

# Inside Agromedicine

Partners for Health & Safety in Agriculture, Forestry, and Fisheries

NORTH CAROLINA AGROMEDICINE INSTITUTE • WINTER/SPRING 2017

From the  
Chair, Board of  
Directors, NC  
Agromedicine  
Institute



**Ron Mitchelson, PhD**

For the past several years the Institute has worked to reaffirm its commitment to providing prevention/intervention and education/outreach services to farms across the state. This commitment has been well demonstrated through its AgriSafe-NC, Certified Safe Farm-NC, NC AgrAbility Partnership, First on Scene and Fit to Farm programs as well as through respiratory protection activities, grain bin safety training and Progressive Agriculture Safety Days. Farmers, Cooperative Extension agents, agribusinesses and state agencies routinely reach out to Institute staff and faculty for assistance with day-to-day health and safety issues. Although research has continued, there has not been a shared research vision and commitment among partner universities; however, in Fall, 2016, the Institute's Board of Directors agreed that the time had come to make such a commitment. Meetings with administrators at East Carolina, NC State and NC Agricultural and Technical State Universities were initiated and requests were made for funding to support an Agromedicine research cluster hire. The hire has now been approved at ECU and NCAT is moving through the necessary channels at NCSU. Once approved there, complimentary hires will be made at each of the universities to support a central research theme around issues associated with fishing and environmental exposures. We are excited about the opportunities that lie ahead with the infusion of new research talent to the Institute team. This will certainly serve to round out the Institute's mission to promote the health and safety of farmers, fishermen, loggers, their workers and their families through research, prevention/intervention and education/outreach.

## First on Scene: Teaching Skills to Reduce Fatal Farm Injuries

Data from the United States Bureau of Labor Statistics' 2015 Census of Fatal Occupational Injuries indicates that North Carolina had a fatal injury rate of 29.1 per 100,000 full-time employees (FTE's) in the agricultural sector. This rate is nearly 8.6 times greater than the state's overall fatal injury rate of 3.4 deaths per 100,000 FTEs.

The Institute is working to reduce this disparity through its First on Scene program. The program targets individuals that are most likely to arrive first on the scene at a farm incident - a farmer, farm worker, family member, friend, neighbor or emergency first responder. The goal is to equip participants with the skills needed to respond appropriately if such an incident occurs on their farm or in their community. The proper response can result in an improved outcome for the incident victim as well as preventing the first person on the scene from becoming a victim themselves.

First on Scene sessions are free and last approximately 3 hours. Topics include basic scene safety and first aid. Participants from farms receive a specially stocked farm first aid kit and fire extinguisher at the end of the session. 50/50 cost share funds are also available with farms eligible to receive up to \$250 and EMS or fire departments eligible to receive up to \$1250. Funds may



*Knowing how to respond to a farm incident properly can save lives.*

be used for emergency supplies/equipment and/or training (e.g., CPR, advanced first aid, water rescue, etc.)

Since October, 2014, the First on Scene program has conducted 53 events with a total of 1,077 participants from 57 North Carolina counties. Upon completing the program, participants report that they "know the dangers and types of injuries with farm equipment" and "have more knowledge about scene safety with farm equipment and better understand the risks associated with farm equipment." Such feedback emphasizes the importance of this program and its implications for agricultural health and safety.

Funding for the program is made possible by the North Carolina Tobacco Trust Fund Commission. For more information about First on Scene, contact LaMar Grafft at 252.744.9542 or by email: [graftl@ecu.edu](mailto:graftl@ecu.edu)

# Julia Storm Agromedicine Legacy

Julia Storm, the first person to fill the role of Agromedicine Specialist at NC State University in the fall of 1994, retired after 22 years in July 2016. Recently, Ms. Storm reflected on the beginning of Agromedicine in North Carolina: “The position was essentially a blank piece of paper, which was both exciting and daunting. My role was to bring collaborators to the table.” It wasn’t long before Ms. Storm’s networking brought active collaborators from NCSU, ECU, and NCA&T and a wide range of community partners, including Cooperative Extension, farmworker health providers, Farm Bureau, Eastern AHEC, farmers, commodity groups, state agencies, and agribusiness to launch Agromedicine’s first strategic plan in 1997.

