2022 Sustainability Report
# Table of Contents

## SUSTAINABLE CUSTOMER OUTCOMES

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Our Priorities</td>
</tr>
<tr>
<td>14</td>
<td>Engaged Acres</td>
</tr>
<tr>
<td>18</td>
<td>Crop Protection Efficiency</td>
</tr>
<tr>
<td>21</td>
<td>Nitrogen Use Efficiency</td>
</tr>
<tr>
<td>23</td>
<td>Customer CO₂ Emission Reduction</td>
</tr>
<tr>
<td>24</td>
<td>Autonomous Solutions</td>
</tr>
<tr>
<td>26</td>
<td>C&amp;F Sustainable Technology Adoption</td>
</tr>
<tr>
<td>28</td>
<td>Unlocking Productivity Through Connected Solutions</td>
</tr>
</tbody>
</table>

## SUSTAINABLE PRODUCT DEVELOPMENT

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>Our Priorities</td>
</tr>
<tr>
<td>32</td>
<td>Product Emission Reduction Strategy</td>
</tr>
<tr>
<td>39</td>
<td>Product Quality, Durability, and Reliability &amp; Product Safety</td>
</tr>
<tr>
<td>40</td>
<td>Designing for the Full Product Lifecycle</td>
</tr>
</tbody>
</table>

## OPERATIONAL SUSTAINABILITY

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>47</td>
<td>Our Priorities</td>
</tr>
<tr>
<td>48</td>
<td>Reducing Operational Greenhouse Gas Emissions</td>
</tr>
<tr>
<td>49</td>
<td>Reducing Upstream Emissions</td>
</tr>
<tr>
<td>50</td>
<td>Waste Recycling and Reduction</td>
</tr>
<tr>
<td>51</td>
<td>Water</td>
</tr>
<tr>
<td>52</td>
<td>Biodiversity</td>
</tr>
</tbody>
</table>

## PEOPLE & COMMUNITIES

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>Our Priorities</td>
</tr>
<tr>
<td>56</td>
<td>People Are Key to Unlocking Deere’s Next Leap</td>
</tr>
<tr>
<td>63</td>
<td>Employee Safety</td>
</tr>
<tr>
<td>64</td>
<td>John Deere Foundation Focused on Addressing Food Insecurity</td>
</tr>
<tr>
<td>67</td>
<td>Ukraine Relief Efforts</td>
</tr>
</tbody>
</table>

## GOVERNANCE

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>69</td>
<td>Our Priorities</td>
</tr>
<tr>
<td>70</td>
<td>Sustainability Governance</td>
</tr>
<tr>
<td>72</td>
<td>Sustainable Supply Chain Management</td>
</tr>
<tr>
<td>74</td>
<td>Cyber Security and Data Privacy</td>
</tr>
<tr>
<td>75</td>
<td>Compliance</td>
</tr>
<tr>
<td>76</td>
<td>Human Rights</td>
</tr>
<tr>
<td>78</td>
<td>Political Engagement</td>
</tr>
<tr>
<td>79</td>
<td>Reporting Scope and Issuance &amp; Forward-Looking Statements</td>
</tr>
</tbody>
</table>

## NUMBERS & HONORS

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>Data Tables</td>
</tr>
<tr>
<td>84</td>
<td>Awards</td>
</tr>
</tbody>
</table>

---

### SUSTAINABLE CUSTOMER OUTCOMES

1. **People Are Key to Unlocking Deere’s Next Leap**

   - **Crop Protection Efficiency**
   - **Employee Safety**

### SUSTAINABLE PRODUCT DEVELOPMENT

- **Designing for the Full Product Lifecycle**

### OPERATIONAL SUSTAINABILITY

- **Reducing Operational Greenhouse Gas Emissions**

### PEOPLE & COMMUNITIES

- **Employee Safety**

### GOVERNANCE

- **John Deere Foundation Focused on Addressing Food Insecurity**

### NUMBERS & HONORS

- **Awards**
By standing with farmers in their fields we see the significance our new fully autonomous 8R Tractor and tillage solution brings to their lives. We gain an understanding of how it helps them tackle two jobs at once, allowing them to stay in their combine and monitor yield at harvest while the 8R navigates the chore of fall tillage all on its own. And our impact can be seen inside the cab of a 400 Series Sprayer as computer vision and machine learning guide See & Spray™ Ultimate to make complex decisions within the blink of an eye, reducing herbicide use by up to two-thirds. And while these advanced machines pass through the field, we’re gathering vital sensor readings in the John Deere Operations Center™, enabling traceability and helping farmers earn more while becoming deeply engaged in the sustainability of every acre they manage.

We’re also on jobsites, working with contractors and earthmoving crews to help increase productivity and make their hard work a little bit easier. To that end, we’ve introduced grade management technology innovations, which are currently available on crawlers, motor graders, excavators, and compact track loaders. In an industry battling inefficient rework, this technology helps make sure every ounce of dirt is moved precisely where it’s needed without more passes than necessary. It’s all part of our focus on answering the demand for smarter, safer, and more sustainable solutions.

We understand that to continue to innovate and advance technologies, we first must invest in ourselves. We’re doing this through our efforts to recruit and retain diverse talent and foster an equitable workplace that maximizes unique views and lived experiences. We take pride in our workforce — including inside our factories — where ideas and innovation meet up with skilled labor and quality, serving as a key differentiator over our competitors and enabling customer success.

To make the commitment to our people more than just words, I am proud to have added a new position to my executive leadership team, hiring the company’s first Chief People Officer.

All of this points to who we are as a business, but who we are as a company is equally important.

That’s why it’s when we stand together in service to our communities around the world that I get my greatest satisfaction. It’s here that we work with food banks to distribute meals and nourishment to families in need. Currently, challenges in the food system often prevent those experiencing hunger from having ready access to food. Through investments by the John Deere Foundation and the volunteerism of our employees, we are helping create new and more equitable distribution channels, helping to get food into the hands of those who need it most.

These examples are just a few of many mapped by our Leap Ambitions — focused, measurable goals set to make our customers more efficient, profitable, and sustainable while meeting the demands of a quickly changing world. These goals include our commitment to reducing the greenhouse gas impact of our operations and products, with validated Science Based Targets covering Scope 1, 2, and 3 greenhouse gas emissions. To achieve these targets, we are pursuing the expansion of renewable fuels across multiple products and geographies and are in various stages of development and launch on battery electric pavers, rollers, excavators, turf and utility equipment, and backhoes.

Our efforts show the breadth and depth of our higher purpose: We run so life can leap forward.

That means we run for the impact we can have when our products and people are involved. We run for food, shelter, fiber, and fuel. We run for the environment and society.

In short, we run for all.

Thank you for running with us.
2022 Highlights

- **SHAREHOLDER VALUE ADDED**
  - $6.23 B USD

- **NET SALES AND REVENUES**
  - $52.58 B USD

- **EQUIPMENT OPERATIONS OROS**
  - 17.4%

- **TOTAL CONNECTED MACHINES**
  - 500 K

- **REMANUFACTURING REVENUE**
  - $367.6 M USD

- **CHARITABLE CONTRIBUTIONS**
  - $55.5 M USD

- **INCREASE OF WOMEN IN SENIOR MANAGEMENT IN THE U.S. FROM 2021**
  - 329 M ENGAGED ACRES

- **INCREASE OF NON-WHITE SENIOR MANAGEMENT EMPLOYEES IN U.S. FROM 2021**
  - 151 M SUSTAINABLY ENGAGED ACRES

- **OPERATIONAL GHG (SCOPE 1 AND 2) EMISSIONS REDUCTION SINCE 2017**
  - 68 M HIGHLY ENGAGED ACRES

- **SCOPE 1, 2, AND 3 GHG EMISSIONS REDUCTION TARGETS VALIDATED BY THE SCIENCE BASED TARGETS INITIATIVE**

**Highlights**

- **Introduction**
- **Sustainable Customer Outcomes**
- **Sustainable Product Development**
- **Operational Sustainability**
- **People & Communities**
- **Governance**
- **Numbers & Honors**
While John Deere launched its Leap Ambitions in early 2022, which define its priorities for driving sustainable outcomes over the remainder of this decade, we also continued delivering on the previous suite of 2022 Sustainability Goals. The progress the company made toward the 2022 goals set the foundation for our Leap Ambitions.

The company is proud to have not only met but exceeded its goals around operational sustainability, achieving both the Scope 1 and 2 greenhouse gas emissions and renewable electricity goals. John Deere also proudly met its goal related to water best management practices and was within one percent of achieving its waste recycling goal, despite headwinds in recycling markets. Even with these successes, the company has challenged itself again — setting validated Science Based Targets for greenhouse gas emissions and a new focus on minimizing water and waste intensity.

John Deere’s remanufacturing business saw solid growth during the goal period but remained short of its original goal. The company is proud to have not only met but exceeded its goals around operational sustainability, exceeding both the Scope 1 and 2 greenhouse gas emissions and renewable electricity goals. John Deere also proudly met its goal related to water best management practices and was within one percent of achieving its waste recycling goal, despite headwinds in recycling markets. Even with these successes, the company has challenged itself again — setting validated Science Based Targets for greenhouse gas emissions and a new focus on minimizing water and waste intensity.

John Deere’s remanufacturing business saw solid growth during the goal period but remained short of its original goal. Challenges with respect to supplier capacity and material availability, impacted by the COVID-19 pandemic, hindered progress. Recognizing the importance of this segment of the business to Deere’s sustainability journey, the Leap Ambitions have set this target for future growth even higher.

With the launch of the Leap Ambitions, Deere immediately began focusing on embedding sustainability into every part of the business. As a result, this impacted how we manage our product programs. Therefore, the goal of reducing the environmental impact of new product programs was absorbed by other initiatives, so the measurement of this goal was discontinued for fiscal year 2022. Instead, our teams are now measuring efforts on Scope 3 Category II GHG emissions, sustainable materials, and recyclable content as it relates to new product programs.

Lastly, we continue to prioritize our people as the most important part of our business. Over the goal suite, our facilities incorporated health and safety programs focused on leading indicators and prevention. In fiscal year 2022, Deere saw total recordable incidents rise due in part to the increased demand for products and resulting increased production workforce. Looking to the future and the Leap Ambitions, the company will continue to prioritize the safety and well-being of people by concentrating on reducing ergonomic targeted risks through increased assessment and prevention through design program implementation.

Outcomes of 2022 Sustainability Goals

**SUSTAINABLE ENERGY USE**

- Reduce greenhouse gas emissions by 15% through 50% renewable electricity supply and excellence in energy efficiency.

- **GREENHOUSE GAS EMISSIONS (metric tCO₂e)**
  - **2017**: 800,000
  - **2018**: 799,000
  - **2019**: 795,000
  - **2020**: 790,000
  - **2021**: 785,000
  - **2022 Goal**: 780,000

- **Reduction**: 29%

**RENEWABLE ELECTRICITY**

- **2017**: 0%
- **2018**: 5.0%
- **2019**: 6.0%
- **2020**: 10.0%
- **2021**: 16.3%
- **2022 Goal**: 20%

**USE WATER RESPONSIBLY**

- Implement water best management practices (BMP) in 100% of water-scarce manufacturing locations.

**WATER BMP IMPLEMENTED**

- **2017**: 100%
- **2018**: 100%
- **2019**: 100%
- **2020**: 100%
- **2021**: 100%
- **2022 Goal**: 100%

**PRODUCT SUSTAINABILITY**

- Reduce environmental impact, including CO₂ emissions, on 90% of new products. Increase the use of sustainable materials by growing remanufactured and rebuild sales by 30% and by increasing recyclable, renewable, and routed content.

**NEW PRODUCT PROGRAMS WITH LOWER ENVIRONMENTAL IMPACT**

- **2017**: 0%
- **2018**: 20%
- **2019**: 29%
- **2020**: 80%
- **2021**: 100%
- **2022 Goal**: 100%

**REMANUFACTURED AND REBUILD SALES GROWTH**

- **2017**: 100%
- **2018**: 100%
- **2019**: 100%
- **2020**: 100%
- **2021**: 100%
- **2022 Goal**: 100%

**INCREASE RECYCLING**

- Recycle 85% of total waste.

**WASTE RECYCLED**

- **2017**: 50%
- **2018**: 80%
- **2019**: 80%
- **2020**: 78%
- **2021**: 83%
- **2022 Goal**: 85%

**OCCUPATIONAL HEALTH AND SAFETY**

- Achieve safety excellence through increased focus on leading indicators, risk reduction, health- and safety-management systems, and prevention.

**ENTERPRISE TOTAL RECORDABLE INCIDENT RATE**

- **2017**: 2.4
- **2018**: 3.2
- **2019**: 4.0
- **2020**: 3.2
- **2021**: 2.4
- **2022 Goal**: 1.6

**INCIDENT RATE**

- **2017**: 0.0
- **2018**: 1.65
- **2019**: 1.68
- **2020**: 2.07
- **2021**: 2.07
- **2022 Goal**: 1.65
Sustainability Priorities and Reporting Strategy

The foundation of John Deere’s sustainability strategy is a multipronged engagement strategy to continually evaluate and identify our highest-priority sustainability topics. Deere completed a formal sustainability materiality assessment in 2021. The company utilized that assessment in numerous ways this year. Our highest-priority topics served as the focus areas for the Leap Ambitions, released in February 2022. As seen in this report, the highest-priority topics and Leap Ambitions guided our approach to sustainability reporting. And we utilize these topics to align with our internal Enterprise Risk Management process.

To proactively monitor and assess our topics on a continual basis, we engage with stakeholders that rely on Deere to deliver economic and sustainable outcomes, including our shareholders. Throughout 2022, we engaged with shareholders representing more than 40 percent of outstanding share ownership in conversations on governance, executive compensation, and sustainability, providing us valuable insights. A key focal point of our sustainability and focused outreach this year was Deere’s Leap Ambitions.

In response to the feedback received this year, some of the actions included:

- Developed baselines and glide paths for our Leap Ambitions, to enable qualitative discussion within this report as to our roadmap for achieving these goals
- Validated science-based targets for four Scope 1, 2, and 3 greenhouse gas emissions with the Science Based Targets initiative
- Incorporated qualitative discussion of the innovation and partnership efforts we are undertaking to achieve our Scope 3 downstream greenhouse gas emissions reduction goal by 2030
- Highlighted employee-led efforts around biodiversity in this report
- Expanded detail on our holistic approach to talent management and strategy for embedding diversity, equity, and inclusion into the core of how we operate

We continually monitor and review developing sustainability frameworks, standards, and global regulations by incorporating those we deem most applicable to our business and our reporting. This year’s reporting continues to align with the material issues identified by the Sustainability Accounting Standards Board (SASB) for the Industrial Goods and Machinery industry. We also continue to include a report in line with the Task Force on Climate-related Financial Disclosures (TCFD).

Appendices connecting our disclosures to the priorities set by the Global Reporting Initiative (GRI) and the United Nations Sustainable Development Goals (UN SDGs) are also provided. Deere continues its reporting to the Carbon Disclosure Project (CDP) on an annual basis. In light of the dynamic regulatory environment around sustainability and climate change, including the Securities and Exchange Commission (SEC)-proposed climate disclosures and the European Union’s Corporate Sustainability Reporting Directive (CSRD), this year we also engaged in pre-audit assessment activities to ensure we are prepared to meet the requirements of future potential regulation.

In this report, we are not using terms such as “material” or “materiality” as they are used under the securities or other laws of the U.S. or any other jurisdiction, or as they are used in the context of financial statements and financial reporting. Materiality, for the purposes of this document should not, therefore, be read as equating to any use of the word in other contexts.

In response to the feedback received this year, some of the actions included:

- Developed baselines and glide paths for our Leap Ambitions, to enable qualitative discussion within this report as to our roadmap for achieving these goals
- Validated science-based targets for four Scope 1, 2, and 3 greenhouse gas emissions with the Science Based Targets initiative
- Incorporated qualitative discussion of the innovation and partnership efforts we are undertaking to achieve our Scope 3 downstream greenhouse gas emissions reduction goal by 2030
- Highlighted employee-led efforts around biodiversity in this report
- Expanded detail on our holistic approach to talent management and strategy for embedding diversity, equity, and inclusion into the core of how we operate

FINANCIAL AND SUSTAINABLE OUTCOMES
Equipment Operations OROS at 20% by 2030

** Engaged acres is one of the foundational measures of customers’ sustainable system design and delivery. “Engaged acres” is the number of acres where the use of John Deere Technology Solutions or sustainable practices were incorporated, and where sustainable practices were completed, value creating activities associated with the operational use of the equipment, and the equipment operations are documented in the Operations Center in the past 12 months.

