

NC STATE
UNIVERSITY



Sustainability Report

FISCAL YEAR 2024





FROM THE SUSTAINABILITY COUNCIL

The **2024 NC State Sustainability Report** highlights the latest progress toward the university's sustainability goals and its commitment to wise stewardship of resources, prudent financial planning and environmentally responsible operations.

In this report, you will learn about new and existing sustainability programs, projects and practices from July 1, 2023 through June 30, 2024. These initiatives contribute to a more efficient and resilient campus, foster important research breakthroughs and equip students to address the grand challenges facing our society, economy and environment.

On and off campus, NC State is building sustainability awareness, partnerships and solutions that contribute to a healthy environment, a growing economy and thriving communities.

Academics

Goal: Integrate sustainability into education, experiences and research.

Think And Do: Business for Good

Developed in collaboration with the College of Natural Resources, Poole College of Management established a new 12-credit Business Sustainability Certificate to benefit professionals across industries looking to address global challenges through sustainable business practices.



1,446

first-year and transfer students completed the Summer 2024 multidisciplinary experience of Wicked Problems, Wolfpack Solutions that focused on health, basic needs, disease, environment and wellness.

836

university courses are related to the global Sustainable Development Goals.

Global Sustainability Impact

12 graduate students were chosen to join the Global Change Fellows program, sponsored by the USGS Southeast Climate Adaptation Science Center and NC State University, to conduct multi-disciplinary climate change research.

32 graduate students from Poole College of Management traveled to Brazil and South Africa in June 2023 to study sustainability and leadership through cultural immersion and on-site corporate visits.

NC State's Department of Marine, Earth and Atmospheric Sciences welcomed students from 4 Pakistan universities as part of a project, Developing the Next Generation of Female Environmentalists, to complete the one-year Climate Change and Society master's program.

College of Veterinary Medicine researchers hosted their fourth annual trip to South Africa to better understand rhinoceros sinuses and possible treatments for the critically endangered rhinos after horn poaching.

Led by faculty from Civil, Construction, and Environmental Engineering; Forestry and Environmental Resources; and Agricultural and Resource Economics; 7 students participated in a hands-on research project in Malawi focusing on drinking water access, wastewater management in refugee camps and antimicrobial resistance.



Creating A Sustainable Future

The Sustainable Futures Initiative was launched to foster transformative research and sustainability applications.

Campus researchers are developing a smart waste management system powered by AI to support a low-carbon economy.

To accelerate the development of new semiconductor materials, Materials Science and Engineering researchers on campus are turning to robots to conduct experiments more efficiently and sustainably.

Using a CRISPR gene editing system, NC State researchers are breeding more sustainable forest trees to make fiber production greener, cheaper and more efficient.

Biological and Agricultural Engineering researchers are examining carbon recycling and the potential it holds for farmers, entrepreneurs and society.

Artificial intelligence is being used to create resilient agriculture systems with the support of collaborative research by the Center for Environmental Farming Systems and the N.C. Plant Sciences Initiative.

The School of Public and International Affairs finds that universities scoring strongly on measures of sustainability are associated with innovation and economic growth in their surrounding communities.



Conservation at Yates Mill

The new Yates Mill Aquatic Conservation Laboratory advances conservation of North Carolina's imperiled aquatic species through propagation, research and education.



Research Funding Highlights

The [Bezos Earth Fund Grant](#) awarded NC State \$30 million over five years to lead a center of excellence to research dietary proteins that are environmentally friendly, healthy, accessible and affordable.

[NC State Extension](#) and 7 campus faculty members will play a lead role in a \$1 million grant from the National Science Foundation to build an agricultural technology corridor across North Carolina.

NC State researchers will receive a five-year, \$6.9 million grant to establish the [North Carolina Center for Coastal Algae, People and Environment](#).

Interdisciplinary research secures a \$1.9 million [National Institute of Health](#) grant to study gene-environment interactions.

