



EARTH DAY  
 EDITION

# Taking Collective Action



Featuring  
**Stéphane Bancel** *CEO of Moderna*

Stéphane Bancel, CEO of pioneering biotech powerhouse startup Moderna, understands the vital importance of climate. More than a year into a global pandemic brought forth by COVID-19, a brutal new virus that has triggered so much chaos and disruption, Bancel thinks the world has been primed to see how collective action can address monumental challenges. And that communities are capable of great change. Together, people can not only make do, but also make better. "I hope this crisis has opened the eyes of people that climate is a much bigger crisis, with much bigger consequences," says Bancel.

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“Scaling soil carbon capture could change the world...”

## FEATURED FARMER SPOTLIGHT: A FARMER'S PERSPECTIVE ON EARTH DAY

A decade ago, farmer Adam Chappell made a pivotal decision: he changed the way he farmed. After transitioning to regenerative practices that prioritize soil health, such as cover crops and no-till, he gained control of his profitability, his operation, and his future—so much so that he was able to weather a flood, a fire, and a drought. A self-proclaimed “science nerd” whose teacher mom insisted they celebrate Earth Day as kids, Chappell uses modern science and technology to add new practices to solve new problems. As a result, his farm is brimming with life—his soil is full of earthworms and the quail and wild turkeys are back.

[READ THE STORY](#)

“Just take one of the pictures from the current Mars rover, *Persistence*, of a field with nothing in it. Just parched and dry. Then imagine a field of waist-high glowing green grass. That's just how different my farm is now.”



[Click here](#) to learn how your company can get involved.



In 2019, Maple Leaf Foods became the first carbon neutral major food company. As part of their strategy, the Canadian company has entered a multi-year offsets contract with Indigo Carbon.



**Tim Faveri**

VICE PRESIDENT OF SUSTAINABILITY AND SHARED VALUE

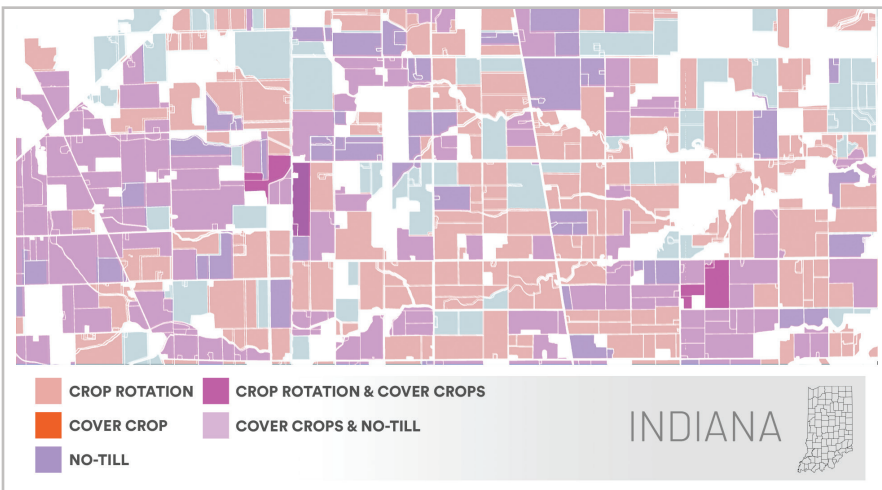


“There are very few natural climate solution projects out there right now that deal with the removal and sequestration of carbon that have the potential to scale. What attracted us to Indigo is the scale and the reach, and the ability to bring a scientifically credible verification to the program. We think that farmers can play a big part, and there’s a great opportunity in that.”



**THE LIVING MAP: HARLAN, INDIANA**

Across northern Indiana, farmers are using beneficial practices, like reduced tillage and complex crop rotations, to boost their soil health and cut costs—but there are fewer acres of cover crops, a key practice for limiting soil erosion. This is essential for a state where more than 40% of the 13.5 million total cropland acres have a sufficient slope. Research conducted in the state, shares Purdue University, has shown that fields with winter cover crops have 55% less water runoff and 50% less soil loss annually than fields where soil is left bare.



**INDIGO CARBON PROGRAM NEWS**

Indigo joined more than 300 businesses and investors that have signed an open letter to President Biden indicating their support for the Biden administration’s **commitment to climate action and for setting a federal climate target to reduce emissions.**



Momentum continues to grow. So far, **2.32 million acres in 21 states are contracted with Indigo Carbon** in expectation of future practice changes, including more than 500,000 acres since the start of the year.



The Indigo Carbon program is grateful for the support of 13 leading companies, including the newest addition, Heidrick & Struggles.



### FIRST EUROPEAN ACRES ENROLLED IN PILOT PROGRAMS

Indigo has teamed up with Swedish Crispbread maker Wasa, a division of Barilla, and Beiselen, one of Germany's leading family-owned agriculture trade businesses, to support the development of the Indigo Carbon program in Europe.

The pilot with Beiselen is the first full trial of Indigo Carbon outside the United States—a significant milestone in the international development of the program—and will seek to enroll growers transitioning to regenerative practices in selected states of Germany in 2021.