** Product circularity by 2030 – Achieve 95% recyclable product content

---

** Safety by 2026

---

** Sustainability engaged acres include incorporation of two or more sustainable practices in a sustainable system design or delivery.

---

** Optimize manufacturing locations

---

** Engaged acres is one of the foundational measures of customers’ sustainable system design and delivery. “Engaged acres” is the number of acres where the use of John Deere Technology Solutions or sustainable practices were incorporated, and where sustainable practices were completed, value creating activities associated with the operational use of the equipment, and the equipment operations are documented in the Operations Center in the past 12 months.

** High-quality products include documentation of multiple production steps and processes to achieve the objective.

---

** Engaged acres is one of the foundational measures of customers’ sustainable system design and delivery. “Engaged acres” is the number of acres where the use of John Deere Technology Solutions or sustainable practices were incorporated, and where sustainable practices were completed, value creating activities associated with the operational use of the equipment, and the equipment operations are documented in the Operations Center in the past 12 months.

---

** Sustainability engaged acres include incorporation of two or more sustainable practices in a sustainable system design or delivery.
OUR PRIORITIES

DEVELOPING SOLUTIONS THAT DELIVER ALIGNED SUSTAINABLE AND FINANCIAL OUTCOMES FOR CUSTOMERS

- 1.5 million connected machines by 2026 is the foundation of Deere’s solutions roadmap
- Partnering with customers through engaged, highly engaged, and sustainably engaged acres enables partnerships to unlock further economic and innovation opportunities for farmers
- Crop protection and nitrogen use efficiency goals to drive productivity and reduce ag customer CO₂ emissions
- C&F Smart Solutions to increase productivity, precision, and profitability

WHAT WE HAVE DONE

FORMED KEY PARTNERSHIPS:
- Iowa State University demonstration farm
- Cargill-John Deere Carbon Tracking pilot program
- GUSS Automation joint venture

EXPANDED PRECISION TOOLS FOR CONSTRUCTION, FORESTRY, AND ROADBUILDING CUSTOMERS:
- Added Intelligent Boom Control to tracked harvester product line

KEY PRODUCT INNOVATIONS:
- ST Series Strip-Till
- See & Spray™ Ultimate: targeted, in-crop spraying application
- Announced ExactShot™: in-furrow liquid fertilizer system at CES® 2023
- Announced HarvestLab™ 3000: grain sensing solutions
- Announced fully autonomous 8R fall tillage solution

ENHANCED CUSTOMER SUPPORT:
- Minority investment in Hello Tractor
- Acquired AgriSync
- Proactive support through John Deere Connected Support™
Engaged, highly engaged, and sustainably engaged acres allow John Deere to partner with customers on a deeper level to further unlock economic and sustainable outcomes.

Engaged acres serve as the foundational measurement for Deere’s Leap Ambition goals—from enhancing customer outcomes, reducing environmental footprint, and tapping into $150 billion USD of incremental addressable market opportunities.

While engaged acres helps us understand the initial breadth of Deere technology utilization across acres, the newly launched highly and sustainably engaged acre metrics are focused on delivering opportunities to grow more with less. As more acres are highly and sustainably engaged, Deere expects to see that customer outcomes around nitrogen use efficiency, crop protection efficiency, and CO₂ emissions reduction will be enhanced.

**ENGAGED ACRES PROGRESS**

<table>
<thead>
<tr>
<th></th>
<th>2021</th>
<th>2022</th>
<th>2026</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engaged Acres*</td>
<td>315 M</td>
<td>329 M</td>
<td>500 M</td>
</tr>
<tr>
<td>Highly Engaged Acres</td>
<td>66 M</td>
<td>68 M</td>
<td>250 M</td>
</tr>
<tr>
<td>Sustainably Engaged Acres</td>
<td>127 M</td>
<td>151 M</td>
<td>375 M</td>
</tr>
</tbody>
</table>

*Updated methodology for more precise measurements of an acre in 2022.

**DEFINITIONS**

**Engaged Acres:** Reflects the number of unique acres with at least one operational pass documented in the John Deere Operations Center™ in the past 12 months.

**Highly Engaged Acres:** Documentation of multiple production steps and the use of digital tools to complete multiple, value creating activities over a 12 month period.

**Sustainably Engaged Acres:** Reflects the number of Deere & Company engaged acres that include incorporation of two or more sustainable John Deere technology solutions or sustainable practices over a 12 month period.

- This is a dynamic definition as new technologies and sustainable practices are developed.
- Current examples of sustainable technology solutions include AutoTrac™, Section Control, Harvest Smart™, and See & Spray™ solutions.
- Sustainable practices vary by region but include practices such as cover cropping and conservation tillage methods.
John Deere’s vision is to have the best digital ag platform for producers and trusted advisors to plan, execute, and document sustainable practices and analyze sustainable outcomes. Additionally, we want to make it easy for farmers to access credible sustainability programs that offer meaningful financial outcomes for their businesses.

ORIANA LISKER BOSIN
Group Product Manager for Sustainability Solutions

To study and innovate in a real-world application setting, John Deere has partnered with Iowa State University (ISU) to create an 80-acre demonstration farm. What makes the demo farm unique is that the eight individual fields not only turn ISU science into practice, but they provide an environment that serves as a hub for data collection in a way that best mirrors a grower’s applications and decision making.

“We want to demonstrate various management strategies with various levels of sustainability at commercial scale,” Andy Greenlee, senior staff engineer for sustainability solutions, says.

The five-year project begins by focusing on tillage practices (conventional, reduced till, strip-till, and no-till) and how various conservation methods — such as cover crops — can impact profits and soil health.

“The five-year project begins by focusing on tillage practices (conventional, reduced till, strip-till, and no-till) and how various conservation methods — such as cover crops — can impact profits and soil health.”

ANDY GREENLEE
Senior Staff Engineer for Sustainability Solutions

Post-harvest metrics and soil health data will mean more than just numbers as they can provide the necessary insights to generate innovative solutions. Insights into yield gains, grain quality, weed control, carbon sequestration, moisture, erosion, soil temperatures, and nitrogen use will help inform our innovation efforts.

“When we talk about soil health, it ties into that message about what does your food eat? How well are we caring for the land that produces our food and what kind of impact can that make in the quality of what is grown?” Greenlee says. And, he adds, we are studying very closely what markets will be available for growers who sustainably produce a crop or different feedstocks for renewable fuels. Essentially, how do we unlock value creation opportunities for growers as more of their acres transition into sustainably engaged acres.

Because each tillage option brings its own set of benefits, the ability to view them side-by-side allows for direct comparison. Strip-tilling is one method that is drawing interest. Strip-till is considered a middle alternative to conventional and no-till. It leaves more than 60 percent of the field untillied. Strip-tillage can combine nutrient and tillage applications into one pass on the field.

To help ensure we are providing our customers with all the tools they need to maximize sustainability, Deere recently introduced the ST Series strip-till product line. The ST Series builds on Deere’s existing technology to help reduce variability while maximizing yield, productivity, and versatility.

“We want to support growers with solutions for each tillage market segment,” Steve Sporrer, tillage production manager, says. “The ST Series offers an advanced solution to serve the growing strip-till market.”

UnLocking the value of sustainabilitY

Reduced soil disruption is not only good for the farmer’s soil health and biodiversity, but it also provides the potential to unlock additional revenue streams. Deere continues to collaborate closely with growers to help them locate more “off-farm” value opportunities that will pay them for their sustainability activities, including outcomes like carbon sequestration. Data collected from sustainably engaged acres is used to prove these outcomes.

The USDA recently awarded $3B USD for its Partnerships for Climate-Smart Commodities program. John Deere has been working with many recipients to ensure that the John Deere Operations Center will be a key enabler for farmers to participate in new market opportunities by providing all the data they need in one place. Based on research and data-driven insights, Deere is advocating on behalf of farmers with the USDA, clean fuel markets, and elsewhere about the feasibility and benefits of paying farmers for producing grain with low carbon emissions.

In partnering with Cargill, a global food corporation, John Deere is utilizing the Operations Center to connect farmers to the carbon tracking program that will pay them $25 USD per metric ton of carbon sequestered through approved tillage and cover cropping practices. Operations Center data from these sustainably engaged acres allows farmers to automatically document results, making it easy for growers to participate and access this new revenue stream.

“In partnering with Cargill, a global food corporation, John Deere is utilizing the Operations Center to connect farmers to the carbon tracking program that will pay them $25 USD per metric ton of carbon sequestered through approved tillage and cover cropping practices.”

ORIANA LISKER BOSIN
Group Product Manager for Sustainability Solutions

“The USDA recently awarded $3B USD for its Partnerships for Climate-Smart Commodities program. John Deere has been working with many recipients to ensure that the John Deere Operations Center will be a key enabler for farmers to participate in new market opportunities by providing all the data they need in one place. Based on research and data-driven insights, Deere is advocating on behalf of farmers with the USDA, clean fuel markets, and elsewhere about the feasibility and benefits of paying farmers for producing grain with low carbon emissions.”

1 This figure is based on planting corn on 10 inch-strip on 30”-centers.

“John Deere’s vision is to have the best digital ag platform for producers and trusted advisors to plan, execute, and document sustainable practices and analyze sustainable outcomes. Additionally, we want to make it easy for farmers to access credible sustainability programs that offer meaningful financial outcomes for their businesses.”

ORIANA LISKER BOSIN
Group Product Manager for Sustainability Solutions
Growers know the key to bigger and better yields starts with maximizing — and protecting — the potential of every seed. Crop protection inputs represent an estimated 20 percent of an average row crop producer’s budget, including things like herbicides, insecticides, and fungicides. And when the traditional method of using these inputs through broadcast application results in underutilizing more than two-thirds of that expense, it becomes clear there should be a better way. John Deere’s revolutionary See & Spray™ technology is that solution and is the centerpiece to the company’s Leap Ambition journey of helping farmers improve crop protection use efficiency by 20 percent by 2030.

See & Spray represents what is possible through John Deere’s integrated technology stack, allowing growers to manage their production system at the plant level. John Deere has released two See & Spray products to date that enable application of contact herbicides at a precise, plant level. See & Spray Select, launched in 2021, utilizes “green-on-brown” color detection technology on unplanted ground to clear weeds while the ground is not being used to raise crops, or before the start of a production cycle. In targeted spraying applications, See & Spray Select sprays the weeds only. The result is fewer chemicals applied to places where they’re not necessary, in this case the soil, which can create an overall positive outcome for the farmer’s economics as well as the health of the soil, waterways, and biodiversity.

See & Spray Ultimate takes the innovation further by going “green on green” — meaning the machine traveling at speeds of up to 17 mph through the field can scan more than 2,100 square feet continuously to determine whether each green plant is a healthy crop like corn, soybeans, or cotton, or whether it’s a weed. See & Spray Ultimate was available to a limited number of U.S. customers for the first time in 2022. See & Spray Ultimate uses computer vision and machine learning, which includes 36 cameras across a 14-foot carbon fiber boom (the “arms” of the machine), and vision processing units (VPUs), in conjunction with Deere’s ExactApply™ nozzle control technology for targeted herbicide application.

The giant carbon fiber boom (weighing less than steel) to the left of the operator in a See & Spray® Ultimate allows consistent height control when traveling across uneven fields at high speeds. The result? BoomTrac allows for more spray accuracy than any other manufacturer.

Because weed pressure in a field is rarely uniform, Ultimate turns more than two-thirds input waste from broadcast methods into more than two-thirds non-residual herbicide savings. But the budget and environmental savings don’t end there. Ultimate’s dual tank system, allows the sprayer to apply different inputs independently at different rates over the same pass through the field. The dual tank system can also be used to broadcast fungicide and target spray herbicide combining two passes into one. Two applications in the same pass can mean fewer trips through the field, which in turn works to save fuel and reduce CO2 emissions. Data insight tools unlock additional potential with an included JDLink™ modem that can stream sensor information to the John Deere Operations Center™.

And perhaps the most exciting fact about See & Spray is that its core technology, which enables the machine to sense, process, act, and repeat, can be transferred to other crop management applications, meaning the John Deere “sense and act” journey has just begun.

**Crop Protection Efficiency**

Plant by Plant Management Increases Crop Protection Efficiency

<table>
<thead>
<tr>
<th></th>
<th>2021</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop Protection Per Yield of Crop (CPU/MT)*</td>
<td>22.2</td>
<td>7.8</td>
</tr>
</tbody>
</table>

*Estimated average pesticide usage and yield across a representative global sample of corn, soybean, wheat, canola, and cotton fields as of December 2022. CPU is amount of pesticides applied (kg) multiplied by an environmental risk factor.

**See & Spray® Ultimate**

- 36 cameras to scan more than 2,100 square feet at once.
- Vision processing units scan plants and activate spray nozzles within 200 milliseconds.
- View weed density within John Deere Operations Center.
- BoomTrac® Ultimate ensures more consistent spray accuracy than any other manufacturer.
- See & Spray® Ultimate can reduce non-residual herbicide use by more than two-thirds.

**Leap Ambitions**

- Introduction
- Sustainable Customer Outcomes
- Sustainable Product Development
- Operational Sustainability
- People & Communities
- Governance
- Numbers & Honors

**Leap Ambitions**

20% Improvement in crop protection efficiency by 2030 per unit of output
to increase precision and efficiency to significantly reduce input costs.

GUSS (Global Unmanned Spray System) employs technology designed by GUSS Automation LLC, a pioneer in orchard and vineyard sprayers. The growing demand among consumers for fresh fruits and vegetables, coupled with ongoing farm labor constraints, makes GUSS a natural fit for Deere’s crop protection product line. GUSS improves overall productivity and reduces costs because it can increase the accuracy, reliability and effectiveness of crop protection products.

In 2022, GUSS Automation introduced the semiautonomous spray system. Height-adjustable and hydraulically controlled booms can fit between rows while also maneuvering over berms and tilting to avoid damaging trees and crops. The new semiautonomous product targets and spot-sprays individual weeds, providing farmers with a truly top-down HVC protection solution.

“Assembly line tasks can be done to help customers be as efficient and profitable as possible. Especially, since fertilizer has recently become a high demand item, expense in comparison to seed and crop protection applications, like herbicides, insecticides, and fungicides.”

The timing of fertilizer application, soil type, crop rotation schedule, market and economic conditions, labor constraints, and environmental factors are examples of complicating variables farmers must consider when determining nitrogen application needs. “Our customers don’t want to leave money on the table,” Chris Sobolik, John Deere’s partnering manager for Production and Precision Agriculture, said. “Until we understand the perfect formula, we are giving them the tools and systems to match nitrogen application to needs throughout the season based on local growing conditions. Deere’s suite of tools allows for nitrogen to be applied in the spring, summer, or fall.”

DATA DRIVEN NITROGEN OPTIMIZATION

Stephen Schwartz, plant health and nutrition collaboration manager for the U.S. and Canada, said using meters and data is helping tell the story of nitrogen use efficiency while providing customer confidence in a variety of nutrient application areas.

John Deere’s HarvestLab™3000 can detect key indicating components such as moisture and crude protein to determine optimal harvest times for forages (haylage, silage) and determine prescription manure application rates. 2022. HarvestLab™3000 expanded these capabilities to sense grain constituents in small grains crops like wheat, barley and canola. Corn and soybeans are soon to follow.

In 2022, John Deere launched the HarvestLab™3000 that provides real-time readings on key components through the John Deere Operations Center™. These reading can help Deere’s customers to optimize grain marketability and unlock more knowledge around nitrogen use efficiency.

In relation to nitrogen, the protein readings provide growers with a layered, surfaced view of how efficient their fertilizer use can be. Proteins are made of amino acids and a major component of amino acids is nitrogen. As the technology continues to develop, Deere will be able to provide a better understanding to customers of their nitrogen efficiency based on the protein information delivered.
We’ve just never had this data before. This provides a very good understanding of how much nitrogen we’re removing because of what we know about protein.∗

∗EPA, Index Suggests Half of Nitrogen Applied to Crops is Lost to the Atmosphere

THE POWER OF TIME
A key component of optimizing nitrogen usage is applying what the seed needs when it can utilize it most. Revealed in early 2023 at CES, ExactShot™, Deere’s newest on-planter fertilizer system, is designed to optimize starter fertilizer usage. ExactShot comes from Deere’s family of "exact" application products — ExactApply™ and ExactRate™ — an on-planter fertilizer system that allows growers to do two jobs at once, combining fertilizer application and planting.