[Department of Forest Biomaterials](#) researchers are leading a \$2.6 million multi-institutional project to reduce greenhouse gas emissions in the pulp and paper industry.

[Wilson College of Textiles](#) will serve as a core partner in a regional research effort that will receive up to \$15 million to advance textile innovation that ensures environmental sustainability.

Several [College of Education](#) faculty were awarded grants studying areas including coastal adaptation, global change science and community resiliency.

Natural Solutions

[Parks, Recreation and Tourism Management](#) and the [Center for Geospatial Analytics](#) research finds that urban greenspaces can benefit people at the cellular level.

[Chemical and Biomolecular Engineering](#) is studying genetically engineered organisms like crustaceans, seaweed, yeast and bacteria to tackle marine microplastics and plastic pollution.

[Wilson College of Textiles](#) researchers are harnessing enzymes as natural catalysts to break down textile waste, enabling the creation of new products.

[College of Natural Resources Researchers](#) are exploring the use of cottonseed oil to create non-allergenic, biodegradable textiles and paper products as an alternative to petroleum-based products.

Student Leadership

Goal: Engage students in initiatives that promote leadership and service in sustainability.



Record-Breaking Innovation

NC State's annual sustainability innovation challenge, Make-A-Thon, welcomed a record-breaking 62 teams of nearly 250 students from all of NC State's 12 colleges during January 26-28, 2024. The winning team printed a reusable cup with RFID technology to enable reusable drink purchasing to reduce single-use cups on campus.



Sustainability Stewards

The Sustainability Stewards leadership program welcomed 31 students and hosted 18 campus events including the annual Energy and Water Competition.



Campus As A Classroom

28 students joined the University Sustainability Office's internship program, working on 19 sustainability projects, while 63 additional students tackled campus sustainability projects through 12 courses.

94

first year students interested in sustainability lived together in the **EcoVillage Living and Learning Village** on-campus residential community.

54

student organizations identified as sustainability-focused, with 9 earning **Certified Sustainable** status.

18

students were selected for the **Social Innovation Fellows** program that explores the intersection of ethics, sustainability and innovation.



City Accolades

Two Campus As A Classroom interns were honored by the City of Raleigh for community sustainability. Karthik Jayakumar won the Community Action Award for boosting local food purchasing on campus while Kate Macleod earned the Climate Action Award for expanding compost access in the city.



Campus Thrift Store Opens

Student-led efforts opened a Campus Thrift Store in EcoVillage to provide NC State students with affordable, accessible and sustainable fashion on campus.



Buzzing Success

Ren Rooney, a Campus As A Classroom intern for the NC State Bee Campus USA Committee, showcased her pollinator research in a special exhibit at Hill Library.



Compost Research

The Engineering Sustainable Composting and Outreach Program engaged undergraduate students in microbiological research at the NC State Compost Facility and Research Cooperative.

For Students, By Students

The student-led **NC State Sustainability Fund** named 8 student projects as recipients of FastTrack mini-grants totaling \$5,605. The projects included:

- Waste reduction art contest for students to redesign a campus waste sorting guide
- TEDxNCState Talks to promote the global sustainable development goals
- Art display in Talley Student Union to raise awareness about waste reduction
- Raised garden beds to showcase regenerative agricultural practices
- Rewilding a patch of turf grass on campus into a native prairie garden
- Community bike, scooter and skate ride between Centennial and Main Campus to celebrate alternative forms of transportation
- Gambian Girl Power mini library for a sister-school in Gambia
- Food for Thought cooking class aimed at reducing food waste and promoting food equity on campus

14

pairs of student scholars and faculty members were selected for the Kenan Institute for Engineering, Technology & Science (KIETS) **Climate Leaders Program** to help find viable solutions for climate challenges.

210

first-year students explored sustainability-related academic and career options in the **Environmental First-Year Program**.

114

students participated in NC State's **Alternative Service Break** across 10 trips to make a difference in the world and learn about different cultures.