From this extensive network of collaborators, many milestones followed. A short list in which Ms. Storm was directly involved, includes: 1) hosting successful international conferences in 1999 in Raleigh (in spite of Hurricane Floyd) and in 2010 in Wilmington, 2) the establishment of the NC Agromedicine Institute in 2000, 3) the establishment of the NIOSH-funded Southern Coastal Agromedicine Center active from 2001-2008, 4) the development of the Pesticides and Farmworker Health Toolkit (2007-2011) funded by the NCDA Pesticide Environmental Trust Fund, 5) the establishment of the AgriSafe Network of NC in 2008 begun with Kate B. Reynolds funding, and Certified Safe Farm of NC begun in 2009, with continuous funding for both primarily through the NC Tobacco Trust Fund Commission, and 6) the development and ongoing offering of the continuing education course Agricultural Medicine: Occupational and Environmental Health for Rural Health Professionals (2008 to present).

With a background in pesticide toxicology and public health, and work experience in industry and state government, Ms. Storm was eager to learn the landscape of agriculture and develop Extension programs and projects that would contribute to the health and safety of those working in agriculture. Farm safety for youth and pesticide safety were early areas of emphasis.

Through facilitating agent training for Farm Safety Days, Ms. Storm first witnessed the power and value of Cooperative Extension agents at the county level. “Extension agents (FCS, 4-H, and Ag) mobilized their entire communities for hands-on sessions in animal safety, first aid, machinery safety, fire safety and more to teach hundreds of children and youth how to stay safe on the farm and at home.”



Pesticide safety was a theme throughout Ms. Storm’s career. She recalls: “Timing is everything. The Agricultural Health Study, a long term national health study of farmers and spouses in North Carolina and Iowa, was just underway as I began in Agromedicine. Finding engaging ways to communicate AHS findings regarding pesticides, organic dusts, and their relationship to cancer and other health issues became a passion throughout my career. I was always happy to speak to groups of farmers, rural health providers, and Extension educators throughout NC and the country about this important study.”

Projects like these enabled Storm to travel throughout North Carolina, visiting communities in the mountains, Piedmont, and coastal plain. Storm adds: “Through these early projects, I gained such an amazing appreciation for farmers, farmworkers, and their families and the hard work and resourcefulness it takes to bring us an abundant supply of food and fiber.”

Transforming Agromedicine from a program to an institute took many hours of hard work among a core group from NCSU, ECU, and NCA&T from 1997 to 2000, and beyond. It was during this time that Dr. Greg Cope joined the faculty at NCSU, and became a leader in taking Agromedicine to the next level. Storm comments: “Dr. Cope was always there to listen to my concerns, actively move things forward, support my interests and dreams, and brain-storm new project ideas. Greg, always even-keeled, could ‘talk me down’ from an upset, but never threw cold water on my enthusiasm. I could not have asked for a more supportive supervisor and colleague.”

Another passion of Ms. Storm’s was cultural diversity and understanding. Her passion ignited in 2006 following a year-long professional development program with NC Extension colleagues facilitated by the Center for International

*continued next page*

## Julia Storm Agromedicine Legacy (continued)

Understanding's Latino Initiative, culminating in an immersion experience in Mexico. "The perspective on Mexico's history and culture, the pushes and pulls that drive immigration, and the resultant impact on families left behind and workers who live in the US was eye-opening and priceless," says Storm. In follow-up to this training and with grant funding from NCSU and the Farm Foundation, Storm and Extension colleagues from five Southern states, including NCSU's Ms. Cintia Aguilar and Ms. Melissa Edwards Smith, developed and delivered a model Domestic Immersion Latino Professional Development Program to assist Extension agents in understanding and engaging with Latino organizations to serve the Latino community.

One of the highlights of Ms. Storm's career was collaborating with Dr. Catherine LePrevost from 2007 to 2016 on her journey from NCSU graduate student to NCSU faculty member. As a graduate student in toxicology and later pursuing her PhD in science education, Dr. LePrevost was the brains, heart, and soul behind the development of the Pesticides and Farmworker Health Toolkit, a visual and engaging educational resource for pesticide safety

training for farmworkers in Spanish and English. Storm says: "It was so gratifying to introduce Catherine to Extension and agricultural production, to exchange ideas on educational content, to share experiences with farmworkers and others in seeking their input on the materials, and to travel all over NC to introduce the Toolkit to farmers, health outreach workers, Extension agents, and others through workshops."

