REGENERATIVE AG 101

PART 2 | COLLABORATING TO CULTIVATE REGENERATIVE PRACTICES THROUGHOUT THE VALUE CHAIN

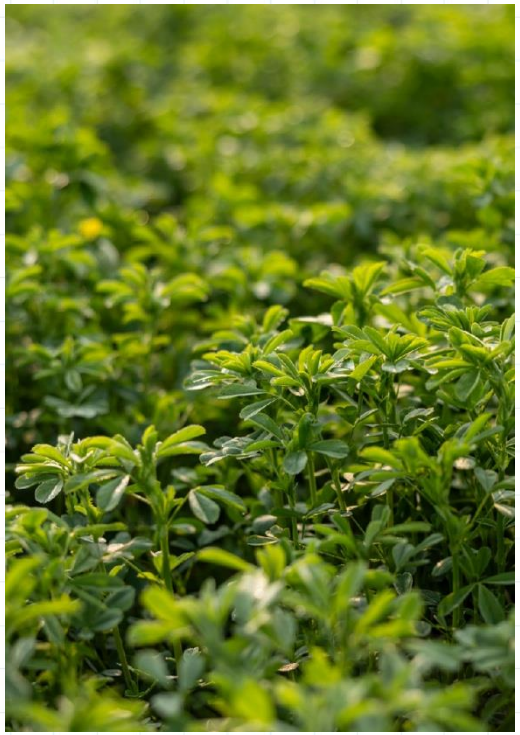
LAUREN CLINE

/////// lauren.cline@bayer.com

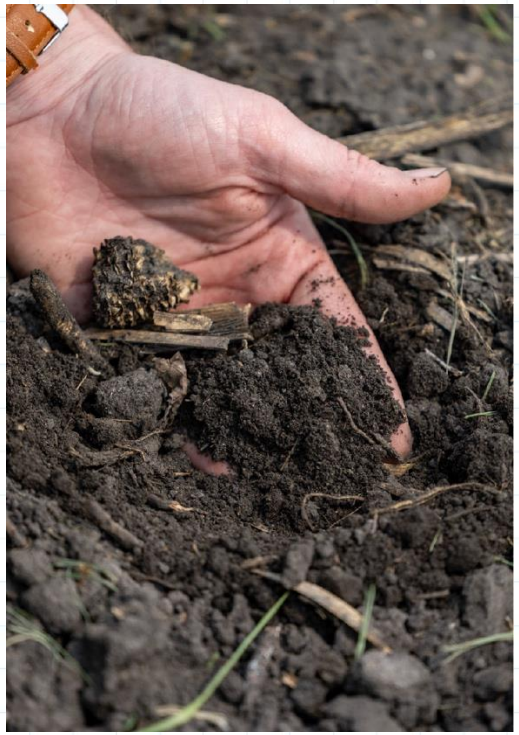
RYAN STIPPLER

/////// ryan.stippler@bayer.com

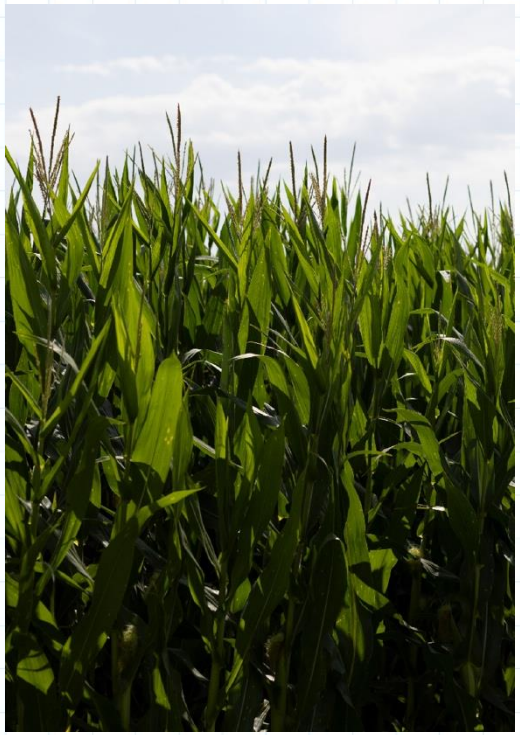
“REGENERATIVE” AGRICULTURE–
WHAT DOES IT MEAN?



PRACTICES



OUTCOMES



BOTH


SO HOW DOES
REGENERATIVE
AGRICULTURE
RELATE TO MEAT
AND POULTRY?