Across the U.S. corn crop, ExactShot could save over 93 million gallons of starter fertilizer annually.4

EXACTSHOT CAN REDUCE THE AMOUNT OF IN-FURROW STARTER FERTILIZER BY MORE THAN 60%3

 ExactShot will spray only the amount of fertilizer needed, about 0.2 ML, directly onto the seed at the exact moment as it goes into the ground.4

ExactShot operates in two in-furrow modes, continuous or dosing. The dosing option targets only the seed during the planting pass. By operating in a two-inch dose in dosing mode, ExactShot can reduce the amount of in-furrow starter fertilizer by more than 60 percent when comparing to ExactRate.5

As an on-planter fertilizer system, productivity can be increased since the seed and fertilizer tank can be refilled at the same time. This aids in labor usage and helps eliminate extra trips to the field, additionally reducing vehicle fuel consumption and time away from other critical tasks.

"By optimizing the fertilizer rate, we can better align tendering seed and fertilizer to the planter. We make it easier with ExactShot," said Stephen Schwartz, plant health and nutrition collaboration manager for the U.S. and Canada.

Enhancing Ag Outcomes by Reducing Customer CO₂e Emissions

Many of John Deere’s Leap Ambition goals are designed to support, connect to, and enhance one another. They help illustrate the power of Deere’s data-driven technology stack, our understanding of each production system, and the necessity that every product or solution we deliver must demonstrate economic and sustainable value.

An example that illustrates this approach is the 2030 goal to enhance our ag customer outcomes by reducing 15 percent of their CO₂e emissions per unit of output. Deere believes it can have an impact beyond its own Scope 1, 2, and 3 CO₂e emissions. Through precision technology, data-driven insights, and traceability enablement, Deere can impact on-farm greenhouse gas (GHG) emissions, scaling the magnitude of its impact beyond its own footprint.

This goal is tied to inputs, equipment, and practices in the field — from nitrogen use and crop protection efficiency to renewable fuels and alternative power solutions. Deere is not only seeking to reduce emissions from equipment but unlocking opportunities for customers to reduce emissions of their operations as well. Products such as See & Spray® Ultimate and ExactShot® are designed to decrease pesticide and fertilizer inputs while reducing passes in the field, which increases fuel economy and works to lower CO₂e emissions.

When it comes to being stewards of the land, we are committed to building relationships through research and academic partnerships, whether that’s our work toward sharply reducing tailpipe emissions from our equipment through electrification, hybridization, biofuels, and hydrogen or creating the Iowa State University demo farm that explores the relationship between tillage, carbon capture, and soil health.

By smartly connecting machines through satellite guidance and using artificial intelligence and machine learning, we believe we will be able to provide fully autonomous solutions that help maximize labor and help growers to do more with less — less inputs, less passes, and ultimately less GHG emissions.

By utilizing data-driven solutions, Deere aims to continue to unlock opportunities for customers to achieve CO₂e emissions reduction by focusing on equipment emission reduction, crop protection efficiency, and nitrogen-use efficiency.
Of all the inputs on a farm, time and labor are two of the most critical; both are in short supply. On average, during a typical North American corn crop cycle from spring through fall, there are nine passes through a field and seven passes on average for a typical soybean crop cycle. This includes spring tillage, planting, multiple sprayer applications, harvest, and fall tillage. And many farmers cannot do them all on the day they need to be done.

In addition, many times there are multiple jobs on the farm that need to be executed on the same days for a similar stretch on the calendar, creating high demand with limited supply.

In January 2022, John Deere revealed an industry-changing solution designed to enable farmers to execute two jobs at once, while not sacrificing optimal timing or quality of the job.

In addition, many times there are multiple jobs on the farm that need to be executed on the same days for a similar stretch on the calendar, creating high demand with limited supply.

In January 2022, John Deere revealed an industry-changing solution designed to enable farmers to execute two jobs at once, while not sacrificing optimal timing or quality of the job.

"That machine — John Deere’s fully autonomous 8R tractor and tillage solution — was not designed around farms but people," said Willy Pell, senior director of autonomous systems at Blue River Technology. "Because people have limits," he said. "It’s why we don’t have fuel tanks big enough to run a machine for 24 straight hours because humans can’t work like that. With autonomy, all of that changes."

The 8R builds on existing Deere GPS and guidance technology plus adds six stereo cameras that provide a 360-degree view of the field and obstacle detection. The tractor starts, moves, works, allows for adjustments, and sends updates with the swipe of a finger across a mobile device. In short, it’s the magic farmers have been looking for.

Currently, the 8R addresses fall tillage, the time when a grower would rather solely focus on being in their combine monitoring the bushels that become the bottom line to their business.

“What farmers ultimately understand”, Pell said, “is the price of autonomy and the price of labor is not an equal equation of work completed. Autonomy doesn’t call in sick. It doesn’t need rest after 12 or 16 hours. And fully autonomous means there is no one in the cab, allowing, in essence, for two jobs to get done at one time.”

“The value is certainty. Certainty of labor,” Pell said. “It’s there every day. It’s ready to work when you need it most and will perform that work to the standard the farmer wants and needs. That value, we’ve proven, solves a lot of problems and offers sustainability in the truest sense.”

Pell emphasizes “when you need it most” because getting the work done at the right time maximizes yields, which in turn maximizes productivity and profitability. “Farmers are getting the most efficient use of the land,” he said. “And it’s about the sustainability of the farmer’s business and time away from work. Because it shouldn’t always be about the work.”

AUTONOMY’S FUTURE

Jahmy Hindman, chief technology officer at John Deere, said three things happened in the last five years to make full autonomy in farming possible: connectivity, computational capability, and advanced algorithms.

Pell said establishing trust around “leaving the equipment to work” took some time, but not much. “The value of the data showed pretty quickly that what was being done was of quality, and it was certainly efficient.”

That trust was built through the data generated with each engaged acre as the grower was able to monitor the 8R through the John Deere Operations Center™, providing access to live video, images, and metrics on how the machine was doing.

Hindman said Deere is already looking at adding more operations beyond fall tillage to its autonomous capabilities. Next steps are expected to include spring tillage, planting, and grain carts at harvest.

“I think what’s important is this is not a gadget,” Pell said. “Autonomy makes the most of time and people, and with all the demands placed on agriculture today and in the coming years, that’s an incredible value to unlock. We believe it’s only going to build from here.”

“Artificial intelligence and machine learning create a continuously evolving, more efficient farming operation. It allows growers to run their businesses better because they can pay more attention to other tasks. Autonomy is not only a game changer, it’s a life changer.”

JAHMY HINDMAN
Chief Technology Officer
Making Tough Work More Efficient Through Roadbuilding, Earthmoving, and Forestry Solutions

In John Deere’s Construction & Forestry Division, a series of Leap Ambition goals highlights how smart connected technology allows customers to do more with less by making the work within earthmoving, roadbuilding, and forestry more productive, efficient, and sustainable.

No matter the jobsite — whether in the woods, on the road, or in the dirt — each of these customers face very similar challenges around maximizing workday hours and resources, both in skilled labor and from nature. Innovations that enhance communication between machines and people help unlock value while increasing productivity. These advancements help lessen harsh environments, making the work easier to complete and track.

What makes this all so critical are the global population growths and shifts that continue to stress urban environments and the roads and bridges that link our communities. For example, the worldwide infrastructure gap — the monetary math showing the divide between what is needed and what is budgeted — is estimated to reach $15 trillion USD by 2040.¹

**PAVED WITH ANSWERS**

Dr. Günter Hahn, Senior Vice President WIRTGEN GROUP, said precision roadbuilding is “a highly orchestrated blend of technology that’s working together in harmony.”²

The goal for the Wirtgen Group is to increase precision roadbuilding solutions adoption to 85 percent by 2026. Precision roadbuilding solution adoption was at 82.5 percent in 2022. Wirtgen’s suite of available precision roadbuilding solutions today includes automated leveling technology on Wirtgen milling machines, automated grade and slope controls on Vogele pavers, and automated steering controls and autopilot functionality on Wirtgen slipform pavers. These technologies deliver the benefits of enhanced accuracy, improved productivity, and optimized inputs to deliver more sustainable outcomes for our roadbuilding customers.

**LEAP AMBITIONS**

Grade management adoption of 50% in 2022

Forestry Intelligent Boom Control adoption by 2026

Roadbuilding solution adoption by 2026

Grade management adoption of 32% in 2022

Forestry Intelligent Boom Control adoption by 2024

Roadbuilding solution adoption by 2026

Grade management adoption of 32% in 2022

**MAKING THE GRADE(S)**

In an industry where labor shortages and tighter deadlines are increasing, the opportunity for Precision Construction to significantly impact efficiency is more important than ever.

This is why John Deere is focused on increasing grade management adoption to 50 percent by 2026 as part of its Leap Ambitions. In 2022 the adoption rate was 32 percent.³

What grade control does is control the vertical axis of a blade machine like a motor grader — or boom and bucket of an excavator — to enhance the machine performance as it aligns to the job’s design plan. Currently on four products, grade management solutions are available on crawlers, motor graders, excavators, and compact track loaders. Increasing the efficiency of work performed can improve productivity as much as 30 percent — which means fewer hours and resources, like fuel burn, to get the job done while also improving the overall cost structure for performing the work and driving positive margins for customers.⁴

**INTELLIGENCE IN THE WOODS**

John Deere also continues to work on making forestry operations more efficient, productive, and sustainable. The goal of achieving 100 percent Intelligent Boom Control (IBC) adoption by 2026 is one solution.

With a current adoption rate of 78 percent on all machines eligible for IBC, the technology drives efficiencies and helps address labor constraints. As a key step on the journey toward full customer adoption of IBC, Deere made IBC available on tracked harvesters for the first time in 2022.

“Think of your arm is the boom,” said Jim O’Halloran, product marketing manager. “You don’t have to think about it, you just reach for and grab the bottle. Your arm is IBC, and the tree is the bottle.”

“IBC provides smoothness of control and allows an inexperienced operator to be more productive, efficient, and consistent in their work. It solves a lot of their problems,” he said.

**For more on IBC, see the 2021 Sustainability Report.**

“*When we have a 3D model for a jobsite, SmartGrade* uses GNSS guidance (a linked constellation of satellites more accurate than GPS) to control what the machine is doing to cut to grade accurately the first time.”

KEVIN VERY

Director for C&F Production Systems and Technology

¹ Global Infrastructure Hub, A future of inadequate infrastructure is closer than ever. https://www.globalinfrastructurehub.com/infrastructure-gap

² The Wirtgen Group was acquired by Deere in 2017.

³ Grade management adoption rate is based on crawlers, motor graders, and excavators.

⁴ Outcomes based on customer experience, feedback, and machine data. Results will vary.
John Deere and dealers all over the world are providing more proactive support than ever before through John Deere Connected Support™.

In Latin America, John Deere is transforming the traditional customer-dealer experience by establishing more than 100 Connected Solutions Centers at dealerships throughout the region. Today, around 350 highly trained professionals are leveraging a full suite of cutting-edge Connected Support tools and processes such as remote assistance, Expert Alerts, and machine monitoring alerts to unlock greater value for customers and take their businesses to the next level.

“Here, tropical weather allows farmers to have two and even three crops a year, which is great for them,” said João Pontes, director, Aftermarket & Customer Support, region 3. “At the same time, however, we must deliver machine uptime because even one day of delays for our customers may mean irreversible losses.”

The combination of John Deere technology, machines, people, and intelligence continues to generate value for those we serve. In 2022, five dealer Connected Solution Centers addressed 89 percent of customer calls remotely and 26 percent of the customer calls were proactive, meaning the dealers prevented larger disruptions in equipment maintenance. Overall, these indicators show how effective the centralized and connected support strategy is in delivering customer service remotely and more proactively.

John Deere Connected Support helps customers not only in Latin America but all around the globe to maximize machine performance and uptime to ensure every hour, every drop, and every seed counts, unlocking greater economic and sustainable value across the lifecycle.

---

**Hello Tractor**

Smallholder farmers across Africa and Asia will play a vital role in increasing productivity of agricultural land to meet the growing global needs for grains and oilseeds. Hello Tractor, an ag tech company based in Nairobi, Kenya, is providing these farmers with innovative solutions for self-sufficient agricultural production.

That is why John Deere made a minority investment in Hello Tractor, whose farm equipment sharing app connects tractor owners with smallholder farmers. This app enables farmers to track and manage their fleet, book customers, and access financing options. By so doing, they can have the potential to boost crop yields, and greatly optimize their operations.

“Hello Tractor’s work aligns with the John Deere strategy and the Leap Ambitions to ensure 100 percent of new Small Ag equipment is connectivity enabled by 2026,” said Jason Brantley, director, Ag & Turf Sales & Marketing — Africa and Asia.

Hello Tractor was among the first group of companies to participate in John Deere’s Startup Collaborator program, an initiative launched in 2010 to enhance and deepen Deere’s interactions with startup companies whose technology could add value for customers.

“The partnership between Hello Tractor and John Deere has been building since our participation in John Deere’s Startup Collaborator program,” said Jehiel Oliver, Hello Tractor founder. “We look forward to continue to work together to ultimately help drive better economic outcomes for smallholder farmers.”

---

**AgriSync® Acquisition**

John Deere’s acquisition of AgriSync, a technology services provider whose innovative software platform enables dealers and customers to connect via real-time multichannel communications, further positions Deere to deliver economic value through advanced technology and solutions. Today, the AgriSync platform operates as ExpertConnect™ and serves as a digital hub for centralized and connected support.

Agriculture and construction customers now have one-touch access to their local dealer for parts, service, and aftermarket support. For dealers, ExpertConnect helps provide more consistent customer interactions, faster response times, and increased efficiency.

“ExpertConnect is well aligned with the Smart Industrial strategy and will be an integral part of our support processes moving forward,” explained Luke Galstatter, senior vice president, Aftermarket & Customer Support. “In addition, this technology allows dealers to drive better utilization of their people — the most constrained part of their aftermarket business. Finally, for customers, ExpertConnect helps drive greater uptime and an enhanced customer experience.”

---

**Dealer Connected and Proactive Support**

John Deere and dealers all over the world are providing more proactive support than ever before through John Deere Connected Support™.

In Latin America, John Deere is transforming the traditional customer-dealer experience by establishing more than 100 Connected Solutions Centers at dealerships throughout the region. Today, around 350 highly trained professionals are leveraging a full suite of cutting-edge Connected Support tools and processes such as remote assistance, Expert Alerts, and machine monitoring alerts to unlock greater value for customers and take their businesses to the next level.

“The combination of John Deere technology, machines, people, and intelligence continues to generate value for those we serve. In 2022, five dealer Connected Solution Centers addressed 89 percent of customer calls remotely and 26 percent of the customer calls were proactive, meaning the dealers prevented larger disruptions in equipment maintenance. Overall, these indicators show how effective the centralized and connected support strategy is in delivering customer service remotely and more proactively.

John Deere Connected Support helps customers not only in Latin America but all around the globe to maximize machine performance and uptime to ensure every hour, every drop, and every seed counts, unlocking greater economic and sustainable value across the lifecycle.
OUR PRIORITIES

DEERE PRODUCTS WILL SET THE STANDARD FOR SUSTAINABILITY BY 2030 THROUGH:

Reducing Scope 3 greenhouse gas emissions 30% by:
- Partnering with our supply chain
- Developing a roadmap of low/no carbon alternative power solutions
- Investing in engine efficiency, hybridization, electrification, and renewable fuels
- Delivering battery-electric turf and compact utility tractor options
- Delivering electric and hybrid-electric Construction & Forestry solutions

Integrating circularity principles into product development lifecycle:
- Incorporating 95% recyclable content into our products
- Ensuring 65% of content going into our products is sustainable
- Grow remanufacturing revenue by 50%

SET VALIDATED SCIENCE BASED TARGETS FOR REDUCING SCOPE 3 GREENHOUSE GAS EMISSIONS

INTRODUCED AND REVEALED SUSTAINABLE POWER SOLUTIONS TO HELP ACHIEVE SCOPE 3 REDUCTION FOR PRODUCTS:
- Electrified tandem rollers from Hamm
- Electrified MINI Pavers from Vogele
- Concept equipment showcase for electric options for Turf and Compact Utility Tractors product families
- Electric excavator prototype at CES® 2023

ENGAGED WITH PARTNERS:
- Investment in battery technology through acquisition of majority interest in Kreisel Electric

IDENTIFIED KEY OPPORTUNITIES FOR ENHANCING SUSTAINABLE MATERIALS AND RECYCLABLE CONTENT
- Partnering with our supply chain
- Developing a roadmap of low/no carbon alternative power solutions
- Investing in engine efficiency, hybridization, electrification, and renewable fuels
- Delivering battery-electric turf and compact utility tractor options
- Delivering electric and hybrid-electric Construction & Forestry solutions

WHAT WE HAVE DONE

Sustainable Product Development
Product Emission Reduction Strategy

John Deere has set a validated Science-Based Target of reducing its Scope 3 greenhouse gas (GHG) emissions from its vehicles 30 percent by 2030. In achieving this goal, Deere is committed to ensuring that the products it brings to market deliver incremental economic value and sustainability for its customers.