Community and Culture

Goal: Accelerate a culture of sustainability, inclusivity and well-being on campus and in the community.

Songs of Sustainability

NC State LIVE hosted Small Island, Big Song, bringing together filmmakers, oceanographers, scientists and artists for a week of events in April 2024 showcasing the impact and resiliency of indigenous communities facing climate change.



Gaming Our Climate

The Coastal Resilience and Sustainability Initiative hosted a climate futures workshop with 100 attendees exploring climate change impacts on NC's coastal plain through mapping and gamification.



Growing Community

The Biological and Agricultural Engineering P.E.E.R. (People Ecologically Engineering a Regenerative) Garden opened outside Weaver Labs as part of a student-led initiative to demonstrate the benefits of sustainable urban farming.



Sustainable By Design

A new lab formed by Kofi Boone, a professor in the Department of Landscape Architecture and Environmental Planning, uses design and planning to rethink how we protect people, ecosystems and environments.

2024 Sustainability Award Winners

Launched as the Green Brick Awards in 2004, the Sustainability Awards have honored 80 outstanding individuals and projects for their exceptional contributions to sustainability on campus and beyond. For its 20th Anniversary, the 2024 Sustainability Awards recognized the following winners:

- Kate Macleod (student category)
- Jessica Yinka Thomas (faculty category)
- Paul Matney (staff category)
- Zero Waste Wolfpack (organization/department category)
- Blue Economy Innovation Program (innovation/impact category)
- Campus Thrift Store (student-led initiative category)



74%

of incoming students in 2023 indicated the university's commitment to the environment and sustainability influenced their decision to attend NC State.

59

students, 12 companies and 22 coaches engaged with the B Corp Clinic offered by Poole College of Management's Business Sustainability Collaborative.

1,120

community members aged 50+ attended 29 courses related to the global sustainable goals and hosted by the Osher Lifelong Learning Institute (OLLI) at NC State.

12

campus workplaces earned NC State Sustainability Certification during fiscal year 2024 in recognition of their commitment to healthy spaces and wise stewardship of environmental and fiscal resources.

600

visitors took part in student-focused wellness programs, including yoga, guided mindfulness, tea making and volunteer work at the Agroecology Education Farm.

Advancing Sustainability

The NC State Sustainability Fund awarded \$169,832 in grants to the following projects for the 2024-2025 academic year to advance sustainability across campus:

- Solar panels to power an automated irrigation system at the Agroecology Education Farm.
- Funding for student internships to improve campus pollinator habitat landscapes and education.
- Composting efforts at Carter-Finley Stadium.
- Sustainability-themed events for students, including an Energy and Water Competition in residence halls and Environmental Justice Symposium.
- Funding to train and mentor students to address water quality issues in North Carolina.
- Microbiological research of campus compost.
- Lab glove recycling program and installation of water bottle filler stations on Centennial Campus.
- Mountain bike skills area at Lake Raleigh Woods.
- Safety equipment for students in prescribed burn field training.
- Community engagement and education efforts at the SOL Garden.
- Step pools along Wolf Village Way to reduce flooding and filter stormwater runoff.
- TEDxNCState talks and activities related to the sustainable development goals.

Wellness At Hand

A new wellness app providing guided meditations and focus exercises was made available at no cost to students to support their well-being and contribute to a balanced campus lifestyle.

New hiking trails and signage installed at Lake Raleigh Woods made exploring this hallowed space even easier, thanks in part to a Sustainability Fund grant.

HR Wellness crowned 8 winners of the Wolfpack Sustainability Challenge, a new program designed to encourage engagement with sustainability-related activities.