This will complement the work with Wasa to support 12 of their rye farmers in Germany and Sweden in the transition to regenerative practices.

This progress is aligned with the European Green Deal, which has set forth an action plan for the European Union to become carbon neutral by 2050.

Georg Goeres, Indigo's Head of Europe says: "Farmers want to invest in more beneficial ag practices and now the EU's Green Deal will support them in doing so while also requiring companies to invest in measures and instruments, like verified agricultural carbon credits, to reduce their footprint."



Together with Indigo Ag, we want to understand how we can reduce our emissions, but also to sequester carbon, and by that take us one step towards our mission.



**Katarina Waak**  
WASA GLOBAL  
MARKETING MANAGER



### PARTNER SPOTLIGHT : AMERICAN FARMLAND TRUST

#### WOMEN FOR THE LAND INITIATIVE

American Farmland Trust's Women for the Land Initiative serves the underserved. It has developed training for women farmers and women landowners to encourage farmer adoption of soil health practices. Their aim is to equip women with the knowledge, tools, and resources that can compel farmers to rapidly adopt practices that facilitate carbon capture.

The Women for the Land Initiative's work not only directly promotes regenerative practice adoption, but targets diverse and disadvantaged communities to ensure they have access to information, technical, and financial resources. They harness the power of peer-to-peer networks, which are shown to be effective in catalyzing practice adoption.



We've been hosting learning circles, particularly centered around helping women navigate the climate-related stressors that they're seeing already on their farms. And making sure that those who are really leading the charge on implementing innovative climate-smart practices are actually getting incentives that can support them in that work.



**Caitlin Joseph**  
WOMEN FOR THE LAND PROGRAM  
AND POLICY MANAGER



## Q: HOW DOES SOIL CARBON SEQUESTRATION WORK?

**A:** The science behind agricultural carbon sequestration offers a snapshot of the constant dialogue between the atmosphere, plants, and soils. It starts with photosynthesis—and continues in exchanges between plant roots, animals, and microbes living within the soil. Implementing regenerative practices that support soil microbial communities promotes active carbon cycling, thereby accumulating soil organic matter long term, particularly in deeper soil layers. This persistence is what ultimately allows farmers to get paid for the carbon in their soil and supporters to receive high-quality credits through Indigo’s Carbon program.

**1** The sun provides an endlessly renewable energy source for plants to perform photosynthesis.

**2** Plants capture carbon dioxide from the atmosphere, tossing aside the two oxygen molecules and keeping the carbon to build up its leaves, stems, and roots.

**3** Plants secrete some of their carbon reserve from their roots in nutritious offerings known as “exudates,” or simple sugars, proteins, amino acids, organic acids and other important regulators for the microbial community living in the soil.

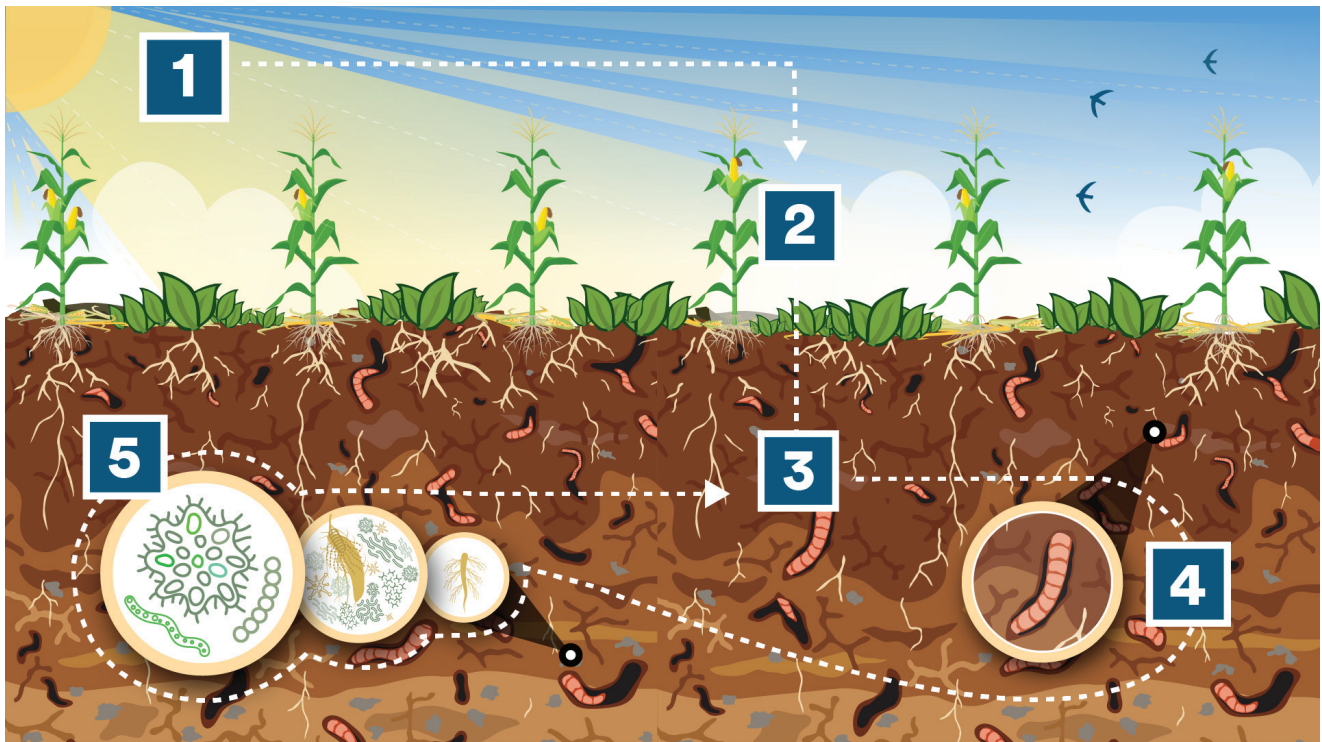
**4** Worms ingest a combination of organic materials (plant residue) and inorganic materials (soil), once that material passes through their guts it gets excreted as soil ‘casts.’ These soil casts, composed of many small microaggregates, are bound together in a stronger way that helps make robust soil aggregates that physically protect newly added surface plant material from decomposition.