As a result, we believe the first step on the path to 2030 is demonstrating viable low/no carbon alternative power solutions by 2026 across Deere’s various customer segments. The viability key — the solutions must meet the needs of Deere’s customers. One thing we know for sure — this journey will require multiple solutions across our portfolio, including efficiency, hybridization, electrification, and renewable fuels.

Given the demonstrated need to provide the company’s construction, roadbuilding, and forestry customers with a variety of propulsion options that go beyond traditional internal combustion engines, Deere set a Leap Ambition goal specifically for its Construction & Forestry Division to deliver 20 or more electric and hybrid-electric product models by 2026, which will be an important first step on the path to 2030.

In order to deliver options to the small agriculture and turf sector, Deere aims to offer an electric option in each turf and compact utility tractor product family by 2026 as well as deliver an autonomous, battery-powered electric utility tractor to the ag market by 2026.

Hybridization: Propulsion Options

Hybridization’s benefits are most often linked to productivity and fuel consumption. And both lead to greener, more sustainable business outcomes for customers.

Hybridization is used to drive vehicle efficiency two ways. The first is about utilizing the engine’s power to generate electrical energy to more effectively power various loads. The second is more traditional and is about off-loading some of the engine’s energy demands with a second power source, a battery, and using that source to run other functions traditionally tied to the engine.

Will Cross, supervisor for electrification architecture and systems engineering, said many Construction & Forestry use cases are transient in nature, making these propulsion lines ideal for hybridization.

One recent example of Deere’s leadership in engine innovation is the new 13.6L and 18L engines found in Deere’s X9 combines and self-propelled forage harvesters. Deere’s 13.6L update has demonstrated up to 30 percent improvement over previous models in overall performance and reduced fuel consumption.1

Our larger equipment will continue to have internal combustion engines for the foreseeable future due to energy density, so the question is how will we reduce carbon emissions for those systems” Cross said. “Reducing the carbon content of the fuel itself is one important path, but we can also make our power generation and vehicle systems utilize that fuel more efficiently. We can start by electrifying vehicle systems to utilize engine power more effectively. Mechanically decoupling of loads from the engine, as well as inherent efficiency of electric drives, all contribute to improved vehicle efficiency. This will continue to be fundamental to many of our products across the Deere portfolio.”

C&P’s shining example in this conversation is its 944K Loader, known for its fuel efficiency and productivity.

With over a million operating hours in the field, the 944K offered an engineering and component foundation for future development that was tapped into with Deere’s newest E-Drive offering, the 850 Dozer.2

The dozer, set to be showcased at the CONEXPO/CON-AGG 2023, offers a new hybridization strategy that is critical for the small agriculture and turf sector, Deere aims to offer an electric power system family by 2026 as well as deliver an autonomous, battery-powered electric utility tractor to the ag market by 2026.

The dozer, set to be showcased at the CONEXPO/CON-AGG 2023, offers a new hybridization strategy that is critical for the small agriculture and turf sector, Deere aims to offer an electric power system family by 2026 as well as deliver an autonomous, battery-powered electric utility tractor to the ag market by 2026.

MINIMIZING IDLE TIME

Deere can further improve efficiency and productivity by adding a secondary energy source, a battery, to help minimize machine idle time.

Led by electrification advancements and hybridization opportunities, John Deere Power Systems (JDPS) is developing technologies to turn off the engine when minimal power is needed, while still providing power to loads such as cab heating and air conditioning.

This helps deliver the benefits of less fuel burned, reduced greenhouse gas emissions, retained machine value, lower operating costs due to fuel and oil consumption, and reduced hour accumulation.

This also contributes to reduced regular maintenance and repair costs overall.

The ROAD AHEAD

We believe hybrid equipment will not only provide near-term carbon and productivity benefits but develop Deere’s vehicle solutions to reduce alternative fuel usage and costs when they arrive. Deere will continue to add to its engine systems that most effectively utilize engine power to provide operating cost and productivity benefits to customers.

Introduction
Sustainable Product Development
Operational Sustainability
People & Communities
Governance
Numbers & Honors
Sustainable Product Outcomes
Introduction
Sustainable Customer Outcomes
Operational Sustainability
People & Communities
Governance
Numbers & Honors
Sustainable Product Development
LEAP AMBITIONS
30% Reduction in upstream and downstream CO2 emissions (Scope 3) by 2030

Hybridization: Propulsion Options

Engine Efficiency

The future of low-carbon propulsion will encompass many different solutions. And we see that solutions involving an internal combustion engine will continue to be critical for the types of equipment that John Deere produces for many years to come. Therefore, as part of our journey to reducing greenhouse gas emissions from Deere products, we will continue to focus on the most fundamental part of engine development — efficiency.

Driving more efficiency in John Deere engines not only has the immediate impact of making a machine more efficient — burning less fuel, and emitting less — it also serves as a building block for further alternative propulsion innovation. For example, by building upon our expertise in making engines more efficient, we can incorporate technologies like electrification and hybridization to make the system more efficient. In addition, making an engine more efficient means not only emissions when running on petroleum fuels, but also less emissions when running on biofuels.

Advanced technologies in these areas have also proven to reduce operating and maintenance costs. When it comes to engine efficiency, gains — and losses — come from three key areas: combustion, air movement, and friction. John Deere Power Systems (JDPS) experts continue to develop new products that will improve upon its already best-in-class fuel efficiency engines. For example, JDPS has demonstrated up to five percent less fuel burned per unit of work.3

One recent example of Deere’s leadership in engine innovation is the new 13.6L and 18L engines found in Deere’s X9 combines and self-propelled forage harvesters. Deere’s 13.6L update has demonstrated up to 30 percent improvement over previous models in overall performance and reduced fuel consumption.1

Minimizing Idel Time

“Modern equipment would not be possible if it were not for hybridization. The future of power generation and vehicle systems is essential to reducing fuel consumption and greenhouse emissions.” Richard Wasem, senior manager of research and development for JDPS.

Our large equipment will continue to have internal combustion engines for the foreseeable future due to energy density, so the question is how will we reduce carbon emissions for those systems?” Cross said. “Reducing the carbon content of the fuel itself is one important path, but we can also make our power generation and vehicle systems utilize that fuel more efficiently. We can start by electrifying vehicle systems to utilize engine power more effectively. Mechanically decoupling of loads from the engine, as well as inherent efficiency of electric drives, all contribute to improved vehicle efficiency. This will continue to be fundamental to many of our products across the Deere portfolio.”

C&P’s shining example in this conversation is its 944K Loader, known for its fuel efficiency and productivity.

With over a million operating hours in the field, the 944K offered an engineering and component foundation for future development that was tapped into with Deere’s newest E-Drive offering, the 850 Dozer.2

The dozer, set to be showcased at the CONEXPO/CON-AGG 2023, offers a new hybridization strategy that is critical for the small agriculture and turf sector, Deere aims to offer an electric power system family by 2026 as well as deliver an autonomous, battery-powered electric utility tractor to the ag market by 2026.

The dozer, set to be showcased at the CONEXPO/CON-AGG 2023, offers a new hybridization strategy that is critical for the small agriculture and turf sector, Deere aims to offer an electric power system family by 2026 as well as deliver an autonomous, battery-powered electric utility tractor to the ag market by 2026.

MINIMIZING IDLE TIME

Deere can further improve efficiency and productivity by adding a secondary energy source, a battery, to help minimize machine idle time. Led by electrification advancements and hybridization opportunities, John Deere Power Systems (JDPS) is developing technologies to turn off the engine when minimal power is needed, while still providing power to loads such as cab heating and air conditioning.

This helps deliver the benefits of less fuel burned, reduced greenhouse gas emissions, retained machine value, lower operating costs due to fuel and oil consumption, and reduced hour accumulation. This also contributes to reduced regular maintenance and repair costs overall.

THE ROAD AHEAD

We believe hybrid equipment will not only provide near-term carbon and productivity benefits but develop Deere’s vehicle solutions to reduce alternative fuel usage and costs when they arrive. Deere will continue to add to its engine systems that most effectively utilize engine power to provide operating cost and productivity benefits to customers.

Our large equipment will continue to have internal combustion engines for the foreseeable future due to energy density, so the question is how will we reduce carbon emissions for those systems?” Cross said. “Reducing the carbon content of the fuel itself is one important path, but we can also make our power generation and vehicle systems utilize that fuel more efficiently. We can start by electrifying vehicle systems to utilize engine power more effectively. Mechanically decoupling of loads from the engine, as well as inherent efficiency of electric drives, all contribute to improved vehicle efficiency. This will continue to be fundamental to many of our products across the Deere portfolio.”

C&P’s shining example in this conversation is its 944K Loader, known for its fuel efficiency and productivity.

With over a million operating hours in the field, the 944K offered an engineering and component foundation for future development that was tapped into with Deere’s newest E-Drive offering, the 850 Dozer.2

The dozer, set to be showcased at the CONEXPO/CON-AGG 2023, offers a new hybridization strategy that is critical for the small agriculture and turf sector, Deere aims to offer an electric power system family by 2026 as well as deliver an autonomous, battery-powered electric utility tractor to the ag market by 2026.

The dozer, set to be showcased at the CONEXPO/CON-AGG 2023, offers a new hybridization strategy that is critical for the small agriculture and turf sector, Deere aims to offer an electric power system family by 2026 as well as deliver an autonomous, battery-powered electric utility tractor to the ag market by 2026.
Electrifying Alternative Solutions

John Deere's drive toward full battery-electric powered products is as much about creating a sustainable solution as it is about the company’s relentless commitment to solving customer challenges.

Battery-electric vehicles (BEV) enhance precision controls and ease of use, while helping reduce greenhouse gas emissions and required maintenance.

“Segments of our customer base are starting to ask for it and, in some cases, demand these sustainable solutions,” said Aaron Wetzel, vice president of Production Systems.

In the construction space, some local governments are requiring low-emission equipment and reduced noise. Equipment owners, often dealing with skilled-labor shortages, seek ease of use and a better overall experience. And the residential customer is asking for simplicity, especially when it comes to maintenance and total cost of ownership.

To meet this increasing demand, John Deere has mapped out several bold goals through its Leap Ambitions, most notably along multiple product lines in Small Ag & Turf and Construction & Forestry.

- By 2026, Deere aims to:
  - Offer an electric option in each turf and compact utility tractor product family
  - Deliver autonomous, battery-powered electric utility tractor to the ag market
  - Deliver 20+ electric and hybrid-electric C&F product models

“Electrification solves a lot of challenges for a lot of customers,” said Will Cross, supervisor for electrification architecture and systems engineering. “It allows them to be more precise, productive, and sustainable.”

DELIVERING SOLUTIONS

John Deere is focusing its BEV development efforts on those product segments with highest customer demand and where battery technology is a viable alternative, most notably residential and commercial turf equipment and within the construction infrastructure market.

As a start, in 2022 Deere revealed four battery-electric concept vehicles, a residential zero-turn mower, commercial stand-on mower, full-size utility vehicle, and compact utility tractor. The purpose behind concept products is to test out the designs and gather customer feedback. This enables Deere to learn and innovate quickly. The company anticipates the Z370R Electric ZTrak™ Mower will be available to customers in 2023. The Z370R will be able to mow up to two acres (under most mowing conditions) powered by a full charge on its 3.2kWh battery.

BATTERY INNOVATION

John Deere is focused on ensuring that battery power remains comparable to, or even exceeds, internal combustion alternatives.

Deere’s acquisition in 2022 of a majority ownership interest in Kreisel Electric Inc., an Austrian-based battery technology provider, is an essential step in achieving many of Deere’s goals. Kreisel develops battery modules packed with high performance and durability. Patented immersion cooling technology allows battery pack cells to operate within optimal temperature ranges.

In addition, Kreisel has developed an innovative charging infrastructure that utilizes patented technology and could prove key in servicing the many unique and often rural environments Deere customers work in. The acquisition allows Deere to optimally integrate vehicle and powertrain designs around Kreisel’s technology while also utilizing its charging infrastructure to aid in solving one of the most common pain points to customer adoption.

DEERE & CO.

3534 Office Drive
Moline, IL 61265

309-765-2000
www.deere.com

DEFINITIONS

CO2e: Carbon dioxide equivalent

Emissions savings: The difference between the greenhouse gas emissions of a machine using diesel fuel and a machine using electricity

Emissions credits: Emissions saved through use of renewable energy

E-POWER 145X EXCAVATOR:

- Estimated product lifetime emissions savings of up to 155 metric tons CO2e

E-POWER MX EXCAVATOR:

- Estimated product lifetime emissions savings of up to 115 metric tons CO2e

Z370R ELECTRIC Ztrak™ MOWER:

- Estimated product lifetime emissions savings of up to 17 metric tons CO2e

ZTRAK ELECTRIC ZTRAK™ MOWER:

- Estimated product lifetime emissions savings of up to 11 metric tons CO2e
We expect the availability of low-carbon fuel sources will be an important part of John Deere’s journey to 2030. Deere builds equipment that can require high horsepower, may operate for long hours, and can work in isolation in some of the planet’s most extreme environments with limited infrastructure. For many of those machines, the internal combustion engine, carrying the benefits of power density, extended operating times, and existing infrastructure for refueling, will remain the primary propulsion source for the remainder of this decade and beyond.

But just because there is an engine does not mean running it cannot be sustainable or low carbon. In fact, many renewable fuels being produced today have emission factors that rival battery-electric vehicles, given that many electric grids are not 100% renewable. And with continued advancements in precision agriculture technology, as well as refining infrastructure, there is ample opportunity to further reduce the carbon intensity of renewable fuels.

The challenge for renewable fuels is a shared experience, driven primarily by current supply limitations and the need for exponential growth to meet demand.

While ethanol and biofuel (grains and oilseeds) feedstock production unlock an opportunity for our customers to be part of the solution and the growing market, there are hurdles to clear especially regarding infrastructure and global supply. Deere is partnering with industry leaders to unlock opportunities that make our customers’ businesses more profitable, proficient, and environmentally less disruptive.

These partnerships help support ongoing studies and collaboration efforts in the areas of viability and quality to understand fuel alternatives for Deere machines. They also are aimed at advancing policy, infrastructure, and capacity for these additional renewable fuel productions.

**CAN ETHANOL POWER A DIESEL ENGINE?**

U.S. corn-based ethanol is approximately 60 percent less greenhouse gas intensive than gasoline. Ethanol is a common biofuel utilized in the on-road automotive space today but isn’t thought of as frequently for the off-road and heavy-duty user. In North America, ethanol is commonly made from corn, while in South America, and particularly Brazil, it is commonly made from sugar cane.

Given the usage in the on-road sector today, there is already meaningful infrastructure in place for ethanol production and distribution in the U.S. and Brazil. In addition, and particularly important to Deere, is that these primary feedstocks are grown by the company’s customers.

“There is already a very large capacity in place to produce ethanol,” said Craig Lohmann, renewable fuels engineering manager for engines at John Deere. “And it provides our ag customers with the ability to grow their own fuel.”

As a liquid fuel, current customers can handle and store ethanol more easily than other options, like hydrogen or methane. Yet, the limitation is that ethanol has 60 percent of the energy content of diesel, Lohmann said.

But, he added, “The technology exists to modify our existing diesel powered equipment to use ethanol, which is a liquid fuel, and get the necessary energy on board to meet the needs of our customers.” The company is collaborating with the Department of Energy, Marquette University, and the University of Wisconsin to further advance the ethanol engine technology among other technology company engagements.