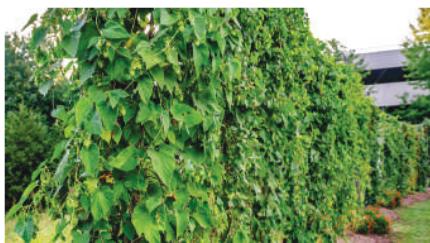
Operations, Planning and Design

Goal: Model sustainability through efficient, innovative facilities and operations that educate the campus community and improve the quality of life.



The Future of NC State

The completion of NC State's newest Physical Master Plan highlights the places and spaces that make NC State extraordinary, showcasing a vision for NC State's built environment that includes environmental, social and financial stewardship as guiding principles.



Centennial Hops

A micro hop yard has taken root on Centennial Campus to showcase native-grown hops and campus-brewed beer as part of collaborative research across the state.



Rewilding Campus

A student-led project outside the Sullivan Shops III transformed the area into a Piedmont Prairie, enhancing campus biodiversity and pollinator habitat through ecological restoration.



Reuse On the Go

One Earth in Talley Student Union converted to a takeout restaurant where users can bring their reusable Pack & Go containers or utilize the available compostable to-go containers.



Powerful Savings

A Battery Energy Storage System (BESS) was installed on Centennial Campus to supply energy back to the Centennial Campus power grid while providing cost savings and enhancing grid resiliency.

NC State Facilities Division installed three variable frequency drive upgrades at two campus utility plants to drive energy and cost savings estimated at \$40,000 per year.

NC State avoided \$478,830 in energy costs as part of the winter break's Holiday Energy Savings Initiative.

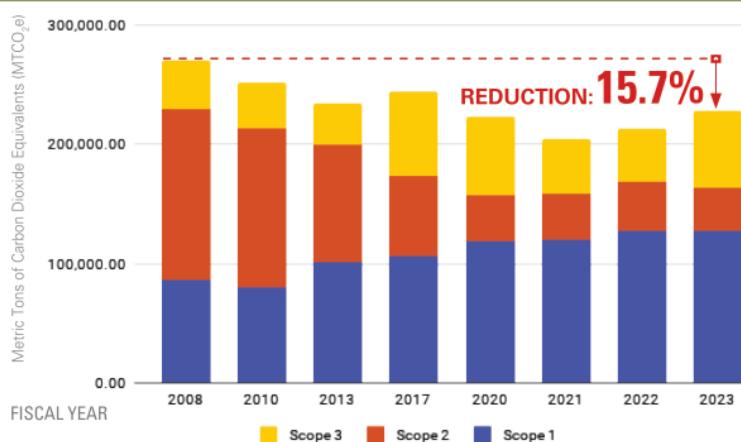
WOLFLINE BUS PASSENGER BOARDINGS

FY2024	2,676,134
FY2023	2,560,094
FY2022	2,246,720
FY2021	480,984
FY2020	2,851,245

PARTICIPANTS IN THE WOLFTRAILS ALTERNATIVE COMMUTER PROGRAM

FY2024	604
FY2023	745
FY2022	164
FY2021	768
FY2020	341

CAMPUS GREENHOUSE GAS EMISSIONS



FUEL TYPE USED IN FACILITIES DIVISION VEHICLES*

*The Facilities Division, which includes Motor Pool, is one of NC State's largest vehicle fleets.

	DIESEL	UNLEADED	E85
FY2024	44,126	57,808	52,359
FY2023	44,077	57,302	48,725
FY2022	42,717	60,490	45,180
FY2021	44,946	58,683	39,950
FY2020	45,239	55,507	44,671



Tracking Local Impact

NC State Dining implemented a new tracking system for local food purchases, increasing this year's sourcing to 13.2%, up from 12.4% last year. This effort includes purchasing 20,416 pounds of sustainable seafood.