Agromedicine collaborations culminated in the establishment of the NC AgriSafe Network and Certified Safe Farm. Dr. Robin Tutor-Marcom's leadership made AgriSafe a reality in NC in 2008, and Dr. Greg Cope led efforts that brought about Certified Safe Farm in 2009. "With these programs we put into practice agromedicine at the farm level, a long-time goal. I gained renewed enthusiasm from Robin's tireless work and genuine commitment, and it was a pleasure to help shepherd these programs from pilot projects to state-wide efforts." says Storm. AgriSafe nurses from rural communities trained in agricultural health and safety conduct occupational health and wellness screenings, and Extension agents with special training conduct safety inspections on farms. Storm adds: "Their work has resulted in

real health improvements, use of personal protective equipment, and substantial investments in safety improvements on farms." Storm applauds the hard work and commitment of Extension agents in many counties, especially the pilot counties of Johnston, Sampson, and Duplin, and program coordinators: Jessica Wilburn, RN of ECU and Scarlett Joyner of NCSU.

Throughout her career, Ms. Storm valued her professional relationships the most: from early mentorship by then department head and Agromedicine co-founder Dr. Ernie Hodgson, to long collaborations with Dr. Greg Cope and Dr. Robin Tutor-Marcom, and with many Extension agents, including most notably Tim Britton of Johnston County, to the joy of seeing young professionals such as Dr. LePrevost and Scarlett Joyner make their mark in research, education, and Extension/outreach, to many, many others. Storm concludes: "I have learned so much from all of the wonderful people involved in Agromedicine. Thank you for being my colleagues and friends along an amazing journey of learning, service, and collaboration. I loved my job, and I wish the same for you as you continue to shape Agromedicine in new and exciting ways!"

Dr. Robin Tutor Marcom was recognized as the first ***Foundation for Health Leadership & Innovation Community Achievement Award*** Recipient at the 2016 Bernstein Dinner. Pictured left to right: Dr. Tom Irons, Medical Director-NC Agromedicine Institute and Associate Vice Chancellor for Regional Health Services – Brody School of Medicine, Dr. Tutor Marcom, and C.B. Marcom.



# Farming Community Respiratory Partnerships

The Institute was awarded a grant from the Central Appalachian Regional Education and Research Center at the University of Kentucky, to assist Christmas tree growers with the respiratory protection requirements of the revised Worker Protection Standards.

The Environmental Protection Agency has revised the 1992 Agricultural Worker Protection Standard regulations to increase protection from pesticide exposure for the nation's two million agricultural workers and their families. The regulations seek to protect and reduce the risks of injury or illness resulting from agricultural workers' and pesticide handlers' use and contact with pesticides on farms, forests, nurseries and greenhouses. Among these revisions is the requirement that any chemical labeled for respiratory protection will require that all handlers be medically

evaluated, fit tested and trained in the use and care of respirators.

This requirement will particularly affect Christmas tree growers in western North Carolina who use Dimethoate in the production of their trees. Cooperative Extension agents indicate that there are as many as 1,000 handlers per county who will require medical evaluation, respirator fit test and training. Agents also indicate that there are limited, if any occupational health providers in the region who can assist growers in complying with the new requirements. In order to determine and remediate the burden that the EPA's revisions to the WPS have placed on Christmas tree producing communities, Institute plans to: 1) conduct a gap analysis in twenty-one Christmas tree producing counties to determine the number of individuals required to comply with the new respiratory protection requirements

as compared to the occupational health provider capacity available to assist farms with initial and ongoing compliance; 2) work with counties in which gaps exist to develop and implement sustainable respiratory protection program solutions; and, 3) disseminate solutions to other counties and commodity groups across North Carolina and beyond.

This project will include Alleghany, Ashe, Avery, Buncombe, Burke, Caldwell, Cherokee, Haywood, Henderson, Jackson, Macon, McDowell, Madison, Mitchell, Rutherford, Surry, Swain, Transylvania, Watauga, Wilkes and Yancey counties.