**FUELING THE FUTURE WITH SOYBEANS AND OTHER OILSEEDS**

Renewable diesel and biodiesel are two other forms of renewable fuels John Deere is pursuing. These options can be produced from a variety of feedstocks, including oilseeds like soybeans, used cooking oils, and animal fats.

Additionally, they work in existing diesel engines with little modifications needed, and they are 50–80 percent less carbon intensive than petroleum-based fuels.

We believe renewable diesel and biodiesel can be viable alternatives, but the challenge of availability remains. Infrastructure for production is extremely limited globally. And feedstocks are a key challenge to additional production.

Based on data from BloombergNEF (BNEF), estimated U.S. renewable diesel capacity could increase nearly three times from approximately 2.28 gallons/year in 2022 to approximately 6.38 gallons/year in 2026. To meet this capacity increase, fat, oil, and grease feedstocks will have to grow significantly from their current level.

Deere is working on both challenges by joining with companies across the fuel value chain to identify solutions. The company is currently engaged in a partnership in an exploratory pilot with customers for a pathway for winter oilseed crops to be used as a new source of feedstock for renewable diesel production. Deere is aiming to better understand the challenges around integrating the existing production cycles for these crops and the necessary logistics and infrastructure needed for transporting these new crops from the field to the refinery.

The ability to scale up winter oilseed crops as a key feedstock source is positive from multiple perspectives. First, it creates a completely new source of feedstocks for fuel production instead of competing with grains and oilseeds needed for food. Second, growing a new feedstock as a winter crop has the benefits of enhancing root structure in the soil, promoting overall soil nutrient density, and reducing the carbon intensity of the farming operation. And third, by providing an avenue for these crops to be revenue generating for the grower, it can help eliminate a barrier to adoption by taking what is typically a cost and making it an additional revenue source.
HYDROGEN

As a global company, John Deere and its machines operate in all corners of the world, which means that this journey requires our teams to consider the types of fuel that will be available across these geographies to support our customers’ operations. In Europe, for example, hydrogen capability as a primary renewable fuel source leads many discussions.

Hydrogen combustion produces zero carbon emissions, making it an attractive low-carbon power source. But there are many technical hurdles for using hydrogen as a fuel in internal combustion engines, including storage capacity and refueling infrastructure issues.

Not to be deterred, John Deere is helping lead innovation in hydrogen as well, participating in a project that includes the French government and the University of Orléans. Nicolas Marie, manager for European engine engineering at Deere, said “Our first step is to demonstrate its performance on a Deere engine, then on a generator set application, and finally on a Deere machine.”

EARLY DAYS FOR METHANE, BIOMETHANE

Finally, Deere is exploring biomethane but views this option as longer term and lower in scalability for powering its equipment based on current technology. These fuels are of particular interest for the U.S., European, and South American markets due to sugar availability in South America and livestock operations that have installed bioreactors for manure in the U.S. and Europe. However, these fuel options are hindered by the inability to get enough energy on-board machines without losing power and efficiency.

While these fuels would require extensive engine modifications and capital investment, Deere continues to monitor and analyze the viability of this technology for heavy-duty off-highway applications.

5 BNEF, (2022).
A circular economy looks to eliminate waste through the superior design of materials, products, systems, and business models. To be successful, John Deere is striving for using less, using better, using longer, and using again. Deere’s recently completed 2022 Sustainability Goals helped provide the footing needed to execute on its 2030 Leap Ambition goals focused on product circularity.

In 2022, the company transitioned from its previous design for environment goal (DfE) to the Leap Ambitions. The DfE goal focused on achieving a lower environmental impact on 90 percent of new product programs, which included multiple types of initiatives, such as fuel efficiency and product circularity. With the Leap Ambitions, we now have separate goals that focus on these areas, including our goals around Scope 3 Category 11, sustainable materials and recyclable product content. In addition, while the company saw positive growth in its remanufacturing business throughout the 2022 goal period, headwinds related to supply chain, the pandemic, and inflation prevented John Deere from achieving its original 30 percent revenue growth goal. Therefore, because remanufacturing will continue to be a critical part of our circularity journey, we know that the progress we’ve made and meaningful initiatives we’ve embarked on are setting us on the path to achieve our circularity goals over the remainder of this decade.

Looking forward, Deere is focused on ensuring 65 percent of material content at the start of product lifecycle is sustainable material and 95 percent of content is recyclable at the end of product lifecycle, along with growing remanufacturing revenue 50 percent by 2030.

DESIGNING FOR THE FULL PRODUCT LIFECYCLE

SUSTAINABLE CONCEPT GATOR

The world of sustainability is often driven by change while the world of innovation is often driven by the introduction of something new. Now imagine what happens when those two intersect and are applied to a signature product with a 30-year history.

“John Deere’s Sustainable Concept Gator turns some of that imagining into reality. This Gator shows how innovative thinking and innovative partnerships can provide invaluable insight into how we can apply sustainable material use in the future,” said Jill Sanchez, John Deere director of sustainability.

Many of the utility vehicle’s traditional parts were replaced with recycled and recyclable materials, including options taken right from a farmer’s field. The joint venture project with Ford Motor Company includes materials made from soybeans, flax fiber, sugar cane, hemp fiber, plastic bottles from the Mississippi River, ground coconut, and even fishing nets taken from the Indian Ocean.

The Sustainable Concept Gator demonstrates and reinforces John Deere’s commitment to achieving its 2030 product circularity goals, such as ensuring 65 percent of product content comes from sustainable materials.

“"The goal was to explore a variety of materials to be used for possible adoption across product lines to support our goals around increasing our use of sustainable materials.""

KEITH SHANTER
Senior Materials Engineer for Polymers
Sustainable and Recyclable Content

John Deere’s sustainable content goal incorporates two material types into product parts and components: recycled and renewable. Recyclable material is that which has been reintroduced as a new material and therefore has been given a second life, like recycled steel. Renewable content is biobased and represents a recurring source found in nature, including options such as soybean oil and plant fibers like rice hull or hemp.

The recyclable content goal is aimed at increasing the number of parts that have an avenue for recyclability at the end of the machine’s useful life and thus can be used again as a different product.

To determine our starting point, the company has examined the renewable and recycled content within a subset of products based on material weight, type, and geographic mix. This included highly detailed integration of material data and supplier source data. This same material breakdown was then reviewed to estimate recyclability on a global and regional scale.

From the initial phases of product analysis, Deere has estimated its current products incorporate 40 percent sustainable content by weight and 90 percent recyclable content by weight.

These early results have allowed the company to identify potential areas of focus for its strategy on sourcing sustainable versions or alternatives for specific materials such as steel, cast iron, plastic, and tires—the most common in its machines—to maximize the impact of this effort.

As far as recyclable content, steel and cast iron represent the most significant materials, based on weight. But both already are nearly 100 percent recyclable. Conversely, plastic, rubber, and tires— the most common in its machines— are high in opportunity but low in weight, meaning the company’s goal will be challenging. But not impossible.

Supply management and product design teams will play essential roles in sourcing and designing for increased incorporation of sustainable materials and recyclable content.

#### Sustainable Materials

<table>
<thead>
<tr>
<th>Lever</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Arc Furnace (EAF)</td>
<td></td>
</tr>
<tr>
<td>Postconsumer Recycled (PCR)</td>
<td></td>
</tr>
<tr>
<td>Sustainable Content Tires</td>
<td></td>
</tr>
</tbody>
</table>

#### Recyclability

<table>
<thead>
<tr>
<th>Lever</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of Plastic Used</td>
<td></td>
</tr>
<tr>
<td>Increase Tire Recycling</td>
<td></td>
</tr>
<tr>
<td>Expand Plastic Recycling</td>
<td></td>
</tr>
</tbody>
</table>

#### Opportunities and Considerations

Because steel is such a significant proportion of vehicle composition, Deere has been exploring solutions to procuring more recycled steel. One promising opportunity involves steel made through the utilization of electric arc furnace (EAF) technology. This process uses higher recycled content than a standard blast furnace, which uses iron ore. EAF usage varies worldwide, with more presence in the U.S., while in Asian markets its availability is more limited. Therefore, working closely with our supply chain partners will be critical to identifying key levers for optimizing this technology in parts going into Deere machines.

John Deere dealers around the world play a key role in recycling significant portions of our vehicles during maintenance cycles and at end of life. Examples include lead acid batteries and steel panels. Major components including engines, transmissions, axles, and electronics are returned to Deere Reman annually for remanufacturing and reuse. Because of their close connection with our products throughout the lifecycle, further engaging our dealers will be critical to achieving our product circularity-focused Leap Ambitions.
Options, Innovations Lead Reman’s Road Ahead

The concept and practice of remanufacturing revolves around providing customers with choices. It’s about connecting decisions to both financial and natural resources. And by providing remanufactured parts and components, John Deere Reman allows for more sustainable outcomes in a customer’s business while maintaining product circularity.

John Deere’s 2030 Leap Ambitions goal to grow 50 percent in remanufacturing revenue from a 2021 baseline illustrates the company’s commitment to its Lifecycle Solutions strategy — the belief in adding value to the life of a product while maximizing uptime, addressing dealership labor shortages, and minimizing costs.

Reman operations are focused on remanufacturing engines, electronics, drivetrain, and hydraulic components. The portfolio also includes turbines and mid-rollers, leveraging resources around the world to meet customer needs. In 2022, nearly 276 million pounds of material were recycled through remanufacturing.

Reman’s sustainability message is a powerful one. By not having to make a new engine, axle, or cylinder head from scratch means that natural resources like iron ore are preserved, melting furnaces aren’t fired up, and carbon footprints are smaller.

To reach the Leap Ambitions goal, John Deere has a variety of methods to access, including the integration of innovative processes to increase the reuse of material, designing with intent to remanufacture, the use of performance upgrades, and partnering with its dealership network to perform product rebuilds.

STANDARD UNITY
To help ensure remanufacturing principles are top of mind, Deere internally published standards for remanufacturing design. The scope of the document defines requirements related to the remanufacture of used parts, provides guidance for new parts or product designs with features that are favorable to be remanufactured, and is intended to be applied during development of all major components and product programs to ensure that remanufacturing was considered in the initial design phase.

“This gives remanufacturing a seat at the table early on,” James Krasselt, senior product engineer, said. “We can make some small-scope but high-impact decisions that really help us several years down the line after this program’s gone into production, had its first life, and then comes to Reman.”

NEW IDEAS, REMADE
REMADE is a nonprofit organization that works with the U.S. Department of Energy and acts as a facilitator through industry innovators, national labs, and academic research.

According to the REMADE Institute, manufacturing accounts for 25 percent of U.S. energy use at a cost of more than $150 B USD and trails only transportation and electricity as a greenhouse gas emissions contributor.

One exploratory REMADE Institute project underway at Deere Reman involves low heat repair of cast iron with cylinder heads utilizing new weld techniques that include cold metal transfer. The intent of those practices is to be as least invasive as possible in disturbing the base cast iron of the part.

The weight of parts is a significant driver when measuring environmental impact in remanufacturing, making cylinder heads an ideal area for further innovation.

REBUILD IT AND THEY WILL COME
John Deere’s Powertrain ReLife Plus program is a unique alternative that takes a machine that’s getting close to the end of its life — perhaps even failed in some cases — and replaces the powertrain (among other things), basically giving it new life.

“The story is in the steel,” Mark Wagner, John Deere service business manager, said. “And I think that’s really where the sustainability piece is. We’re taking a 30-ton piece of construction equipment, reusing around 80 percent of it and basically putting in a new powertrain component and other remanufactured parts. By doing this work we’re getting the maximum life out of those larger, heavier components, getting them back to zero hours. The benefits are immense, all around.”

Dealerships and customers are seeing the value. In Deere’s Construction & Forestry dealer network, for example, nearly 80 percent of the ownership groups in the U.S. and Canada have achieved the rebuild certification designation.

Wagner said, “We have seen ReLife volumes nearly double in the past year and expect that trend to continue into 2023.”

To learn more about how Deere has extended product’s life, see more on product upgrades in the 2021 Sustainability Report.

“By designing our products in such a way that makes remanufacturing more efficient, John Deere is helping the planet by reducing carbon emissions when compared to the process of making a new part.”

MANI SUBRAMANI
Director of Engine Engineering, Power Systems

Introduction Sustainable Customer Outcomes Sustainable Product Development Operational Sustainability People & Communities Governance Numbers & Honors
**OUR PRIORITIES**

BUILDING UPON THE SUCCESS OF 2022 SUSTAINABILITY GOALS WITH LEAP AMBITIONS

Making Deere’s operations more sustainable by 2030:
- Reducing fresh-water consumption intensity by 10 percent at water-stressed manufacturing locations
- Reducing waste intensity by 15 percent
- Reducing Scope 1 and 2 CO₂e emissions by 50 percent

**WHAT WE HAVE DONE**

VALIDATED SCIENCE BASED TARGETS FOR SCOPE 1 AND 2 GREENHOUSE GAS EMISSIONS

REDUCED SCOPE 1 AND 2 GREENHOUSE GAS EMISSIONS BY NEARLY 29 PERCENT AGAINST A 2017 BASELINE THROUGH NEARLY 59 PERCENT RENEWABLE ELECTRICITY SUPPLY AND ENERGY EFFICIENCY PROJECTS

INCREASED WASTE RECYCLED ACROSS DEERE UNITS TO 84 PERCENT

IMPLEMENTED WATER BEST MANAGEMENT PRACTICES AT 100 PERCENT OF WATER-SCARCE MANUFACTURING LOCATIONS

INTEGRATED BIODIVERSITY INTO FACILITIES AND OUTREACH EFFORTS

---

**Operational Sustainability**

- Sustainable Product Development
- Sustainable Customer Outcomes
- Operational Sustainability

---

**Introduction**

- Numbers & Honors
- Governance
- People & Communities

---

46 47
As John Deere closes out its 2022 sustainability goals, it adds another impressive year of operational greenhouse gas (GHG) emissions reductions, increased renewable energy use, and environmental stewardship.

In 2021, Deere exceeded its 15 percent absolute Scope 1 and 2 GHG reduction goal one year early, achieving nearly 20 percent reduction. As the company closes out its 2022 goals, it achieved a total reduction in operational GHG emissions of nearly 29 percent between 2017 and 2022.

Deere also surpassed its 2022 renewable electricity goal by achieving nearly 59 percent renewable electricity as of the end of 2022. Deere’s participation in the Mesquite Sky Wind project was a major contributor to both of these goals. As with its other goals, despite these successes, the company has challenged itself yet again to do better.

Deere has validated Science Based Targets to reduce its Scope 1 and 2 GHG emissions by an additional 50 percent by 2030, with fiscal year 2021 serving as the baseline. We’ll aim to accomplish this through efficiency gains in operations and facilities processes, and by leveraging renewable electricity and fuels.

To encourage and recognize supplier excellence in sustainability and innovation, John Deere has expanded its Supplier Achieving Excellence program. This year-round company program measures, recognizes, and rewards exceptional supplier performance. With changes implemented in 2022, a supplier can no longer reach the highest level of recognition without incorporating sustainability initiatives into their business, including criteria such as EcoVadis participation, setting goals for reductions in GHG emissions, reporting GHG emissions, and improving workforce diversity. Expanding the value creation portion of this program to include sustainability initiatives and expectations is a critical early step in unlocking the collaborative potential between John Deere and our supply chain partners to achieve the Leap Ambitions outcomes.

Some of Deere’s supply chain partners are leading the way in sustainability innovation. In fiscal year 2022, SSAB (a global steel company) received a Supplier Sustainability Award from Deere & Company for its sustainability initiatives. SSAB’s facility in Iowa uses BiB’s percent renewable energy to power its facilities as certified by the utility provider and produces steel using 97 percent recycled scrap content.

Engaging our supply base is crucial to our success in reducing upstream greenhouse (GHG) emissions. Deere began by evaluating product materials and supplier data. John Deere has identified the opportunity where partnering with our supply chain can have the most significant impact on GHG emissions. Many of these priority areas have a significant overlap with the materials that will be critical to achieving Deere’s Leap Ambitions around product circularity. For fiscal years 2022 and 2030, we’re focusing on collaborating with energy-intensive suppliers in the following industries: steel, castings, rubber, glass, packaging, data centers, batteries, and power systems.

Aligned with our new Leap Ambitions, Deere updated its strategic sourcing approach considering sustainability a key action area, balanced with ongoing expectations for quality, cost, and delivery. In fiscal year 2022, Deere communicated its supplier sustainability strategy to all suppliers in the John Deere Supplier Network (JDSN) forum. This strategy guides our search for supplier opportunities that further our 2030 goals, including emissions reduction: increased usage of sustainable and recyclable materials.

