



Dr. Rich Bonanno

Extension is everywhere

A lot has changed in North Carolina since NC State Extension began its mission over 100 years ago. Our partnership with N.C. A&T State University, U.S. Department of Agriculture's National Institute of Food and Agriculture, and our state and local governments forms the foundation for N.C. Cooperative Extension. Together we create a culture of collaboration that increases productivity and fuels economic development. North Carolinians want to learn, share and grow, because education and partnerships are how we discover solutions and cultivate growth and success.

NC State Extension helps our state's citizens translate research into agricultural, food and nutrition, and youth development solutions. We empower people to make better-informed decisions and improve their lives. We're here to create prosperity for North Carolina.

Extension is here when times are good – and bad. This year our state took a devastating hit from Hurricane Matthew. Shortly after, severe drought and fires ravaged many western counties.

Extension employees – many of whom experienced personal losses as well – spent countless hours working with farmers and NCDA&CS to manage cleanup, collect and distribute goods for victims, and help our growers secure millions in government aid.

I'm so proud to head an organization whose people who go above and beyond for their communities.

Our service roots inspire us to provide practical solutions for the real world, and our world-leading campus specialists, field faculty and staff make it a reality. I encourage you to review the fruits of their work in this report, and by visiting us online at **go.ncsu.edu/ExtensionImpacts**.

We're honored to be your lifelong partner, helping all North Carolinians put knowledge to work in their communities. We are NC State Extension – and we are everywhere for North Carolinians.

Sincerely,

A. Richard Bonanno

Associate Dean and Director,

NC State Extension

OUR MISSION

NC State Extension helps create prosperity for North Carolina through programs and partnerships focused on agriculture, food and nutrition, and 4-H youth development.

NC State Extension is part of NC State University's College of Agriculture and Life Sciences, one of the world's premier agricultural and life sciences institutions. NC State Extension also includes Extension Forestry, a vital component of our overall efforts and part of the College of Natural Resources





NC State Extension connects farmers, agribusinesses and communities with vital research-based information and technology. Research at NC State targets society's grand challenges. Extension delivers that research directly into the hands of North Carolinians, helping them to translate knowledge into everyday solutions.

ROI North Carolina gets a 5-to-1 return on its investment in

Extension.



Extension offers a wealth of educational programs that address public health issues, improve economic well-being, and help people make healthier, better-informed decisions. Programs range from local foods and food safety to food preservation, gardening and environmental efforts, among scores of others.







4-H is the largest youth development organization in North Carolina. Hundreds of thousands of young people learn the skills to succeed through 4-H educational programs and camps. NC State Extension and the Cooperative Extension Program at N.C. A&T State University conduct 4-H programs where young people learn by doing.

Empowering Future Female Engineers

Ann Margaret Dietrich's first job was managing six chicken houses at a poultry company. Technical knowledge – heating, ventilation – was key. Most of the birds' life support ran on electricity. Luckily, Dietrich is a past participant of the 4-H Electric Congress.

"I knew the difference between the black wire and the red wire," Dietrich told the audience at the 69th Annual 4-H Electric Congress. "My maintenance man was impressed."

This year, 128 youths from across the state flocked to Asheville to solder circuit boards and build solar-powered model cars at Extension's 4-H Electric Congress. The program was originally developed when electrical demonstration programs were essential to rural farms. Today, it focuses on the state's most pressing educational issues, preparing the leaders of tomorrow for successful careers in the burgeoning STEM fields.

About 8% of electrical engineers in the U.S. are female – compared to 45% of 4-H Electric Congress participants since 2000. Girls (and boys) from 117 18 get hands-on experience in the fundamentals of electricity, renewable energy technologies and energy conservation.



Research + Extension = Results

When Jones County farmer Scott Deal bought his first fish hatchery, he had a challenge: How to produce the maximum number of high-quality hybrid striped bass – despite never running a hatchery before.

NC State Extension professionals, like aquaculture agent Mike Frinsko, are CALS' bridge to farmers like Deal.

Frinsko connected Deal with CALS researcher Benjamin Reading, who's lab is able to spawn mass numbers of striped bass without the traditional hormone induction procedures. Frinsko helped Deal implement Reading's methods, then provided technical training and assistance through the spawning process in spring 2016.

