jennifer Weinert, and Elizabeth A. Dobis. 2019. "Thoroughbred Stallions and Their Role in the Geography of Equine Clusters." Presented at the North American Meetings of the Regional Science Association International, Pittsburgh, PA, November 15.
- Han, Yicheol, and Stephan J. Goetz. 2019a. "Modeling the Local Input-Output Network Using County-Level Production and Consumption Estimates, and National Input-Output Table." Presented at the Western Regional Science Association, Napa, CA, February 12.
- Han, Yicheol, and Stephan J. Goetz. 2019. "Measuring Reorganization of Industry Structure in Local Economies." Presented at the International Atlantic Economic Society, Athens, Greece, March 28. *
- Han, Yicheol, Stephan J. Goetz, and Claudia Schmidt. 2019. "Modeling Spatial Supply Chains." Presented at the 59th Congress of the European Regional Science Association, Lyon, France, August 28. *
- Meadowcroft, Devon. 2019. "The Relationship between Opioid-Related Deaths and High-Risk Jobs." Poster presented at the 5th Annual Penn State Addiction Symposium, Hershey, PA, December 10.
- Meadowcroft, Devon, David Peters, and Brian E. Whitacre. 2019. "Understanding the Effect of State Prescription Drug Monitoring Programs on Local Opioid Mortality." presented at the 66th Annual North American Meetings of the Regional Science Association International, Pittsburgh, PA, November 15.
- Miller, Cristina, and Elizabeth A. Dobis. 2019. "Do Recessions Kill? Impacts of the Great Recession and Post-Recessionary Period on Rural Mortality Rates." Presented at the North American Meetings of the Regional Science Association International, Pittsburgh, PA, November.
- Põdor, Anne and Stephan J. Goetz. 2019. Entrepreneurship education and entrepreneurship outcomes in higher education in Estonian HEIs." Accepted to the 2020 conference of the U.S. Association for Small Business and Entrepreneurship.
- Reid, Neil, Stephan J. Goetz, Elizabeth A. Dobis, Paul D. Gottlieb, and Anil Hira. 2019. "The Fall and Rise of Hops in American Brewing." Presented at the Western Regional Science Association, Napa, CA, February 11.
- Rocker, Sarah. 2019. "Build That Network! The Power of Social Connectivity for Developing the Mid-Atlantic Small Grain Value Chain." Presented at the Philadelphia Grain and Malt Symposium, Philadelphia, PA, March 2.
- Rocker, Sarah. 2019. "Innovating along the Value Chain: Hosting Regional B2B Events for the Small Brewing Industry." Presented to the Pennsylvania Craft Beverage Research Network, Webinar. December 4.
- Schmidt, Claudia. 2019. "Agritourism in Pennsylvania." Presented at the Farm City Dinner, Spring Mills, PA, November 6.
- Schmidt, Claudia. 2019. "Success Factors and Barriers for Pennsylvania's Agricultural Producers to Increase Farm Profitability with Agritourism." Presented at the Agricultural and Applied Economics Association, Atlanta, GA, July 23.
- Schmidt, Claudia, and Alyssa Collins. 2019. "Hemp and Hop Outlook." Presented at the Summer Outlook Meeting, Cincinnati, OH, August 15.

* International travel supported by non-federal funds.

Presentations (continued)

- Schmidt, Claudia, Stephan J. Goetz, and Zheng Tian. 2019. "Female-Operated Farms and U.S. Agricultural Viability." Presented at the Agricultural and Applied Economics Association, Atlanta, GA, July 23.
- Schmidt, Claudia, Zheng Tian, and Stephan J. Goetz. 2019. "Local Economic Development Impacts of Agritourism." presented at the North American Meetings of the Regional Science Association International, Pittsburgh, PA, November 15.
- Stephens, Heather M. 2019. "Incentivizing the Missing Middle: The Role of Economic Development Policy." Presented at the Northeast Regional Center for Rural Development, October 23.
- Stephens, Heather M., and Elizabeth A. Dobis. 2019. "Do Urban-Rural Interactions Matter for Economic Vitality in U.S. Regions?" Presented at the North American Meetings of the Regional Science Association International, Pittsburgh, PA, November 14.
- Tian, Zheng, and Stephan J. Goetz. 2019. "The Trends in Farm and Nonfarm Employment in the U.S.: A Granger Causality Study with Nonstationary Panels." Presented at the Western Regional Science Association, Napa, CA, February 11.
- Tian, Zheng, and Stephan J. Goetz. 2019. "The Effects of Federal and State Funding on College Students' Debt and Earnings." Presented at the 58th Annual Meetings of Southern Regional Science Association, Arlington, VA, April 5.
- Tian, Zheng, Elizabeth Dobis, Andy Hira, Neil Reid, and Stephan J. Goetz. 2019. "Detecting Agricultural Clusters with the Spatial-IO Location Quotient." Presented at the North American Meetings of the Regional Science Association International, Pittsburgh, PA, November 14.
- Tian, Zheng, Stephan J. Goetz, and Claudia Schmidt. 2019. "U.S. Farm Size Distribution and Local Economic Growth." Presented at North American Meetings of the Regional Science Association International, Pittsburgh, PA, November 15.