For more information regarding this initiative or the Worker Protection Standard revisions, please contact Dr. Robin Tutor Marcom at 252.744.1008 or by email: [tutorr@ecu.edu](mailto:tutorr@ecu.edu)



*Nurse Jessica Wilburn performs sensitivity test for farmer at a NCAI fit testing class.*

# Schweitzer Fellows Address Pesticide Exposure with Migrant Farm Workers

*Adapted from ECU News Services*

East Carolina University graduate students, Emily Cunningham and Anna Laughman, are working on a project aimed at creating safer farms and safer families, as part of the Albert Schweitzer Fellowship program. They are among 30 Schweitzer Fellows from North Carolina and 240 nationwide learning to address the social factors that impact health while developing lifelong leadership skills.

Cunningham and Laughman both grew up in farming communities in North Carolina. They could see firsthand that there were unmet needs in the migrant farm worker community. “I knew I wanted to work with migrant farm workers, and she knew she wanted to focus on pesticides,” said Cunningham. “So we teamed up and put the two together.” Their project centers on improving awareness about the dangers of pesticide exposure, and ensuring that regulations are followed. “From what we’ve seen, a lot of farm workers would just go out into the fields and work as they were; they weren’t wearing the gloves, respirators or the proper clothing,” Cunningham said. “That’s actually incredibly dangerous not only for them, but also for their families. We want to diminish the exposure that farm workers (cause) their families by bringing home the pesticides on their clothes and shoes.”



*Schweitzer fellows Anna Laughman (left) and Emily Cunningham (right) with Dr. Robin Tutor Marcom and Dr. Tom Irons*



*Schweitzer Fellows Emily Cunningham (left) and Anna Laughman (right) are working towards creating safer farms and families through health education and outreach in the community.*

The pair is addressing the issue on two fronts — educating health care providers about new Environmental Protection Agency guidelines for who is allowed to work with pesticides, and visiting farm worker communities to provide education and safety tips for pesticide use. “One of the things we educate about is proper glove usage, and how it should be all chemical resistant gloves,” said Laughman. “A lot of the farm workers have the typical gardening gloves with cotton on one side, but that just absorbs the pesticides.”

In partnership with the NC Agromedicine Institute, the pair has been able to provide workers with free, re-usable nitrile gloves. Laughman and Cunningham are also developing courses for the Area Health Education Center (AHEC), so that the health care education aspect of their work can continue to be utilized after their one-year project is finished. “We’re hoping that by creating these AHEC modules and educating the health care providers, that we’re going to give them the resources necessary to evaluate the OSHA respirator questionnaire and provide more adequate health care to the migrant farm workers,” Cunningham said.

# FarmHer North Carolina Style

April Shaeffer, Research Specialist with North Carolina State's Department of Animal Science was recently featured on RFD-TV's FarmHer show. The show highlighted April's work teaching women the basics of moving cattle, administering vaccines, running hydraulic chutes to keep the cattle and themselves safe, how to tie a lead, how to drive a tractor, tractor safety, how to hook up and back a trailer, how to change a flat tire, the basics of pasture management and more.

FarmHer began in 2013 when founder and president, Marji Guyler-Alaniz, began photographing women in agriculture. Guyler-Alaniz's desire was and is to shine a light on the importance that women play in today's agriculture.

Appearing alongside April were retired Ashe County Cooperative Extension Agent, Charles Young, Iredell County Cooperative Extension Agent, Teresa Herman and Lorie Townsend.

Hats off to April and her team for their work in teaching women how to handle cattle and work on the farm safely! To see the show, go to: <http://www.rfdcc.com/rural-lifestyle/farmher/43742>



*FarmHer April Schaeffer teaches farm women how to handle cattle and work safely on the farm.*

## Farm Show Screenings Lead To Improved Health

Earlier this year, Institute staff made their annual trip to Raleigh to exhibit at the 2017 Southern Farm Show ('the Farm Show'). While there, a fellow exhibitor, Christian Overton, approached the Institute's booth to express his gratitude for the encouragement and support he has received over the years from the Institute's staff.