WHAT ARE SCOPE 3 EMISSIONS?

ORGANIZATION

The result of activities from assets not controlled by the reporting organization, but that the organization indirectly affects in its value chain

ALL SOURCES

Include all sources not within an organization's scope 1 and 2 boundary; the scope 3 emissions for one organization are the scope 1 and 2 emissions of another organization

GHG EMISSIONS

Often represent most of an organization's total GHG emissions

Source:
https://www.epa.gov/climateleadership/scope-3-inventory-guidance

Source:
https://sciencebasedtargets.org/reports/sbti-progress-report-2021

SBTi TARGETS

Removing residual CO_2e from your supply chain is often the only way to meet targets

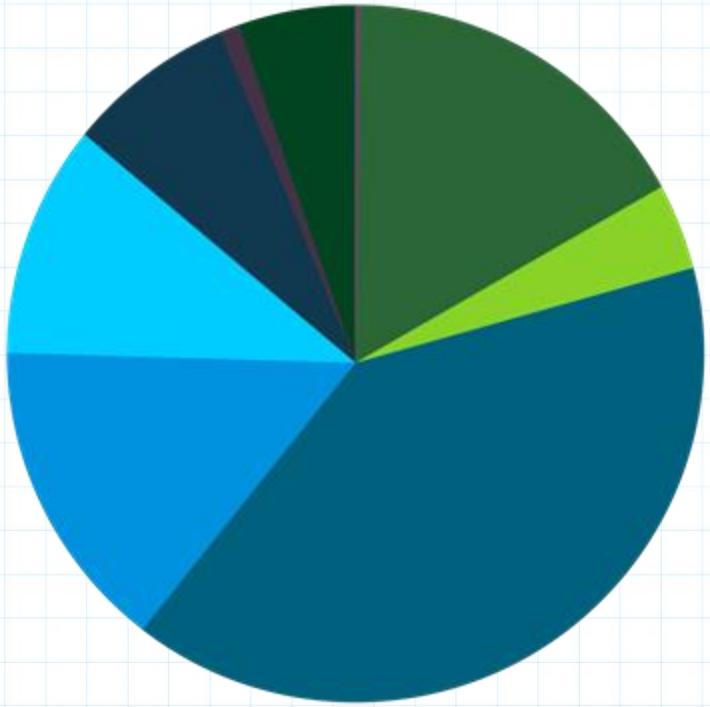
ESTIMATED GHG EMISSIONS BY SPECIES

FEED ALONE REPRESENTS

— 57.1% of emissions for chickens

CHICKENS

40.2%	Feed (CO2)
16.6%	Feed (N2O)
14.6%	Post-farm
10.9%	Direct On-farm Energy
7.3%	LUC: Soy & Palm
5.31%	Manure (CH4)
3.56%	Manure (N2O)
1.22%	Embedded On-farm Energy
0.288%	Feed (CH4)