The result? Deal's hatchery recorded its highest production numbers yet in 2016: about 10 million hybrid striped bass fry – 6 million more than average – helping him become a competitive producer in just his second year of operation.





Millstone Milestone

Extension's 4-H program celebrated the opening of a new \$1.5 million history and learning center complex at its Camp Millstone. The new facility, which will be used for retreats, conferences, workshops and educational programs, also includes the N.C. 4-H Hall of Leadership.

More than 300 attended the dedication ceremony. The new learning center was made possible by contributions from State Employees' Credit Union, the Cole Foundation, and other generous donations.

White House Recognizes Juntos Program

Juntos – created by NC State Extension to empower Hispanic youth to succeed in high school – was named a "Bright Spot in Hispanic Education" by The White House Initiative on Educational Excellence for Hispanics. Juntos, which means "together" in Spanish, unites community partners, parents and schools in helping Latino youth who are struggling in school, encouraging them to succeed in class, graduate on time, and pursue a college education.

NC State Extension developed Juntos in 2007. It has since expanded to Iowa, Oklahoma, and Oregon. A \$2 million grant awarded in 2016 by the National 4-H Council will launch the program in New York City, San Antonio and one other city. In North Carolina, Juntos serves more than 600 Latino youth and parents across numerous counties.

Dr. Andrew Behnke, of NC State's Department of Agricultural and Human Sciences, co-leads the program. "Their grades are better, their attendance goes up, they participate in fewer risky behaviors, and parent involvement is off the charts," he adds. "These youth and families are empowered to dream bigger and go farther, and we do it Juntos."



N.C. Farm School Guides New Farmer's Success

Every week, Obalaye Macharia made the 17-hour drive from northern Oklahoma to Raleigh. His wife had gotten her dream job out west, but he wasn't going to miss N.C. Farm School.

Macharia is one of 270 aspiring farmers that have completed Extension's N.C. Farm School program, which teaches sound business principles to those wishing to start or add a new agricultural venture. It includes business-planning seminars taught by Extension agents, specialists and experienced farmers, as well as field trips to working farms, which provides participants with the tools to create a viable farm business plan.

"A lot of people dream of farming, but it's a vague concept," says

Extension's Gary Bullen. "Through very hard work and thoughtful consideration, we help them turn it into a business."

"I've gotten even more than I bargained for," added Macharia, who said the weekly journey of more than 2,000 miles was well worth it.





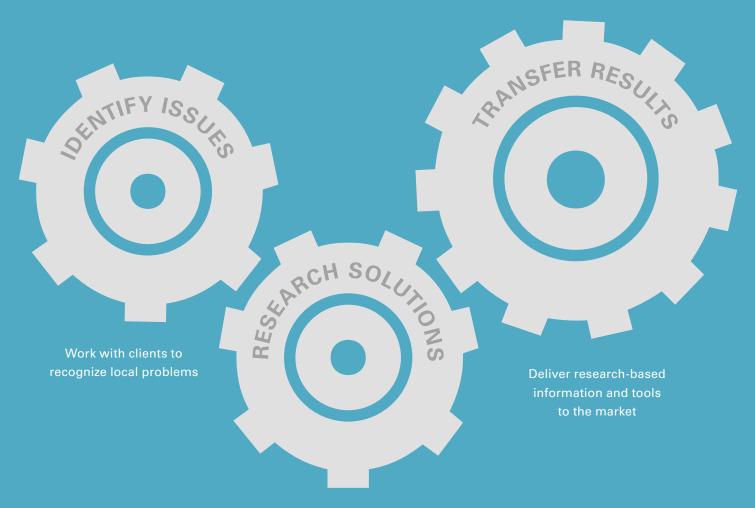
Extension Secures \$1.5M Grant to Combat Obesity

According to The State of Obesity, 30% of North Carolinians are obese, and the rate is climbing. A \$1.5 million grant from the Centers for Disease Control and Prevention in 2016 is helping NC State Extension increase access to healthy foods and physical activity for some of our state's most obese communities.

Extension specialists Dr. Annie Hardison-Moody and Dr. Lindsey Haynes-Maslow co-lead the project, A Multi-Level Approach to Prevent Obesity: Extension and Engagement in Four North Carolina Counties. The grant complements and expands current Extension partnerships with local agencies to promote a healthier and more active community, increasing the quality of life for many N.C. residents.