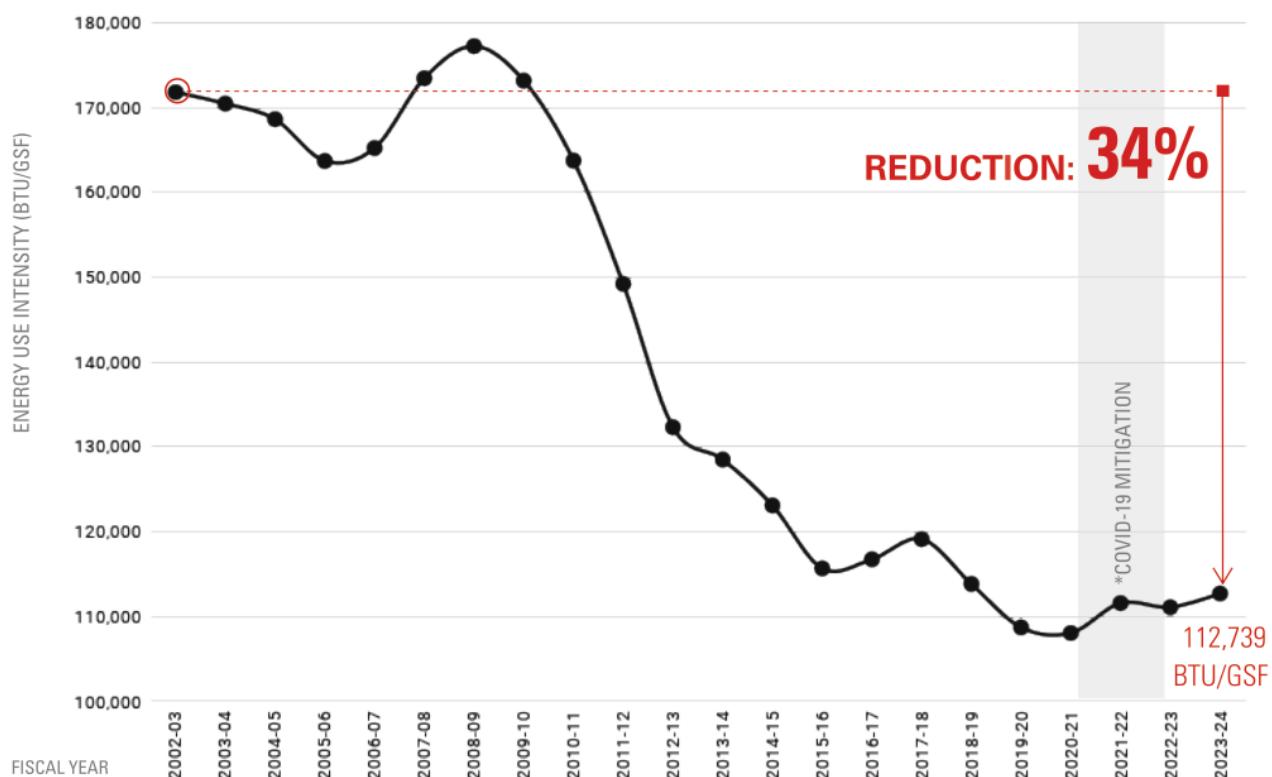
125,708

trips on electric scooters and e-bikes provided by an authorized micromobility campus partner.

792

new bicycle registrations on campus.