To see more on Deere’s Downstream Scope 3 Category 11 Emissions see the Product Emission Reduction Strategy on page 35.

### Scope 1 and 2 Emissions

<table>
<thead>
<tr>
<th>Category</th>
<th>2021</th>
<th>2022</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions (metric tons CO₂e)</td>
<td>811,000</td>
<td>716,700</td>
<td>405,500</td>
</tr>
</tbody>
</table>

*Apex Companies, LLC has verified greenhouse gas (GHG) emissions data in accordance with the ISO 14064-3: Greenhouse gases — Part 3: Specification with guidance for the validation and verification of GHG statements assurance standard. Data associated with the operations of Unimil is not included in 2021 metric.*

### Scope 3 Emissions Category 1 (Purchased Goods and Services)

<table>
<thead>
<tr>
<th>Category</th>
<th>2021</th>
<th>2022</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions (metric tons CO₂e)</td>
<td>106,456,000</td>
<td>97,953,000</td>
<td>73,956,000</td>
</tr>
</tbody>
</table>

*Apex Companies, LLC has verified greenhouse gas (GHG) emissions data in accordance with the ISO 14064-3: Greenhouse gases — Part 3: Specification with guidance for the validation and verification of GHG statements assurance standard. Data associated with the operations of Unimil is not included in 2021 metric.*

To see more on Deere’s Downstream Scope 3 Category 11 Emissions see the Product Emission Reduction Strategy on page 35.
WASTE RECYCLING AND REDUCTION

John Deere recycled 84 percent of total waste generated in 2022. Although a bit short of the 2022 Sustainability Goal of recycling 85 percent of total waste, Deere has made significant gains in its waste program.

Deere’s recycling rate improved through enhancement of operations’ waste packaging segregation methods, and refining specific waste recycling processes, like foundry furnace slag.

Deere continues to seek to optimize disposal methods but shifted focus to reduce waste generation from operations. By 2030, the company aims to reduce waste intensity by 15 percent.

To minimize waste intensity, teams intend to focus on reducing waste from processes and engage with supply management to reduce packing materials.

Highlights

Since Deere first established waste improvement goals in 2012, the company has progressed from recycling 56 percent of total waste generated to 84 percent in 2022.

- John Deere Tianjin Construction Works reduced the amount of hazardous waste by an estimated five tons in 2022 by adding a purification and recycling system to the coolant circulation system.
- In 2020, John Deere Mannheim implemented waste container color coding together with a digital logistics tool, leading to increased waste segregation performance throughout the facility.
- John Deere Cylinder-Moline installed a briquetting machine in 2019, diverting 64.5 tons per year of grinding sludge waste from landfill to a concrete manufacturer as a raw material.
- John Deere Iberica, S.A. completed an on-site recycling project in 2019 utilizing magnetic filtration to recover 68,000 liters of machining oil annually.
- In 2017, John Deere Thibodaux reduced hazardous waste generation in the paint department by 46 percent through improvements to the paint mixing system and reducing solvent usage with a single-color primer.

WATER

At John Deere, water is important to our global manufacturing operations, and areas faced with the potential for water scarcity are the main focus.

Using the World Resources Institute Aqueduct Water Risk Atlas tool, certain Deere manufacturing sites were determined to be in water-scarce areas, mainly in Mexico, India, and China. Deere achieved the water 2022 Sustainability Goal by successfully implementing 100 percent of water best management practices at these water-scarce manufacturing sites.

Implementation of water best management practices provided a systematic approach for reducing water use by eight percent at water-scarce manufacturing sites from 2017 to 2022. Projects that contributed to Deere’s success include efficiencies in rinsing and cleaning operations, reduced use in paint systems, and optimized use for cooling purposes.

Beyond our water-scarce locations, other manufacturing operations across Deere also implemented water-management strategies. These strategies focused on increasing employee awareness of water use, reviewing current water use, and identifying water use efficiency opportunities.

Deere will continue to focus on water conservation and reduction with the Leap Ambitions. By 2030, the company aims to reduce freshwater consumption intensity by 10 percent at water-stressed manufacturing locations. Deere plans to achieve this goal by optimizing water reuse, developing more efficient processes, improving infrastructure maintenance, and increasing gray water use.

Mexico — Water Conservation

John Deere Mexico facilities utilize a variety of projects to produce not only noteworthy results but increase employee engagement in water conservation. Cooling towers gave way to dry systems. Pretreatment maintenance helped optimize reverse osmosis and softener systems. Leak detection efforts included preventive maintenance, treasure hunts, and visual inspections on shop floors. Sweeper machines used HVAC condensation and most facilities have installed waterless urinals. John Deere Mexico facilities have saved 7.4-million gallons of water in fiscal year 2022 compared to the 2017 baseline.

Leak detection efforts included preventive maintenance, treasure hunts, and visual inspections on shop floors. Sweeper machines used HVAC condensation and most facilities have installed waterless urinals.

John Deere Mexico facilities utilized a variety of projects to produce not only noteworthy results but increase employee engagement in water conservation. Cooling towers gave way to dry systems. Pretreatment maintenance helped optimize reverse osmosis and softener systems. Leak detection efforts included preventive maintenance, treasure hunts, and visual inspections on shop floors. Sweeper machines used HVAC condensation and most facilities have installed waterless urinals.

John Deere Mexico facilities have saved 7.4-million gallons of water in fiscal year 2022 compared to the 2017 baseline.
The industries John Deere serves — agriculture, turf, earthmoving, forestry, and roadbuilding — are intricately linked to the land. We understand that preserving a thriving natural ecosystem is foundational to the future of our business, and that of our customers and stakeholders. Through precision technology, we believe we can have a positive impact on biodiversity by enabling our customers to do more with less. In addition, through the John Deere Foundation and employee-led groups, Deere has promoted biodiversity at certain facilities and through outreach efforts.

**Biodiversity**

The industries John Deere serves — agriculture, turf, earthmoving, forestry, and roadbuilding — are intricately linked to the land. We understand that preserving a thriving natural ecosystem is foundational to the future of our business, and that of our customers and stakeholders. Through precision technology, we believe we can have a positive impact on biodiversity by enabling our customers to do more with less. In addition, through the John Deere Foundation and employee-led groups, Deere has promoted biodiversity at certain facilities and through outreach efforts.

**Reforestation With Profauna**

John Deere proudly gives back to communities where its employees live and work. One of the important ways that the company gives back is to support efforts that strengthen the ecosystem services and biodiversity in these regions.

In Mexico, the Zapalinamé Mountain overlooks Saltillo and Ramos Arizpe where Deere has manufacturing facilities. This habitat on the mountain has been damaged by forest fires. Over time, damaged areas calcinated, leaving behind unstable, highly acidic soils more susceptible to erosion and increased mortality rates for wildlife. This damage also threatens a key water supply for the region.

To help rehabilitate fire-damaged areas across the Zapalinamé Mountain, 298 Deere volunteers have replanted 860 native trees since 2018.

During the next five years, Deere intends to join numerous world partners working with Profauna, a nonprofit organization specializing in the management of natural protected areas, including wildlife management and conservation education. Together we aim to help recover and reforest 320 hectares of land damaged by fires.

Deere has committed $100,000 USD to Profauna’s efforts, which will be used to support reforestation efforts, including installation of a fourth nursery garden where we expect 40,000 plants will be grown.

**Pollinator Plot Addresses Declining Bee Population, Food Production**

John Deere’s Sustainability Impact Group (SIG) defines its purpose as promoting a culture of sustainability for colleagues, customers, dealers, suppliers, and communities.

With one simple biodiversity project — a pollinator plot — the Cary, North Carolina, SIG chapter involved nearly every stakeholder mentioned above.

Another employee-led biodiversity initiative at Deere included converting 4.5 acres of land to a pollinator habitat at the company’s combine factory located in Zweibrücken, Germany. These projects can help play a role in reversing a trend threatening the planet’s smallest farmers.

According to the United Nations, nearly 40 percent of pollinators, like bees and butterflies, face global extinction due to inadequate “forage resources” or other feeding options. All of this threatens the longevity of the pollinating insects that cover nearly 75 percent of the world’s plants. Bees pollinate one of every three bites of food we eat.

Other examples of ways that Deere supports biodiversity include maintaining natural prairies at some of its global facilities and financial and volunteer support.

“The Cary project demonstrates that Deere is willing to do the right thing in the name of sustainability, even if it’s just a small project led by a few passionate individuals. Every time I walk by these plots, I see bees or butterflies buzzing around our flowers and as a Deere employee, I think they are my absolute favorite customers.”

**Meredith Biechele**

SIG site lead and member and advanced R&D engineer at Turf and Compact Utility

---


People and Communities

WHAT WE HAVE DONE

- Named John Deere’s First Chief People Officer
- Incorporated DEI as a required component of annual performance evaluations
- Expanded development and leadership programs and opportunities
- Opened new offices to achieve talent strategies
- Developed key priorities for achieving workplace safety goals
- Partnered with Global Food Banking Network to address food insecurity
- Aided those affected by the Russia-Ukraine War
The core of John Deere’s Smart Industrial Strategy, launched in fiscal year 2020, is to revolutionize the agriculture and construction industries through the delivery of new technologies that unlock economic and sustainable value for its customers. The Leap Ambitions are how the company measures its progress. The key to creating real and measurable value lies with Deere’s most valuable asset, its people — who we believe hold the diverse skills, perspectives, and passion required to fuel this vision.

John Deere will only accomplish this vision with a highly engaged workforce that has passion to change the way customers are served and the agility to pivot as new technologies rapidly advance. This ties each of John Deere’s global employees — from those building the equipment in Deere factories, to those creating cutting-edge technology in research labs — must operate as one team with a common goal, where every voice and diverse perspective is valued. For this reason, the company is taking steps to embed DEI principles into the foundation of how the company does business every day. The diversity, equity, and inclusion of our people propels our ability to innovate and strengthens the foundation of John Deere’s business.

Deere is working on developing sustainable DEI practices through the integration of principles and objectives into company policies, procedures, and the human capital management lifecycle. In 2022, Deere aligned its DEI strategy with the framework provided by ISO:304151. The company will plan to measure the impact of its DEI strategy through employee experience survey results and performance against the United Nations Sustainable Development Goals (UN SDGs). Strategic alignment with the UN SDGs provides methodologies to reduce inequalities, drive decent work and economic growth, and strive for gender equality. We intend for accountability to be held by measuring the impact of our actions to increase representation, opportunities, and access for women and underrepresented groups in our work environments, business relationships, and communities. This holistic approach serves to honor our higher purpose: to advance life and sustain the world for generations to come.

From naming its first-ever chief people officer, taking an intentional approach to weave DEI as a common thread into our strategy, redefining hiring processes, engaging with early-career talent in new ways, enhancing workplace benefits, and opening offices in strategic locations, Deere took significant actions in 2022 to put the company in a position to have top talent working to solve hard challenges for its customers.

New Chief People Officer Felecia Pryor Q&A

Q: What excites you the most about the opportunity to lead the people function at Deere?
A: Our people are the key to achieving the Leap Ambitions. To be able to create and add value, we need to have all the right players on the team. And those players need to know they can bring their best selves every day to help us solve the immense challenges ahead of us.

Q: Why do you view people and culture as a critical aspect within our Leap Ambitions?
A: Our people are the key to achieving the Leap Ambitions. To be able to create and add value, we need to have all the right players on the team. And those players need to know they can bring their best selves every day to help us solve the immense challenges ahead of us.

Q: What role do leaders around the world play in improving the employee experience?
A: Leaders are the front line and play the most critical role in improving the employee experience. Our leaders must embrace vulnerability in order to empower their teams and unlock the passion and innovation within our workforce.

Talent Recruitment Strategy That Develops Future Leaders

RECRUITMENT AND HIRING
This year, John Deere’s Talent Acquisition Team expanded the diverse candidate slates and interview panels initiative by making it a requirement for every open position in the U.S. This effort allowed us to reach a broader range of talented candidates and help ensure fairness and inclusivity in recruitment, interviewing, and hiring.

Further, leveraging of advanced technologies has allowed Deere to expand this approach. These technologies help to mitigate unconscious bias in hiring, encouraging a focus on what matters — candidates’ skills, experience, and education — rather than considering age, gender, race, sexual orientation, or disability status. The software suggests leads for open jobs, allowing recruiters to actively engage with candidates. This past year, Deere expanded the use of this software to look beyond early talent — Deere now uses it with all U.S.-based positions and will roll it out globally starting in 2023.

INVESTING IN FUTURE LEADERS
John Deere’s commitment to growing a diverse, engaged workforce requires helping communities thrive. And by targeting the structures that create systemic differences in opportunities, Deere can help address DEI at the root — beginning with students.

Increasing diversity in industries with historically low levels of underrepresented groups remains critical. Helping students from underrepresented groups cultivate the knowledge, interest, and skills early on can prepare them for careers in areas like STEM (science, technology, engineering, and mathematics), technical programs, and agriculture, boosting representation in the industry.

At the high school level, John Deere partnered with the Chicago High School for Agricultural Sciences (CHSAS) to award eight scholarships totaling $25,000 USD, supporting students from diverse backgrounds. This magnet high school provides a unique opportunity for students to pursue interests in agribusINESS and agriscience, solving a gap in the education system.

The CHSAS partnership also is focusing on providing impact through nonfinancial support. An AgTech Apprenticeship program is in development to provide students with future job-shadow and mentorship opportunities in the industry.

CHSAS Administrator Lucille T. Shaw said, “We are very thankful for John Deere and this initiative to bring real-life opportunities in the form of apprenticeship programs, job shadow, field trips, and classroom resources to underrepresented students. The perspective and advocacy they can add to the agriculture industry is invaluable. A diverse workforce promotes diverse ideas and problem solving to help support feeding growing populations.”

Since 2019, John Deere has participated in Department of Labor High School Registered Apprenticeship Programs providing paid work-based learning opportunities for students after they have completed their junior year. These programs have included providing work-based opportunities for welders, machinists, and IT software engineers. Appropriately, the industry has gone into further career opportunities at John Deere.

At the university level, John Deere invested in the future of the industry by supporting Native and Indigenous students in 2022. Along with the Native American Agriculture Fund, the Foundation for Food & Agriculture Research, and others, Deere’s financial support of $50,000 USD helped launch the Tribal Agriculture Fellowship (TAF). This singular program supports Native American, Alaska Native, and Native Hawaiian students pursuing degrees in agriculture. TAF selected its first class of 10 fellows in 2022. By supporting the next generation of indigenous agriculture leaders, Deere hopes to sustain the deep traditions of farming and ranching that have existed among Native and Indigenous people for millennia.
Fostering and Measuring Development

GLOBAL LEADERSHIP DEVELOPMENT

Equipping employees to lead where they are in the organization is essential to the company’s success. Equitable, scalable, and global leadership development solutions are available, including We Lead Monthly Development Series, John Deere Leadership Development Curriculum, and just-in-time resources on the John Deere Leader Portal. Additionally, targeted leadership development solutions are offered depending upon development need and audience. In 2022, Deere offered the McKinsey Management Accelerator Program, which features relevant content specifically for Black, Asian, and Hispanic emerging leaders.

Women leadership representation is vital to creating a more diverse, equitable, and inclusive workplace. Through initiatives such as Women Unlimited LEAD, IMPower, the Smith Senior Level Executive Program, and Leading Women Executives, women at Deere are receiving leadership development opportunities to help them to achieve success at all levels of the company.

The 23rd class of the Global Leadership Program (launched in September 2022) included seven executives who were selected for the program. In partnership with the Tuck School of Business, the consortium program provides John Deere executives the opportunity to learn from executives from noncompeting companies.

INTEGRATING DEI AND LEADERSHIP PRACTICES INTO PERFORMANCE MANAGEMENT

In 2022, John Deere introduced new “How We Work” expectations into its Global Performance Management process that define the standards of how employees collaborate with each other to deliver for those who depend on us. These new expectations embed DEI into every aspect of how John Deere does business by requiring everyone—from senior leaders to early career hires—to fully engage with and participate in activities that cultivate a culture where every voice is heard. DEI is a key driver of inclusion and a critical component of Deere’s Global DEI strategy. Deere’s 13 ERGs build organization-wide networks, enabling employees to come together.

This year, we expanded our ERGs to the U.S. production workforce to help ensure all our people experience opportunities to connect and benefit from the support offered by these networks.