"It's exciting Extension will be the catalyst for change in these counties, working to lead conversations about healthy eating, access to healthy foods and places to be active," said Hardison-Moody.

A CYCLE OF SOLUTIONS





Take a real problem and find a solution

Our Cycle of Solutions

North Carolina Cooperative Extension faculty and staff work throughout the spectrum of innovation.

- Identify local needs and community challenges
- Conduct research to find potential answers
- > Transfer research-based knowledge to North Carolinians
- > Translate knowledge into practical applications
- Improve the economy and quality of life

How Extension Works

North Carolina is home to two proud land-grant institutions – NC State and N.C. A&T State universities. Land-grant universities have a unique and important obligation to serve our state through Extension, in addition to the traditional academic and research components. It's what sets us apart from other universities.

Each school coordinates Extension programs that work in collaboration with the U.S. Department of Agriculture's National Institute of Food and Agriculture (USDA-NIFA), as well as state and local governments. This strategic partnership is called N.C. Cooperative Extension. Together we enrich the lives, land and economy of North Carolinians.



National Focus on Local Issues

The USDA's National Institute of Food and Agriculture is a cornerstone of Extension.

Their financial and programmatic support help strengthen Extension efforts to identify emerging research questions and to apply science and technology to improve the nation's agricultural, economic and social well-being.

Land-Grants Lead the Way

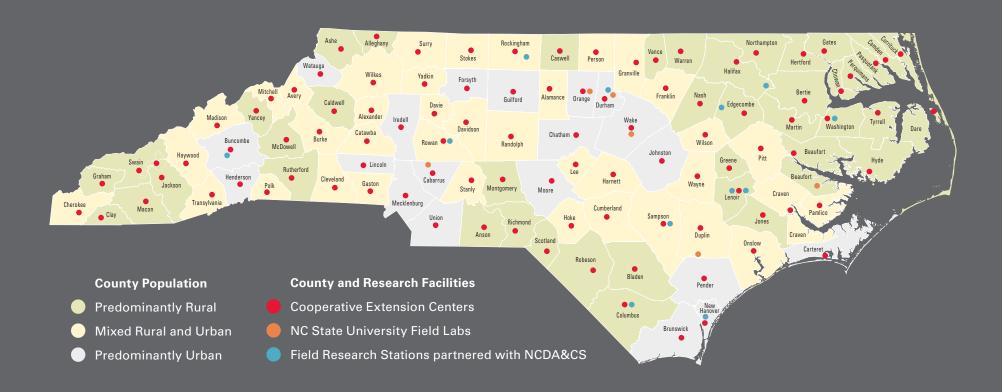
Since the passage of the Morrill Acts of 1862 and 1890, land-grant universities have worked toward a common mission to teach, conduct research and extend knowledge to the public. North Carolina has two land-grant universities – NC State and N.C. A&T – that ensure research discoveries are delivered from the campus to the community.

Serving All N.C. Citizens

Extension has offices in every county of North Carolina and the Eastern Band of Cherokee. The staff and volunteers work with local government to support agriculture, horticulture, conservation and environmental protection, nutrition and health, as well as a wide variety of consumer, youth and economic concerns.

101 Local Centers, 773 Professionals

NC State Extension has locally-focused services in every North Carolina county and the Eastern Band of Cherokee. County centers are staffed by 590 NC State Extension professionals. 183 more work on NC State's campus. 60% of the College of Agriculture and Life Sciences' research faculty have Extension appointments.





In 2016, we connected with 1,873,934 people in nearly 13,000 programs.



\$264.4M

in annual economic impact on North Carolina – plus \$16.5M in economic value in hours worked by volunteers.

Extension is Everywhere – and Everyone

Extension is NC State's largest outreach function and the largest non-formal educational outreach organization in the 17-campus UNC system. In addition to NC State Extension's faculty and staff, more than 70,000 volunteers and citizen advisors donate their time and resources to help better address local needs. Their involvement is vital to the success of our programming and efforts across the state.



FEEDING OUR FUTURE

NC State Extension connects growers with research-based information and technology. We help keep North Carolina's \$84 billion agriculture industry growing and sustainable.