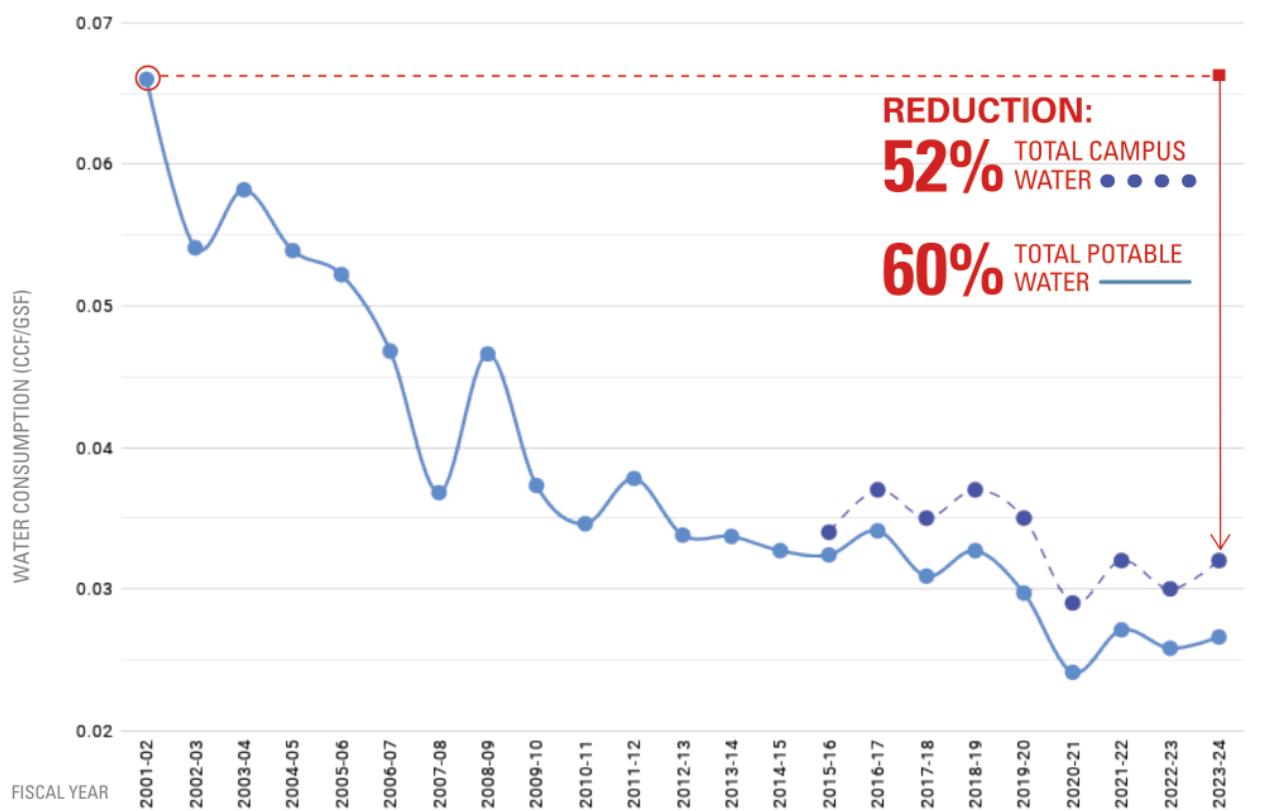
CAMPUS ENERGY USE PER GROSS SQUARE FOOT



*While campus occupancy was reduced during the pandemic, NC State implemented energy-intensive COVID-19 mitigation measures such as increased air filtration and outdoor air levels and increased hours of operation to allow flushing of air before and after building occupation for safety.

CAMPUS WATER USE PER GROSS SQUARE FOOT

1 CCF = 748 GALLONS





Sustainable Labs

A new Sustainable Labs certification program was launched in four pilot labs on campus to help reduce the environmental impacts of lab research.



Bird-Safe Bus Shelters

A student-led project in the College of Natural Resources used a Sustainability Fund grant to equip several campus bus shelters with a glass film designed to prevent future bird collisions.

5,371

pounds of produce grown at the NC State Agroecology EducationFarm was served in dining halls.

26,668

pounds of clothing, housewares, toiletries and food were collected during campus move-out in 2024 and donated to Feed the Pack Food Pantry and local community nonprofits.