Source:
https://foodandagricultureorganization.shinyapps.io/GLEAMV3_Public/

ESTIMATED GHG EMISSIONS BY SPECIES

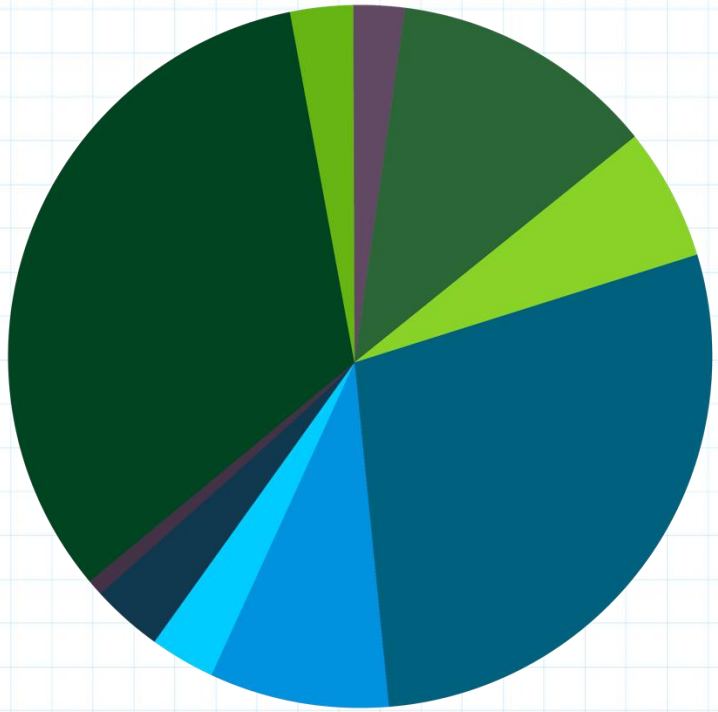
FEED ALONE REPRESENTS

— 57.1% of emissions for chickens

— 40.4% of emissions for pigs

PIGS

33.2%	Manure (CH4)
28.4%	Feed (CO2)
12%	Feed (N2O)
8.23%	Post-farm
5.95%	Manure (N2O)
3.25%	Direct On-farm Energy
3.17%	LUC: Soy & Palm
3.06%	Enteric Fermentation
2.15%	Feed (CH4)
0.537%	Embedded On-farm Energy



Source:
https://foodandagricultureorganization.shinyapps.io/GLEAMV3_Public/

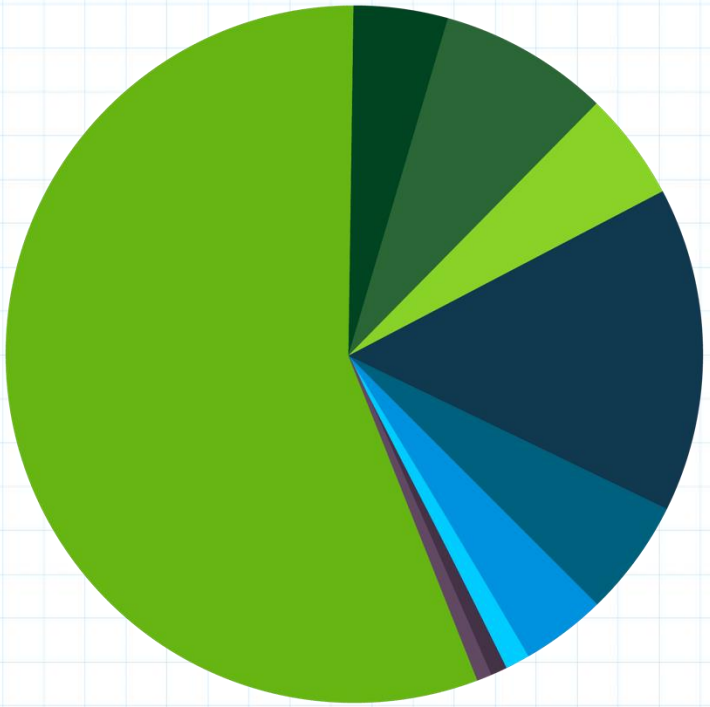
ESTIMATED GHG EMISSIONS BY SPECIES

FEED ALONE REPRESENTS

- 57.1% of emissions for chickens
- 40.4% of emissions for pigs
- 13.3% of emissions for cattle

CATTLE

55.9%	Enteric Fermentation
15.1%	Pasture Expansion
7.89%	Feed (N2O)
5.37%	Feed (CO2)
4.15%	Manure (CH4)
5%	Manure (N2O)
3.94%	Post-farm
1.33%	Direct On-farm Energy
0.785%	LUC: Soy & Palm
0.471%	Embedded On-farm Energy



Source:
https://foodandagricultureorganization.shinyapps.io/GLEAMV3_Public/

REGENERATIVE AGRICULTURE & GHG EMISSIONS

THE SOLUTION

Regenerative agriculture has emerged as a proven solution to reduce GHG emissions for meat and poultry products.

Supporting regenerative agriculture can help you make a real impact across the value chain.

WHAT WE CAN DO, TOGETHER

BAYER ECOSYSTEM SERVICES

PRACTICES & OUTCOMES

OUR VISION IS TO ENABLE EVERY FARMER TO PROFIT FROM RESTORING OUR AGRICULTURAL ECOSYSTEMS AND SUPPORT THE REDUCTION OF SCOPE 3 EMISSIONS FROM GRAINS

Bayer is expanding beyond carbon by building solutions and developing tools to support the co-benefits of regenerative agriculture.