Deere’s newest ERG, NBV — launched in November 2022 — aims to bring together Indigenous people and the John Deere employee community. Despite its recent launch, NBV has already identified important aspirations, such as celebrating Indigenous Peoples Day and other significant dates and building relationships with reservations to share farming practices, support STEM education, and build skills and knowledge.

The ABLEd ERG — focused on Advocacy Benefitting Leaders and Employees touched by Disabilities — held events focused on mental health and well-being. The events centered on suicide awareness and prevention. These sessions engaged 250 employees including 200 production workers.

INVESTING IN EMPLOYEES

John Deere offers robust training and innovative development opportunities so every employee can build a rewarding career and achieve their full potential.

Deere made a strategic investment in Compass, a groundbreaking talent experience program offering personalized, on-demand innovative learning resources. Today, salaried employees have access to over 100,000 learning opportunities and educational content. Employees can now learn on their terms, earn credentials, master in-demand skills, share content, and more. It is all designed to give employees a competitive edge for roles that fuel their passions as they grow at Deere.

Leveraging innovative technology to propel development, Deere piloted a virtual-reality learning platform to help mid-level managers become DEI champions. The program offered 65 participants an immersive learning experience to improve workplace equity and inclusion. The pilot’s indicators of success were stronger than the traditional e-learning or in-person classroom training, with 76 percent of participants reporting an increase in empathy, 73 percent reporting an increase in their ability to identify factors of inequity, and a record 72 percent reporting an increase in confidence to act. Due to the program’s success, Deere intends to expand it in 2023 by integrating it into the Leadership Development Suite through a new path called JD Learn Labs. Deere anticipates an additional 400 participants in 2023.

Deere launched an updated job swap program this year to provide further development opportunities across the company. This program enables employees to gain new skills and increase business acumen, and allows them to experience new responsibilities by exchanging positions with a colleague in the same salary grade. A job swap can broaden an employee’s responsibilities by exchanging positions with a colleague.

Building an Ecosystem Where Employees Thrive

EMPLOYEE RESOURCE GROUPS CONNECT EMPLOYEES

John Deere’s Employee Resource Groups (ERGs) are vital to fostering an inclusive culture. ERGs are a key driver of inclusion and a critical component of Deere’s Global DEI strategy. Deere’s 13 ERGs build organization-wide networks, enabling employees to come together.

For salaried employees, the introduction of Flex@Work in 2022 is John Deere’s commitment to providing a modern workplace experience. Depending upon the needs of the organization, salaried employees now have greater opportunities to pursue flexible schedules and work locations, a condensed workweek, fully remote work options, and job share opportunities. We believe this flexibility allows Deere to access and engage talent that may have been previously excluded.

In addition to flexibility, Deere also recognizes that having office locations in areas where diverse pools of talent want to live is an important part of talent engagement going forward. Collaboration and the ability to connect in person will continue to be critical for technological innovation. For this reason, Deere expanded its IT and technology footprint in the U.S. by opening a new office in the vibrant Fulton Market neighborhood just west of downtown Chicago and an innovation and collaboration hub Austin, Texas. These new locations build upon Deere’s initial footprint expansion that started in India, where an office was opened in Bangalore in 2010 to serve as a core IT hub for the company. These investments further strengthen Deere’s global tech leadership by enabling greater access to highly skilled talent.

At our factories, an employee-driven continuous improvement (CI) process has been part of the John Deere innovation culture for more than two decades. Over the past year, we created a standardized digital tool. Digital CI pilot teams were launched at three factories in Iowa — Des Moines, Ottumwa, and Davenport. During the pilots, our production and maintenance employees provided ongoing feedback indicating the tool elevated the employee experience through improved transparency, real-time data, and enabled project execution. It also provides more robust analytics.

“This year, we are not immune from statistics around brain health and suicide. Normalizing the conversation, talking openly about available resources, and supporting each other are critical to helping people see that things can get better. The ABLEd ERG has been a big win to enable these open discussions.”

MARY PAT TUBB
Factory Manager, Davenport Works
COLLECTIVE BARGAINING AGREEMENTS
Building the best equipment starts with having the best people.

In November 2022, Deere successfully negotiated a new six-year labor agreement with the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW), covering approximately 10,000 employees across several U.S. facilities.

In July 2022, a new four-year collective bargaining agreement was reached between the International Association of Machinists and Aerospace Workers (IAM) and Deere & Company. The vote was passed with an overwhelming majority of over 80 percent in favor of an employee “experience” survey in 2022.

In addition, an attrition risk dashboard and expanded demographic questions provide a better understanding around the various segments of the employee population, allowing for insights into similarities and differences of opinion.

The Employee Experience (EX) Index measured employees’ sense of their personal accomplishment, sense of belonging, feeling valued, and intent to remain with the company. Overall, Deere scored 75 percent for production employees on the EX Index, which was six points below the external global top-quartile benchmark.

Finally, to measure our attrition risk, we asked employees if they intended to stay with the organization for at least the next 12 months. All totaled, 84 percent of employees globally responded favorably to this question. For those employees who answered the question unfavorably, the top reason indicated for seeking employment elsewhere was for career/job opportunities for salaried employees and benefits/compensation for production employees.

“Together, Deere & Company and IAM have reached a collective bargaining agreement that provides economic progress for our employees, maintains John Deere’s competitiveness, and ensures Horicon Works employees will continue to produce products that contribute to the livelihoods of our customers and to the Horizon community,” Carol Lewis, vice president of Labor Relations, said.

“Together, Deere & Company and IAM have reached a collective bargaining agreement that provides economic progress for our employees, maintains John Deere’s competitiveness, and ensures Horicon Works employees will continue to produce products that contribute to the livelihoods of our customers and to the Horizon community.” Carol Lewis, vice president of Labor Relations, said.

See the 2021 Sustainability Report for more details on the UAW collective bargaining agreement.

BENEFITS THAT MEET THE NEEDS OF AN EVOLVING WORKFORCE
Deere is committed to providing comprehensive and competitive pay and benefits to its employees. Deere’s total rewards for global employees include a variety of components that aim to support sustainable employment and the ability to build strong financial futures.

Over the last several years Deere has expanded benefits and well-being initiatives in the U.S. and around the world.

Starting in June 2021, paid parental leave for birth or adoption was expanded to eight weeks for all parents. Infertility coverage and fertility solutions also were expanded in 2022 for salaried employees.

Starting in January 2023, expanded health care benefits are offered to same-sex and different-sex domestic partners of salaried employees, including benefits for children of domestic partners.

The Employee Assistance Program (EAP) increased the number of free counseling visits from five to eight, per incident, to all salaried employees and members, effective August 1, 2021. The EAP provides treatment and counseling sessions for a variety of needs, such as financial, mental health and well-being, grief, marriage, substance abuse, and crisis support. Deere facilities can also leverage over 50 courses from experts on topics ranging from suicide prevention and managing workplace stress to maintaining well-being during change.

In a continued effort to prioritize mental health, Deere has enrolled our occupational health teams, labor relations leaders, and designated UAW-represented production employees in the Mental Health First Aid training programs. The National Council for Mental Wellbeing teaches through the Mental Health First Aid program how to identify, understand, and respond to signs of mental health and substance abuse challenges. Deere has trained 61 employees in this program and has targeted training for 25 leaders at Horicon and Augusta scheduled for 2023.

Visit wellbeing.deere.com and deere.com for more details.
Aligning Values With External Actions

JOHN DEERE AND THE AKANA GROUP

In 2020, Deere entered into an authorized reseller agreement with The Akana Group, a Native American-owned small business enterprise. Through this agreement, The Akana Group purchases Deere equipment for resale to tribal entities and the U.S. government. Akana, which means “ally” in the Choctaw language, perfectly captures the commitment that The Akana Group brings to its work with Native American customers and communities, a commitment Deere proudly shares.

This commitment was fully on display in 2022 when Deere and The Akana Group hosted Chairman Timothy Rhodd and the Iowa Tribe Government. “Akana,” which means “ally” in the Choctaw language, the first Tribal leader hosted for a Gold Key Tour, Rhodd shared his track through technology, all of the different things we’re doing to its work with Native American customers and communities, Rhodd said, “We have smart farm initiatives, a lot of practices and Deere equipment for resale to tribal entities and the U.S. Federal government. We have a commitment Deere proudly shares.

In 2020, Deere entered into an authorized reseller agreement with The Akana Group, a Native American-owned small business enterprise in Kansas and Nebraska for a Gold Key Tour of the Harvester Works Factory. During Gold Key Tours, customers meet with the employees who designed and manufactured their machine, experience how their machine is actually made, and even start their machine at the end of the production line.

What makes these tours so special for Deere is the opportunity to honor and become inspired by our customers. In addition to being the first Tribal leader hosted for a Gold Key Tour, Rhodd shared his leadership in using Deere technology to drive agricultural practices. Rhodd said, “We have smart farm initiatives, a lot of practices and decisions that we’re making on our day-to-day operations are data driven, and that’s just one more piece of the puzzle that we can track through technology, all of the different things we’re doing across our land.”

Father’s Day 2023: Deere’s Pledge to Advance Life and Sustain the World

John Deere’s pledge to advance life and sustain the world for future generations to come holds true for its employees, customers, and communities. An example of how Deere lives this pledge is its continued commitment to Black Farmers through LEAP (Legislation, Education, Advocacy, and Production Systems), formed in 2020.

In November 2022, the Center for Heirs’ Property Preservation joined LEAP as its newest member. The Center provides legal education and direct legal services, helping families reach agreement or clear title to family land and probate estates. Having a clear title places full autonomy of the property in the farmer’s hands. For example, farmers can use the land to grow and sell timber and put the profits earned back into their land, themselves, and their families. They’re able to realize the true value of their farms — reestablishing a foundation for creating generational wealth.

"Land is the most valuable asset to a farmer. With Black farmers owning less than five million acres of land in the U.S., Deere’s resources will help families gain title to their land and create a legacy for the next generation."

THARLYN FOX
LEAP Manager

SPONSORING THE JUNETEENTH FREEDOM FESTIVAL

The John Deere sponsorship of the official Juneteenth Freedom Festival in Washington, D.C., offers another example of how we drive positive outcomes in communities. This year, Deere hosted a booth at the event’s virtual career fair. Our sponsorship allowed us to support students attending Historically Black Colleges and Universities through the Juneteenth Freedom Festival’s scholarship fund, while holding career development conversations with future leaders. As part of the sponsorship, $10,000 USD in scholarships were offered to three students.

In fiscal year 2022, we continued activities to improve our safety management and system tools. We updated our Health and Safety Audit Program to improve objectivity and increase our focus on in-country regulatory requirements. We expanded John Deere technical tools to include a new training registration system and a global system solution for identifying and tracking regulatory and John Deere requirements. We continue the use of a global platform for incident management for injury and near-miss tracking.

INDIA’S SELF-INTERLOCKING PALLET

Deere logistics and ergonomics team collaborated to successfully reduce the ergonomic strain employees were experiencing while preparing to ship cabs. The previous process to prepare the cabs for shipment could cause muscle fatigue or joint pain due to the 75 strikes per pallet to nail them to blocks and the harsh angle required for applying lashing belts.

The solution from the teams was a self-interlocking pallet, removing the need for nailing and lashing, thereby removing the source of ergonomic strain from the shipping process.

LEAP AMBITIONS

**LEAP AMBITIONS**

<table>
<thead>
<tr>
<th>Total Recordable Incident Rate (TRIR)</th>
<th>2021</th>
<th>2022</th>
<th>2026</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement in Total Recordable Incident Rate by 2026</td>
<td>1.98</td>
<td>2.18</td>
<td>1.58</td>
</tr>
</tbody>
</table>

*Rate is per 100 employees. Data associated with the operation of Unimil is not included in the reported 2021 metrics.

At John Deere, the safety and well-being of our people is a top priority. We made significant progress on implementing best practices and leading indicators for enhancing employee safety over recent years. However, in fiscal year 2022, Deere saw total recordable incidents rise due in part to the increased demand for products and resulting increased production workforce. We are committed to reducing our total recordable incident rate (TRIR) by 20 percent by 2026, with 2021 as our baseline. To improve our TRIR, we will prioritize risk and injury-reduction strategies, improved ergonomic programs, and additional focus on prevention through design.

Factory and large parts distribution centers have ergonomic and employee training programs in place that reduce common ergonomic risks that could impact TRIR. We also implemented ergonomic guidelines and standards to improve employee safety.

A tool John Deere utilizes to measure the level of implementation of ergonomic programs is the Ergonomic Program Scorecard. This tool allows each business to review their ergonomic programs and identify opportunities for improvement. In fiscal year 2022, 100 percent of manufacturing operations and large parts distribution centers completed this scorecard, and 71 percent have programs that can proactively identify and address risks.


**LEAP AMBITIONS**

**LEAP AMBITIONS**

<table>
<thead>
<tr>
<th>Total Recordable Incident Rate (TRIR)</th>
<th>2021</th>
<th>2022</th>
<th>2026</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement in Total Recordable Incident Rate by 2026</td>
<td>1.98</td>
<td>2.18</td>
<td>1.58</td>
</tr>
</tbody>
</table>

*Rate is per 100 employees. Data associated with the operation of Unimil is not included in the reported 2021 metrics.

In fiscal year 2022, we continued activities to improve our safety management and system tools. We updated our Health and Safety Audit Program to improve objectivity and increase our focus on in-country regulatory requirements. We expanded John Deere technical tools to include a new training registration system and a global system solution for identifying and tracking regulatory and John Deere requirements. We continue the use of a global platform for incident management for injury and near-miss tracking.
JOHN DEERE FOUNDATION FOCUSED ON ADDRESSING FOOD INSECURITY

Getting Food to the Hungry Takes a Global Approach

In the last 20 years, growers worldwide have increased primary crop productivity by more than 50 percent and meat production by 45 percent. Yet the number of people classified as hungry has grown by 150 million since 2019.1

So, how can producers keep pace? It’s a delicate problem where addition seems like the only solution. Yet solving the need to feed an ever-increasing global population may not be as obvious as growing more food.

That’s because solving a hunger crisis affecting more than 828 million people begins by dispelling a common misconception: People don’t experience hunger because the world’s growers don’t produce enough; they experience hunger because they don’t have equitable access to food.2 Gaining access can help solve hunger by reducing the waste associated with a lack of equitable food distribution channels.

According to the World Food Programme, one-third of all food grown globally is waste — roughly 1.3 billion tons worth about $1 trillion USD annually.3 That waste means we are feeding landfills instead of each other. Environmentally, it also means that food rot adds to increased carbon emissions.

By investing in food banks around the world, we create new distribution channels for food — said Laura Eberlin, global social responsibility lead at John Deere. “Food bankers optimize the large-scale delivery of vital nutrition from farmers, retailers, and others to those experiencing hunger. Food bankers and their agencies can save and rescue food and then tailor its distribution to meet the needs of their guests with the dignity they deserve.”

And it’s with that realization that nonprofit organizations like the Global Food Banking Network (GFN) and One Acre Fund continue to flourish. It’s also where the John Deere Foundation’s bold commitment of pledging to invest $200 million USD over 10 years makes a difference.

The foundation focuses its investments on three groups of people: marginalized families and youth in our home communities, smallholder and resource-constrained farmers, and the company’s workforce. The foundation also directs its work to helping achieve the United Nations Sustainable Development Goals, including “zero hunger” by 2030.4

This is why GFN helps by working in Deere home communities in Mexico and Argentina. Lisa Moore, GFN’s president and CEO, said GFN considers itself an “accelerator” for the process of distribution and works with local food banks in its network. In 2021, 39 million people, across 44 countries, relied on GFN member food banks for meals.5

Food bank networks can not only help recover food for hunger relief, but can also mitigate environmental impacts from food wasted. In 2021, food banks recovered 514,356 metric tons of wholesome, surplus food to feed 39 million people.6 These actions collectively mitigated 1.695 billion kilograms of CO2 emissions, which is equivalent to reducing emissions from more than 365,000 passenger vehicles.7

But it’s not only food banks that contribute to this acceleration. It’s the world’s farmers, too.

One Acre Fund, focused on helping smallholder farmers in nine African countries, has developed a powerful model that places “farmers first” through Financing, Farm input distribution, agricultural training, and post-harvest support.8

The organization has integrated sustainable and regenerative agricultural practices like crop diversification and cover cropping. Cover cropping is considered a form of regenerative agriculture aimed at improving soil health and increasing carbon capture.