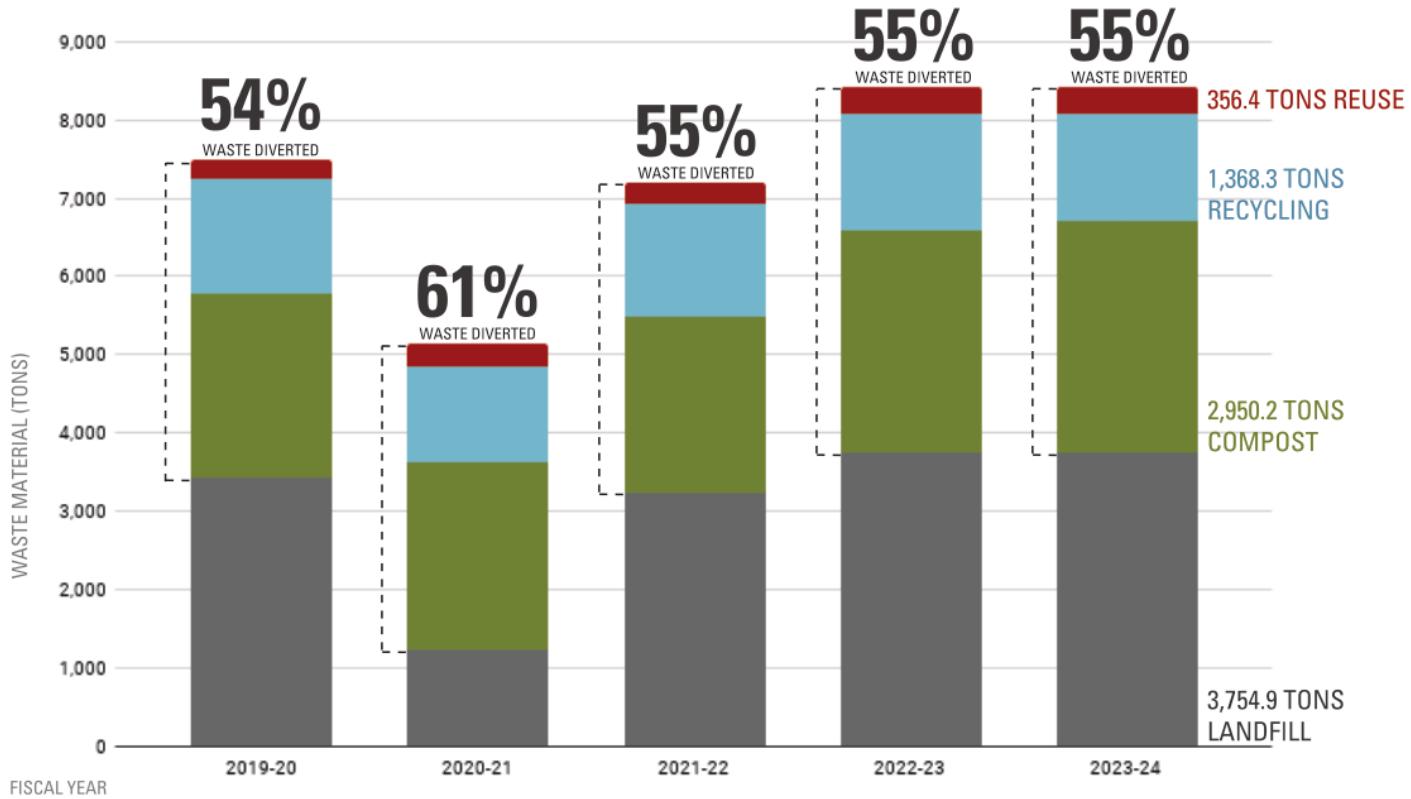
218,063

pounds of food were distributed on campus by Feed the Pack Food Pantry.

CAMPUS WASTE DIVERSION RATE AND WASTE MATERIAL (TONS)

1 TON = 2,000 POUNDS

The campus waste diversion rate is the percentage of waste diverted from landfills through recycling, composting or reuse. A higher diversion rate indicates that waste is being processed in more sustainable ways, reducing the environmental impact of landfills and conserving natural resources.