THE CO-BENEFITS OF REGENERATIVE AGRICULTURE

Soil Health

- Soil Coverage
- Cover Crop Planting & Termination
- Minimized Soil Disturbance
- Soil Organic Carbon
- Bulk Density

Climate

- Greenhouse Gas Removals
- Greenhouse Gas Reductions
- Fuel Use
- Nitrogen Use

Biodiversity

- Crop Rotation
- Livestock Management
- Land Cover
- Pest Management
- Conservation Program Participation
- Crop Protection Environmental Impact Reduction

Water

- Water Use & Conservation
- Tile Drainage with Water Management
- Water Quality

Social & Economic Well-Being

- Yield Stability
- Return on Investment

A combination of practice-based and outcome-based measures are employed to assess each pillar of regenerative agriculture

BAYER ECOSYSTEM SERVICES

DATA-DRIVEN
RECOMMENDATIONS

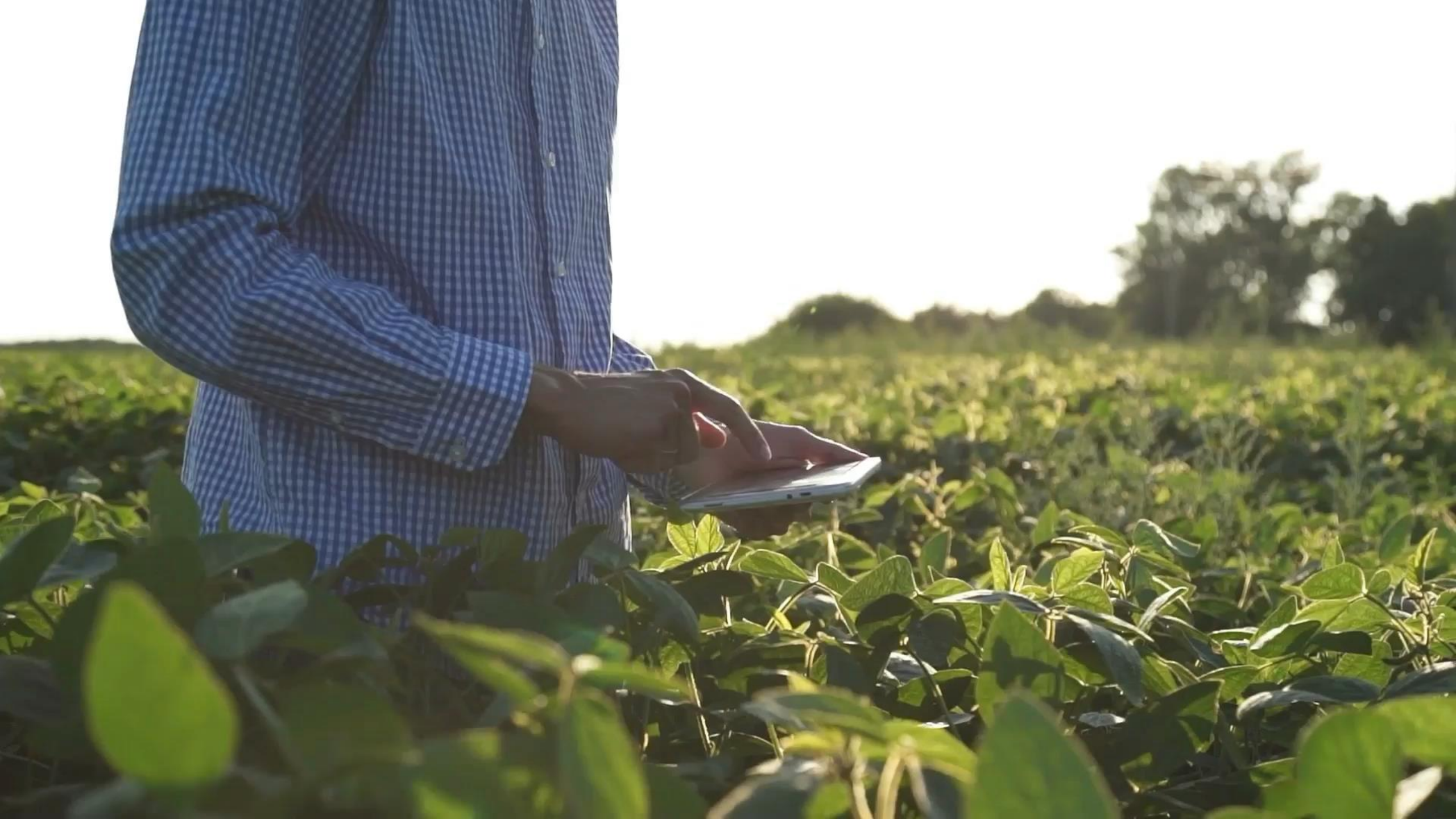
SCOPE 3 REDUCTIONS
& PRODUCT CARBON FOOTPRINTS