Christian had stopped by the Institute's booth to have his blood sugar and blood pressure levels checked over the past several years. Each time his blood sugar level was abnormally high. Thanks to the persistence of the Institute's AgriSafe-NC Outreach



*AgriSafe-NC Outreach Specialist Tami Thompson (left), and Christian Overton (right) at the 2017 Southern Farm Show.*

Specialist, Tami Thompson, Christian finally went to see his doctor. The doctor completed extensive blood work and found that his A1C level (a measure of blood sugar over time) was also high putting Christian at risk for diabetes. Since the doctor's visit, Christian has lost more than thirty-five pounds and lowered his A1C level by 1.5 points. "I feel better, sleep better and my wife tells me I look better". His family is now also eating better and getting healthier.

Christian says Institute's continued efforts have improved his health and life. He hopes that the program will continue to be funded in the future because "the efforts of the Institute staff are improving the health of people every day".

# Fit to Farm Train-the-Trainer Successful

Jessica Wilburn, RN, AgriSafe-North Carolina Nurse Coordinator recently partnered with the Research Station Division –North Carolina Department of Agriculture and Consumer Services (NCDA&CS) to pilot a train-the-trainer model for the Institute’s Fit to Farm program. Fit to Farm seeks to increase farmers’ awareness of the incidence of hypertension, obesity and associated risks of chronic health conditions; provide farmers with simple lifestyle changes they can make to improve their health; and, increase the value farmers’ place on the importance of health and wellness to their farm’s ‘bottom line’. Support for developing and testing the train-the-trainer model was provided by the Southeast Center for Agricultural Health and Injury Prevention at the University of Kentucky.

Mrs. Wilburn began by reviewing and adapting existing Fit to Farm materials into a train-the-trainer model. The program had originally been developed by Casey Steven, Family Consumer

Sciences Agent in Sampson and Greene Counties in collaboration with the Institute and with support from the North Carolina Tobacco Trust Fund. She subsequently trained two NCDA&CS-Research Station Division staff who delivered the program to seventeen of the state’s eighteen research stations. Blood pressure and blood sugar screenings were provided in conjunction with Fit to Farm sessions by AgriSafe-NC staff.

A significant difference was found between Fit to Farm participants’ pre-test and post-test scores (14.12 vs.16.12,  $p < 0.001$ ). Systolic and diastolic blood pressure were also considerably improved among participants (141.52 mmHg vs. 133.69 mmHg and 85.86 mmHg vs. 81.62 mmHg, respectively).



Given this success, the Institute plans to expand the number of Fit to Farm trainers across North Carolina and beyond. Ongoing assessment will be conducted to ensure that the train-the-trainer model continues to show effectiveness in changing farmers’ knowledge and health indicators. Support for developing and testing the train-the-trainer model was provided by the Southeast Center for Agricultural Health and Injury Prevention at the University of Kentucky.

For more information about Fit to Farm, contact Jessica Wilburn, RN, at 252.744.1023 or by email: wilburnj15@ecu.edu

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## NC AgrAbility Partnership Welcomes New Manager

The North Carolina AgrAbility Partnership welcomed Beatriz Rodriguez as the new NC AgrAbility Partnership Manager on August 1st, 2016. Beatriz previous been worked in research at educational and research institutions. She also has experience working with farmers in marketing and entrepreneurship projects.

Beatriz earned her bachelor’s degree in Agronomy Engineering at Universidad Nacional de Colombia in Colombia and a Master’s degree in Agribusiness Management at North Carolina A&T State University.

She has many years of experience in a variety of industries including agriculture, education, insurance and mortgage. She holds life and health, property and casualty insurance licenses as well as a Six Sigma Green Belt Certification.

Beatriz is fully committed to service in the agricultural community. She has been serving as a Volunteer Master Gardener for Guilford County for over four years. She has a passion for agriculture education and a gift for highly effective communication with diverse audiences; the fact that she can do it in two languages, English and Spanish, is a huge advantage to our program.

For more information about the NC AgrAbility Partnership, contact Beatriz at 336-???-????



*Beatriz Rodriguez, Project Manager  
The Cooperative Extension Program  
at N.C. A&T*



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