228 county employees

763,441 face-to-face contacts

58,416 consumers increased awareness of the value of local agriculture

4,140 Master Gardener volunteers

63,929 crop producers adopted best management practices

\$84 billion value of N.C. agriculture industry



IMPROVING OUR HEALTH

Extension educational programs range from local foods and home gardening to food safety and food preservation.

We help people make healthier decisions and live better lives.

119 county employees

327.966 face-to-face contacts

1,955 food service employees trained

60,704 Steps to Health educational contacts

2,000 Eat Smart, Move More, Weigh Less participants

29,802 North Carolinians increased their consumption of fresh fruits and vegetables



ENRICHING OUR YOUTH

Extension's 4-H program is the largest youth development organization in North Carolina. We help over 247,000 young people grow into active, contributing citizens each year.

111 county employees

422,498 face-to-face contacts

196,843 hours donated by 4-H volunteers

247,000+ 4-H'ers

16,997 attended 4-H camp

4,495 teachers used 4-H programs in their classrooms in a year

132,970 youth gained more knowledge in STEM (Science, Technology, Engineering, Math)

Note: 132 county employees are affiliated with multiple program areas.





A Culture of Agriculture

Agriculture is North Carolina's largest industry, generating \$84 billion annually while employing more than 17% of the state's workforce. North Carolina has the third most diverse agricultural economy in the country, with more than 80 different commercial crop varieties and a large animal agriculture presence. NC State Extension connects growers and agribusinesses with the information and technology they need to continue producing high-quality crops and livestock in economically and environmentally sustainable ways.

We also help address a growing demand from the public to learn more about where their food comes from and how agriculture impacts their lives, all of which helps keep N.C. agriculture growing and sustainable.

Our Research Stations Produce More

- NC State maintains 6 of North Carolina's 18 agricultural research stations. We partner with North Carolina's Department of Agriculture and Consumer Services and the U.S. Department of Agriculture at 12.
- NC State agricultural research and Extension work in just these five crops – tobacco, sweet potatoes, cotton, blueberries and soybeans – provides a \$1.67B impact to North Carolina's economy every year.
- Every \$1 of public funds invested in N.C. agricultural research generates a \$19.90 return.
- > 15,000+ people attended our research station field days and events in 2016.



Connect(ing) **NC**. The successful passage of 2016's Connect NC bond was aided greatly by NC State Extension. More than half of our county offices participated in outreach efforts. 21,000 North Carolinians had face-to-face contacts and 642,000 connected through social media and digital channels. The bond included \$85 million for a plant sciences research complex on NC State's Centennial Campus that will facilitate research aimed at increasing agricultural yields in ways that protect the environment and strengthen the economy.

North Carolina agriculture provides 633,000 jobs generated by 49,500 farms on 8.4M acres. Our state ranks number 8 in livestock and number 10 in commercial crop cash receipts. NC State Extension's 228 county agriculture employees had 763,441 face-to-face contacts, 672,401 producers adopted Extension's best management practices and 58,416 consumers learned more about local agriculture's value in 2016.

Where do 4-H'ers Live? Farm Small Town Large Town Suburbs City/Metro

4-H Youth Development

Extension's 4-H program is the largest youth development organization in North Carolina.

More than 247,000 youth learn the skills to succeed and improve the world around them each year. Our 4-H programs and camps encourage young people to learn by doing – helping them to develop into active, contributing citizens. NC State Extension and the Cooperative Extension Program at N.C. A&T State University coordinate 4-H programs statewide.

4-H is a national leader in STEM education (Science, Technology, Engineering, Math).

> 132,970 youth gain valuable knowledge in STEM fields each year.

Kids across the state may already be benefiting from 4-H and not even know it.

> 4,500 teachers used 4-H resources in their classrooms last year.

North Carolina 4-H has three camps: Betsy-Jeff Penn, Camp Millstone, and Eastern 4-H Center.

- 16,997 youth attended 4-H residential and day camps.
- > There are 2,378 4-H clubs in North Carolina.
- More than 2,000 4-H volunteers donated 196,843 hours of service
- > 20,455 youth participated in Health Rocks! healthy living program.
- > 686 youth participated in Juntos 4-H program, which helps prepare Latino youth (grades 8-12) to pursue higher education.