Communications

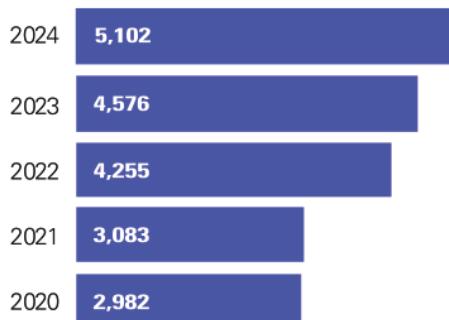
Goal: Propel awareness and sustainability at NC State and beyond.

1,405

incoming students requested information about campus sustainability.

5,102

average weekly readers of NC State Sustainability's e-newsletter.



10,479

followers of NC State Sustainability's social media accounts.

96,459

pageviews on sustainability.ncsu.edu



Sustainability Wins

NC State Athletics hosted 11 Sustainable Wolfpack games, with a total attendance of 89,242 fans, showcasing their dedication to integrating sustainability into athletics.

This commitment earned them the 2024 Most Sustainable Award, sponsored by Front Office Sports and Sports Innovation Lab, in recognition of their climate action and sustainable initiatives.



Artful Awareness

The Waste Wolf debuted in Talley Student Union to promote waste consciousness. Built by the Sustainability Stewards from recyclables and compostables found in campus waste bins, it highlighted how art supports sustainability education.

The College of Humanities and Social Sciences, Sustainable Futures Initiative, University Libraries and Global One Health Academy hosted Art United Poetry and Art Workshop, bringing students and artists together to address climate anxiety.



Online Connections

- With support from the Sustainability Fund, a student-developed web application was launched to offer users guided tours of campus trees, showcasing their diversity, history and benefits.
- A Climate Solutions Collaborative website was established to facilitate interdisciplinary partnerships and increase awareness about NC State's contributions to climate action.
- In collaboration with the Environmental Sciences capstone course, the University Sustainability Office conducted a campus survey to assess the awareness and attitudes toward campus sustainability initiatives.
- NC State Energy Management conducted a campus survey to kickstart a future marketing campaign designed to cultivate a campuswide culture of energy and water conservation.

Community Outreach

The NC Clean Energy Technology Center hosted 15 workshops, engaging 299 participants in the fundamentals of solar PV design and installation, solar storage, PV system operation and maintenance, and renewable energy project development.

A Guide to Understanding PFAS in Our Communities was launched by NC State Extension to help protect the health of North Carolina's population, livestock and pets from per- and polyfluoroalkyl chemicals.

NC State researchers launched a new toolkit to help local parks and recreation agencies meet visitor expectations amid growing demand and budget challenges.

82

presentations and activities were conducted by the University Sustainability Office.

472

sustainability-related events were hosted on campus – a 28% increase from 2023. Of this, 100 events were part of NC State **Earth Month** in April 2024 and 37 events earned **Sustainable Event Certification**.

Global Leader

NC State retains its **Gold rating** in recognition of its sustainability achievements from the Association for the Advancement of Sustainability in Higher Education (AASHE), through October 2025. In addition, NC State remains certified as a **Bee Campus USA**, **Tree Campus USA** and **Bicycle Friendly University** (Silver Level).

In the **QS World University Rankings**, NC State ranked #67 out of 210 for U.S.-based institutions and #100 out of 342 institutions across the Americas for sustainability impact.

The 2024 **Times Higher Education Impact Report** ranked NC State in the top 15% of schools in the world for its contributions toward the global Sustainable Development Goals. NC State also ranked:

- No. 12 among U.S. universities for overall sustainable impact
- No. 3 in the U.S. and top 1% in the world for impact in Life Below Water
- No. 4 in the U.S. and top 5% in the world for Clean Water and Sanitation
- No. 4 in the U.S. and top 10% in the world for Industry, Innovation and Infrastructure
- No. 5 in the U.S. and top 5% in the world for Life on Land

View the Annual Sustainability Report online
go.ncsu.edu/SustainabilityReport



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