**5** Carbon is moved deeper within the layers of soil, and transformed into more stable forms over time, in a continuous cycle of microbial consumption and transformation of plant-derived carbon. Some carbon, usually simple sugars or other small biomolecules, dissolves out of crop residues. If the dissolved carbon comes into contact with bacteria or fungi, the microbes can use that as energy to grow bigger. Because microbes are in such close proximity to the mineral soil, when they die, the carbon that was contained in their bodies joins with these mineral surfaces. Over time, this conversion of dissolved carbon into microbial tissue increases the size of the microbial pool, and when they die, a lot of that microbial carbon cycles through the soil – eventually increasing soil carbon stocks.

**Persistent forms of carbon can be produced in soils, and this cycling process can be enhanced by:**

1. Bringing high-quality inputs to the land that support, rather than diminish efficient microbial activity

2. Reducing disturbances (like tillage, which digs up the topsoil) to preserve the biological, physical, and chemical processes already taking place



# THE SCIENTIFIC COMMUNITY DIGS IN TO ADVANCE AG TECH

The scientific community is deeply invested in understanding the potential of agriculture as a nature-based climate solution. Here some of our partners share how they are coming together to support farmers and rural communities by advancing agricultural technology.



We're excited to work with farmer-led organizations and stakeholders across the supply chain to **drive perennial groundcover (PGC) development, achieving soil and water conservation and capturing carbon on high-yield, working row crop landscapes.** The PGC system recognizes existing market forces, agriculture infrastructure investments, and federal farm programs, adding value to farmland and boosting rural economies.

– **Dr. Ken Moore, Charles F. Curtiss** Distinguished Professor in Agriculture and Life Sciences and Pioneer Hi-Bred Agronomy Professor in Agronomy at Iowa State University



The USDA-ARS' Precision Sustainable Agriculture team **breaks down data silos that exist among the public sector scientific community by building IoT technologies, cyberinfrastructure, and a community of practice.** The team also connects ARS scientists and universities through common experiments and the standardization of data acquisition systems.

– **Dr. Steven Mirsky**, Research Ecologist, USDA-ARS



Agriculture plays a role in almost every environmental challenge including climate change, habitat conservation, and water quality. The current revolution in agricultural technology is allowing scientists to reimagine the food system with the environment front and center in the redesign. NCSU is doing research with Indigo and other partners in the **Precision Sustainable Agriculture team to help farmers bring these benefits to scale.**

– **Dr. Chris Reberg-Horton**, Professor, Crop and Soil Sciences, North Carolina State University



The rapid emergence of **ecosystem service markets for farmers has accelerated scientific collaboration** to fill gaps in knowledge to ensure that markets provide credible environmental benefits.

– **Dr. Jonathan Sanderman**, Associate Scientist, Woodwell Climate Research Center



Agriculture and soils have captured the attention of broad swaths of the scientific community. Research initiatives are now often cross-disciplinary, with specialists ranging from **data science, robotics, system modellers to ecology, social sciences and economics.** **This integrated approach will drive innovation** in agricultural systems faster and in new directions. Partnerships with industry, grower networks, and policy groups are also critical for mobilization of landscape level changes for improved environmental outcomes and for mitigation of climate change.

– **Dr. Alex Woodley**, Assistant Professor, Crop and Soil Sciences, North Carolina State University



INDIGO'S MISSION IS TO HARNESS NATURE TO INCREASE ENVIRONMENTAL SUSTAINABILITY, CONSUMER HEALTH, AND FARMER PROFITABILITY. OUR CARBON PROGRAM OFFERS A SCALABLE CLIMATE SOLUTION WHERE FARMERS ARE THE HEROES. IT'S BACKED BY TECHNOLOGY AND SCIENCE, DRIVEN BY INNOVATION, AND SUPPORTS SUSTAINABILITY ACROSS THE SUPPLY CHAIN.

The content in this document includes testimonials from individual growers. Results and outcomes may vary based on each farm's individual circumstances and are not guaranteed. You should independently consider all risks and benefits of the adoption of any agronomic practice as they relate to your specific farming operation.

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