Extension Master Gardener

The Extension Master Gardener program (EMG) trains thousands of volunteers who work with Extension agents to deliver research-based information on sustainable gardening and landscaping. Together they guide homeowners in making environmentally sound decisions in their gardens, lawns and landscapes.

Extension Master Gardeners are volunteers making a powerful impact on our state.

- > 4,300+ EMG volunteers contributed services in all 100 counties and the Eastern Band of Cherokee.
- > EMG volunteers donated more than 211,000 hours managing demonstration gardens, directing youth programs and presenting educational talks.
- > EMG volunteers made nearly \$1.7M in in-kind donations.

More than 280,500 learned – and used – our recommended best management practices.

- Nearly 63,000 crop producers improved their nutrient management, conservation, production, pest management (weeds, diseases, insects), business management and marketing.
- 25,126 participants implemented practices to conserve water use and protect water quality.
- > 7,015 animal producers adopted best management practices related to husbandry, improved planning, marketing and finance.
- > 2,129 animal producers implemented practices to improve animal waste management.







Food and Nutrition

As our state and global populations grow, so does the need for abundant, affordable and safe food. NC State Extension has a wealth of educational programs, from local foods to indoor air quality, from childhood nutrition and physical activity to heart-healthy eating and food safety. Our food and nutrition programs tackle critical public health challenges, boost economic development and help people make smarter, healthier decisions.

Making healthy choices isn't always easy. NC State Extension's educators help people sort fact from fad, providing research-based programs that promote a lifetime of good health.

EFNEP

The Expanded Food and Nutrition Education Program (EFNEP) serves limited-resource families with young children, school-age youth and pregnant teens.

- > 48 counties provided EFNEP services to 3,551 limited-resource families
- > EFNEP volunteers worked 12,787 hours
- > 24,067 participated in 4-H EFNEP

Eat Smart, Move More, Weigh Less

This multi-part series of programs envisions a North Carolina where healthy eating and active living are the norm, rather than the exception.

- > 100+ adults participated in Eat Smart, Move More, Take Control
- 2,000 participated in Eat Smart, Move More, Weigh Less 15-week program

SNAP-Ed (Steps to Health)

The Supplemental Nutrition
Assistance Program-Education
(SNAP-Ed) serves limited
resource individuals and
families nationwide.
NC State's SNAP-Ed project
is Steps to Health.

- > 6 distinct outreach programs helped pre-K to older adults make healthy choices within a limited budget.
- 7,663 children and 930 adults participated in Steps to Health
- > 60,704 educational contacts

Food Safety

Extension plays an integral role in assisting growers and businesses with food safety regulation compliance and risk reduction, and helps consumers understand what goes into making food safe.

- > 1,067 regulatory and industry members certified or recertified in HACCP (Hazard Analysis and Critical Control Points).
- > 831 certifications were awarded in Serv Safe – which teaches cost-effective food safety practices.

In 2016, we had 327,966 face-to-face contacts. 1,734 participants were trained in safe home food handling, preservation, or preparation practices. 1,955 food service employees were trained. 28,000 were reached by "More In My Basket" SNAP outreach to reduce food insecurity. 29,802 North Carolinians increased their consumption of fresh fruits and vegetables, and 23,289 increased their physical activity.

Help Urban Extension Take Root

As the largest non-formal educational outreach organization in the UNC system, Extension is poised to continue growing the \$84 billion N.C. agriculture industry while focusing more on the unique needs of our state's burgeoning urban centers.

NC State Extension helped pioneer a national "Urban Extension" movement. Locally, we implemented pilot programs to expand our urbanoriented services in Wake County and other urban centers across the state in 2016.

Help us expand these life-changing efforts in our growing urban centers, along with other initiatives creating prosperity across North Carolina.

Make a secure gift online: go.ncsu.edu/extensiongift



Putting Knowledge to Work. Everywhere.

North Carolina is growing – fast. To address the needs of an increasingly diverse and dynamic population, NC State Extension serves as a bridge between North Carolinians and the state's preeminent research university.

We provide trusted tools and resources for a wide range of topics, from healthy eating, local foods and home gardening to agricultural production, pest management and youth development.

NC State Extension offers 14,000+ educational programs, offices in all 100 counties and a network of 50+ websites. Whether it's on the farm, in the city or on the web, Extension is Everywhere for all North Carolinians.

Discover your answers online at cals.ncsu.edu/extension