AMSTA Webinars

- Candib, Addie. 2019. "Reporting Your Grant Results." AMSTA Webinar, June 19.
- Karlen, Ann. 2019. "Convening Events: An Effective Tool for Matchmaking and Raising Public Awareness." AMSTA Webinar, February.
- Madison-Keita, Nykisha, and Dorothy Cross. 2019. "'REACH OUT' – A Community-Centered Approach to Farmers Markets Promotion & Outreach." AMSTA Webinar, March 6.
- Sero, Rebecca. 2019. "FMPP and LFPP Foundational Strategies for Project Evaluation." AMSTA Webinar, April.
- Staisey, Nancy, and Helaine Harris. 2019. "Developing Evidence-Based Insights: How to Use Your Farmers Market as a 'Living Lab.'" AMSTA Webinar, May 22.
- Wolnik, Darlene. 2019. "Understanding and Improving Your Customer Expansion or Retention Strategy." AMSTA Webinar, January 16.

Non-Technical Publications

- Devlin, Kristen. 2019a. "Location, location, location: Where and how do food hubs flourish?" Penn State News, July 19.
- Devlin, Kristen. 2019b. "New method of analyzing networks reveals hidden patterns in data." Penn State News, September 10.
- Devlin, Kristen. 2019c. "Promoting Economic Resilience in Appalachia: Lessons from Successful Communities." Penn State News, March 22.
- Devlin, Kristen, and Stephan Goetz. 2019. "Innovation, Broadly Measured, and Its Effects on Business and Community Economic Health." NERCRD.
- Rocker, Sarah and Brian Moyer. 2019. "Resource Spotlight: USDA-AMS Technical Assistance," Catalyst: The Food System Leadership Network Newsletter.

Media Mentions

- Danziger, Pamela. 2018. "Will Dollar Stores Be The End of Local American Retail?" *Forbes*, December 30, 2018.
- Meyers, Talya. 2019. "A Hurricane or Fire. A Spike in Opioid Abuse. A Possible Connection." *Direct Relief*. November 14.
- Pennsylvania Business Central. 2019. "Promoting Economic Resilience in Appalachia: Lessons from Successful Communities," April 1.
- Van Dam, Andrew. 2019. "The Real (Surprisingly Comforting) Reason Rural America Is Doomed to Decline." *Washington Post*, May 24. Newspaper article featuring research by S. Goetz, M. Partridge, and H. Stephens.
- Wisconsin Public Radio. 2019. "What We Can Learn From Places That Rebounded From The Great Recession Faster Than Others." Interview featuring Stephan J. Goetz. September 17.

Other Services Performed by Center Director Stephan J. Goetz:

- President of the North American Regional Science Council (NARSC), 2019-2020.
- Penn State Economic Impact Advisory Council, 2018-2019.
- Representative of the Agricultural and Applied Economics Association to the Council of Professional Associations on Federal Statistics (COPAFS). COPAFS is devoted to educational activities and to preserving the public good represented by federal statistical collections. Since 1980, COPAFS has provided an open dialog between those who use federal statistics in professional contexts and the Federal statistical agencies that produce those statistics for the public good. Supporting organizations include professional associations, businesses, research institutes, and others that help to produce and/or use federal statistics. COPAFS' goal is to link organizations and the public to a thriving statistical system.
- Vice-chair of The Council on Food, Agricultural and Resource Economics (C-FARE) Board of Directors (until February 2019)
 - Has served on the Board since 2014, and on the organization's Blue Ribbon Experts Panel.
 - Was also appointed C-FARE Chairman of the Programs Committee.
- Continues to serve on the Board of Directors of the Center for Rural Pennsylvania, a bicameral agency of the state, since 1999.
- Serves on the editorial board of: *Agricultural and Resource Economics Review*; *Growth and Change*; *Papers in Regional Science*.
- Along with Timothy F. Slaper and Jae Beum Cho, organized a special session titled "Applying a Complex Adaptive Systems Approach to Regional Economics: Big Data, Network Analysis, and Computational Theory," for the 59th Congress of the European Regional Science Association in Lyon, France, in August.

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