GROWER — **SHARED BENEFITS** — **COMPANY**

DIRECT CONNECTION
TO THE FARM & GROWER SUPPORT

VERIFICATION & NAVIGATION OF COMPLEX CERTIFICATION

ForGround
by Bayer




BAYER SUPPORTS PERDUE AS
THEY MEASURE, TRACK, AND
INCENTIVIZE CORN AND SOY
FARMERS TO DECARBONIZE
PERDUE'S SUPPLY CHAIN.

QUANTIFYING CARBON EMISSIONS AND REMOVALS FOR TWO PRODUCTS

EDIBLE SOYBEAN OIL

1 KG | BULK

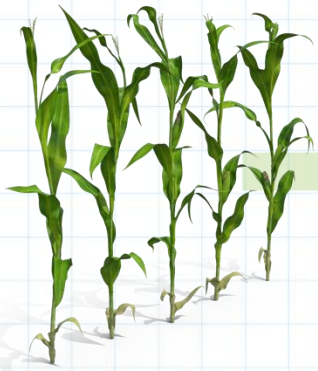
&

BONELESS, SKINLESS CHICKEN BREAST

1 KG | PACKAGED RETAIL TRAY

JOURNEY TO DECARBONIZE

LOOKING ACROSS THE FOOD VALUE CHAIN



GROWERS

BAYER

PERDUE

COMPANIES

RETAIL & B2B

CONSUMERS

COLLABORATING TO DECARBONIZE ACROSS THE VALUE CHAIN

SUPPORT FARMERS ON THEIR REGENERATIVE JOURNEY

MEASURE THE CARBON FOOTPRINT OF THE ENTIRE PRODUCTION CYCLE

OFFER BUSINESSES AND CONSUMERS CARBON-FOOTPRINTED FOODS AND INGREDIENTS

GENERATE LOW CARBON PRODUCT CARBON FOOTPRINTS

PRACTICE ADOPTION OF NO-TILL/STRIP TILL AND COVER CROP+

COLLECTING PRIMARY OPERATIONAL DATA

PILOT PROGRAM GROWING SEASON RESULTS

VALUE DRIVERS	BENEFITS		
	EDIBLE SOYBEAN OIL	CHICKEN BREAST	
BETTER EMISSION DATA	63% ↓	53% ↓	*Change in Carbon intensity*
REMOVAL DATA	485,000 lb	617,000 lb	*lb of CO2e removed per million lbs of product*

PERDUE SUSTAINABILITY PROGRAM

ELIGIBLE PRACTICES

- NO-TILL
- COVER CROP

KEY STATISTICS

- 53 GROWERS
- >50,000 ENROLLED ACRES

STATES: VA, MD, NC, PA, DE

PROGRAM PROGRESS

THE PROCESS

Collected primary agronomic data on >1,000 fields

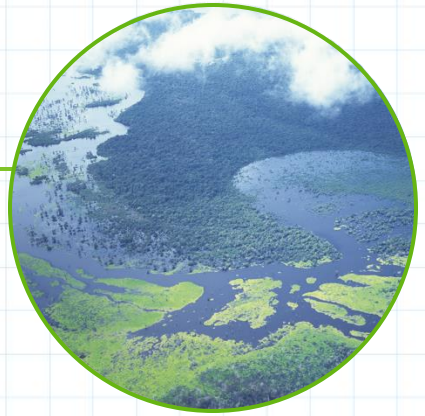
Sampled soils from 500 fields

Quantifying soil carbon removals and on-farm emissions

Integrating primary data from Perdue's operations to generate product carbon footprint for soybean oil and chicken breast

UP NEXT

Pursuing third-party verification against ISO14067 standard



POTENTIAL BENEFITS OF PRODUCT CARBON FOOTPRINTING

FARMERS

Revenue opportunities

Benefits to farm & soil

COMPANIES

Scope 3 reductions

Reduce reliance on offsets

CONSUMERS

GHG-informed purchase decisions

Values-driven buying

OUR OWN CLIMATE GOALS


Q&A
FOR MORE DETAILS ON
HOW TO GET STARTED
VISIT BAYER.COM/ECOSERVICES
BAYER