One Acre Fund works with 1.4 million farmers directly and another 1.8 million indirectly. In 2021, client harvests fed 20 million people within the communities where they operate.9 In addition, farmers saw a 45 percent profit increase.10 This means an extra $104 USD a year of additional income10 in a region of the world where farm families live on less than $1 USD a day, putting them below the international poverty line.11 That increase can take farmers from the state of hunger to self-sufficiency to advancement and prosperity.

What makes One Acre Fund unique, Arun Pandey, global social responsibility lead for John Deere, said “is the scale and impact at which they operate.”

One Acre Fund works with 1/4 million farmers directly and another 1.8 million indirectly. In 2021, client harvests fed 20 million people within the communities where they operate. In addition, farmers saw a 45 percent profit increase. This means an extra $104 USD a year of additional income in a region of the world where farm families live on less than $1 USD a day, putting them below the international poverty line. That increase can take farmers from the state of hunger to self-sufficiency to advancement and prosperity.

Maria Teresa García Plata, director general for Bancos de Alimentos de México (BAMX), an organization which brings food banks around Mexico together, said her organization is working to “rescue more food from the value chain.”

“One of the reasons we cooperate with Alimentos de México is to help people in the most vulnerable situations,” she said. “Our work is not only about sharing food but also about sharing dignity and respect.”

In working with 53 food banks across Mexico, that means taking the food to where it’s needed most: so none of it is wasted.5

This is where GFN helps by working in Deere home communities in Mexico and Argentina. Lisa Moore, GFN’s president and CEO, said GFN considers itself an “accelerator” for the process of distribution and works with local food banks in its network. In 2021, 39 million people, across 44 countries, relied on GFN member food banks for meals.6

Food bank networks can not only help recover food for hunger relief, but can also mitigate environmental impacts from food wasted. In 2021, food banks recovered 514,356 metric tons of wholesome, surplus food to feed 39 million people.6 These actions collectively mitigated 1.695 billion kilograms of CO2 emissions, which is equivalent to reducing emissions from more than 365,000 passenger vehicles.7

But it’s not only food banks that contribute to this acceleration. It’s the world’s farmers, too.

One Acre Fund, focused on helping smallholder farmers in nine African countries, has developed a powerful model that places “farmers first” through Financing, Farm input distribution, agricultural training, and post-harvest support.8

The organization has integrated sustainable and regenerative agricultural practices like crop diversification and cover cropping. Cover cropping is considered a form of regenerative agriculture aimed at improving soil health and increasing carbon capture.

One Acre Fund is also scaling up an agroforestry platform to plant one billion trees in the coming decade.1 In 2021, the group enabled smallholders to plant 40 million trees.1 In addition to being a critical on-farm asset for smallholder farmers, trees also are an important carbon sink, helping to mitigate climate change.

What makes One Acre Fund unique, Arun Pandey, global social responsibility lead for John Deere, said “is the scale and impact at which they operate.”

One Acre Fund works with 1/4 million farmers directly and another 1.8 million indirectly. In 2021, client harvests fed 20 million people within the communities where they operate. In addition, farmers saw a 45 percent profit increase. This means an extra $104 USD a year of additional income in a region of the world where farm families live on less than $1 USD a day, putting them below the international poverty line. That increase can take farmers from the state of hunger to self-sufficiency to advancement and prosperity.

Maria Teresa García Plata, director general for Bancos de Alimentos de México (BAMX), an organization which brings food banks around Mexico together, said her organization is working to “rescue more food from the value chain.”

“One of the reasons we cooperate with Alimentos de México is to help people in the most vulnerable situations,” she said. “Our work is not only about sharing food but also about sharing dignity and respect.”

In working with 53 food banks across Mexico, that means taking the food to where it’s needed most: so none of it is wasted.5

This is where GFN helps by working in Deere home communities in Mexico and Argentina. Lisa Moore, GFN’s president and CEO, said GFN considers itself an “accelerator” for the process of distribution and works with local food banks in its network. In 2021, 39 million people, across 44 countries, relied on GFN member food banks for meals.6

Food bank networks can not only help recover food for hunger relief, but can also mitigate environmental impacts from food wasted. In 2021, food banks recovered 514,356 metric tons of wholesome, surplus food to feed 39 million people.6 These actions collectively mitigated 1.695 billion kilograms of CO2 emissions, which is equivalent to reducing emissions from more than 365,000 passenger vehicles.7

But it’s not only food banks that contribute to this acceleration. It’s the world’s farmers, too.

One Acre Fund, focused on helping smallholder farmers in nine African countries, has developed a powerful model that places “farmers first” through Financing, Farm input distribution, agricultural training, and post-harvest support.8

The organization has integrated sustainable and regenerative agricultural practices like crop diversification and cover cropping. Cover cropping is considered a form of regenerative agriculture aimed at improving soil health and increasing carbon capture.

One Acre Fund is also scaling up an agroforestry platform to plant one billion trees in the coming decade.1 In 2021, the group enabled smallholders to plant 40 million trees.1 In addition to being a critical on-farm asset for smallholder farmers, trees also are an important carbon sink, helping to mitigate climate change.

What makes One Acre Fund unique, Arun Pandey, global social responsibility lead for John Deere, said “is the scale and impact at which they operate.”

One Acre Fund works with 1/4 million farmers directly and another 1.8 million indirectly. In 2021, client harvests fed 20 million people within the communities where they operate. In addition, farmers saw a 45 percent profit increase. This means an extra $104 USD a year of additional income in a region of the world where farm families live on less than $1 USD a day, putting them below the international poverty line. That increase can take farmers from the state of hunger to self-sufficiency to advancement and prosperity.
The success of One Acre Fund helps prove what we’ve believed at John Deere all along,” Pandey said. “Farmers are critical to sustainable global development because they can create economic, social, and environmental benefits for the entire world.”

The John Deere Foundation proudly supports organizations like GFN, having donated over $2.3M USD in 2022 to feed banks around the world—helping to provide nearly 11.6 million meals—and by making a five-year, $5M USD commitment to One Acre Fund. “To make these donations even stronger, the foundation invests the vast majority of them either wholly unrestricted or for capacity building chosen by the nonprofit organization.”

This type of commitment has not gone unnoticed as The Civic 50, an initiative of Points of Light, recognized John Deere as one of the 50 most community-minded companies in the United States.

The impact and involvement also stretch beyond the foundation as John Deere’s workforce also gets involved in the hunger fight. In 2022, employees recorded 174,518 hours of volunteerism in their home communities.

In Zweibrücken, Germany, employees collaborated with the city of Zweibrücken to renovate apartments to house Ukrainian refugees. John Deere Iberica employees donated over $22,000 USD to the Red Cross to support refugees from Ukraine. In Italy, John Deere Italia provided truckloads of vital supplies. And John Deere Poland raised money and collected food, clothing, and hygiene products.

In addition, John Deere donated $100,000 to the HALO Trust, an organization that deploys specially equipped John Deere tractors to assist in clearing landmines and disposing of explosive ordinance in Ukraine. The John Deere Foundation bolstered these local efforts by immediately awarding $250,000 USD to the World Food Programme (WFP) when the conflict began to address the increasing impact on hunger in Ukraine and the surrounding region. It awarded another $1M USD to WFP later in 2022 to address the increasing impact on the conflict on hunger globally. Working with United Way Worldwide, the Foundation awarded an additional $1M USD to support organizations serving refugees in Poland and Germany.

“I have worked at John Deere for almost nine years. I could not believe our company would provide such care and support for each Deere employee and his or her family,” Romanuk said. “The Deere team led us through all required steps to settle in Germany for this period of time. Living in one location with John Deere Ukraine families helped us to create a little Ukrainian community in Mannheim.”

“Each step of the way, we have felt empathy and care from every one of our colleagues, and it is an experience we will never forget. For us, there is only hope — the end of war, all our family members are alive and healthy, and we are able to reunite in our homeland.”

RELIEF EFFORTS EXTENDED FAR BEYOND MANNHEIM

In Zweibrücken, Germany, employees collaborated with the city of Zweibrücken to renovate apartments to house Ukrainian refugees. John Deere Iberica employees donated over $22,000 USD to the Red Cross to support refugees from Ukraine. In Italy, John Deere Italia provided truckloads of vital supplies. And John Deere Poland raised money and collected food, clothing, and hygiene products.

In addition, John Deere donated $100,000 to the HALO Trust, an organization that deploys specially equipped John Deere tractors to assist in clearing landmines and disposing of explosive ordinance in Ukraine. The John Deere Foundation bolstered these local efforts by immediately awarding $250,000 USD to the World Food Programme (WFP) when the conflict began to address the increasing impact on hunger in Ukraine and the surrounding region. It awarded another $1M USD to WFP later in 2022 to address the increasing impact on the conflict on hunger globally. Working with United Way Worldwide, the Foundation awarded an additional $1M USD to support organizations serving refugees in Poland and Germany.

“I have worked at John Deere for almost nine years. I could not believe our company would provide such care and support for each Deere employee and his or her family,” Romanuk said. “The Deere team led us through all required steps to settle in Germany for this period of time. Living in one location with John Deere Ukraine families helped us to create a little Ukrainian community in Mannheim.”

“Each step of the way, we have felt empathy and care from every one of our colleagues, and it is an experience we will never forget. For us, there is only hope — the end of war, all our family members are alive and healthy, and we are able to reunite in our homeland.”

RELIEF EFFORTS EXTENDED FAR BEYOND MANNHEIM

In Zweibrücken, Germany, employees collaborated with the city of Zweibrücken to renovate apartments to house Ukrainian refugees. John Deere Iberica employees donated over $22,000 USD to the Red Cross to support refugees from Ukraine. In Italy, John Deere Italia provided truckloads of vital supplies. And John Deere Poland raised money and collected food, clothing, and hygiene products.

In addition, John Deere donated $100,000 to the HALO Trust, an organization that deploys specially equipped John Deere tractors to assist in clearing landmines and disposing of explosive ordinance in Ukraine. The John Deere Foundation bolstered these local efforts by immediately awarding $250,000 USD to the World Food Programme (WFP) when the conflict began to address the increasing impact on hunger in Ukraine and the surrounding region. It awarded another $1M USD to WFP later in 2022 to address the increasing impact on the conflict on hunger globally. Working with United Way Worldwide, the Foundation awarded an additional $1M USD to support organizations serving refugees in Poland and Germany.

“I have worked at John Deere for almost nine years. I could not believe our company would provide such care and support for each Deere employee and his or her family,” Romanuk said. “The Deere team led us through all required steps to settle in Germany for this period of time. Living in one location with John Deere Ukraine families helped us to create a little Ukrainian community in Mannheim.”

“Each step of the way, we have felt empathy and care from every one of our colleagues, and it is an experience we will never forget. For us, there is only hope — the end of war, all our family members are alive and healthy, and we are able to reunite in our homeland.”
Governance

OUR PRIORITIES

Engraining Environmental, Social, and Governance (ESG) principles into our business with our Leap Ambitions as the guide

Robust sustainability governance

Value chain and policy engagement as a critical tool for achieving our financial and sustainable outcomes

WHAT WE HAVE DONE

CREATED A CORPORATE SUSTAINABILITY DEPARTMENT

ISSUED JOHN DEERE’S FIRST SUSTAINABILITY-LINKED BOND

PARTNERED WITH THE HACKERONE PROGRAM ON CYBERSECURITY AND DATA PRIVACY RISK

UPDATED SUPPLY MANAGEMENT CODE OF CONDUCT TO INCORPORATE SUSTAINABILITY
The Deere & Company Board of Directors has oversight of sustainability and is responsible for aligning strategic priorities and ensuring environmental, social, and governance (ESG) principles are integrated throughout the enterprise.

The Corporate Governance Committee of the board reviews ESG topics on a quarterly basis. During 2022, the committee was briefed on strategic sustainability initiatives, performance on metrics and targets, the sustainability reporting roadmap, feedback from stakeholder engagement, and the landscape of shifting ESG expectations.

The full board of directors has oversight of the risks and opportunities associated with climate change and updates are provided to the board in alignment with Enterprise Risk Management processes. Additional detail about the board’s and the company’s governance of climate change can be found in our Task Force on Climate-related Financial Disclosures (TCFD) Report.

To enable and execute the Leap Ambitions, numerous teams and policies are in place to help ensure full organizational alignment. The Smart Industrial operating model continues to prioritize and aim to embed sustainability throughout worldwide business operations and further strengthens the company’s ability to successfully achieve ESG ambitions.

The Compensation Committee of the board is responsible for ensuring compensation is aligned with the strategic priorities, performance, and opportunities of the company. Throughout 2022, the committee was involved in understanding progress toward the John Deere Leap Ambitions and the priorities that we believe will move our business forward over the next decade.

To see more on Deere & Company Sustainability-linked Bond, see investor.deere.com

In April 2022, John Deere Capital Corporation issued $600M USD of sustainability-linked medium-term notes with an initial interest rate of 3.35 percent, which are due in 2029. This transaction supports the company’s commitment to environmental sustainability.

To see more on Deere & Company Sustainability-linked Bond, see investor.deere.com
John Deere Supply Management and Logistics teams continue to seek to meet customer needs through promoting sustainability and by furthering developments in technology and supplier relationships.

Aligned with the new Leap Ambitions, our updated strategic sourcing approach considers sustainability a key action area, balanced with ongoing expectations for quality, cost, and delivery. In fiscal year 2022, John Deere communicated its strategy to all suppliers in the John Deere Supplier Network (JDSN) platform. This strategy guides our search for supplier opportunities that further our 2030 goals — those relating to greenhouse gas (GHG) emissions reduction, increased use of sustainable materials, and recyclable materials. For fiscal years 2022 and 2023 we intend to collaborate with energy-intensive suppliers of key materials, beginning with steel, castings, rubber, glass, packaging, data centers, batteries, and power systems. Those materials are all tied directly to GHG emissions, waste intensity at facilities, and circularity of products.

Our supplier sustainability strategy encourages supplier engagement with EcoVadis. John Deere utilizes EcoVadis to assess suppliers in an objective and independent way. The assessment looks at corporate social responsibility, sustainability management systems, and identifies potential supplier contributions to sustainability as well as risks. Over 1,000 supplier locations have completed EcoVadis scorecards, helping Deere exceed the fiscal year 2022 goal to reach 1,000-plus suppliers engaged with sustainability assessments. These assessments have allowed Deere to develop a deeper understanding of suppliers’ current state, aspirations, and progress toward sustainable outcomes. This understanding unlocks key next steps to achieve the Leap Ambitions.

We updated the Supplier Code of Conduct to further engrain sustainability into our expectations and our suppliers’ commitments. Our enhanced sustainability expectations cover multiple areas, including the environment, labor and human rights, ethics, and sustainable procurement. Click here to view the Supplier Code of Conduct.

We continued to assess and advance supplier performance in areas like compliance and financial health. Our corrective-action process provides suppliers with opportunities for continuous improvement. John Deere manages risks associated with critical materials as well. For more information, refer to the Sustainability Accounting Standards Board (SASB).

DEERE’S COMMITMENT TO SUPPLIER DIVERSITY

In 2021, John Deere launched a supplier diversity strategy to generate economic value and create jobs by working with small and/or diverse suppliers, increasing competition and reducing risk to our supply chain, and fostering innovation and diversity of thought in our business and in the communities in which we live and work.

The core elements of the company’s supplier diversity strategy include the following goals to be achieved by 2025:

<table>
<thead>
<tr>
<th>Supplier Diversity Strategy Goals*</th>
<th>2022</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women-owned business sourcing</td>
<td>$688M USD</td>
<td>$81M USD</td>
</tr>
<tr>
<td>Minority-owned business sourcing</td>
<td>$299M USD</td>
<td>$500M USD</td>
</tr>
</tbody>
</table>

*Supplier goal includes all U.S.-based suppliers for indirect, direct, logistics, and aftermarket.

In 2022, Deere became the lead investor to Advantage Capital’s Empower the Change Fund through an $11-million USD commitment. The Empower the Change Fund seeks to invest in minority business enterprises that have demonstrated a proven ability to scale, generate return for investors, and create wealth opportunities for entrepreneurs and employees. The fund targets investments in lower middle market companies and small businesses whose main limitation for growth and increased profitability is access to capital. By doing so, the fund seeks to enable underserved communities and businesses to create jobs and positive economic outcomes.

In addition, Deere participated in numerous events with sponsors such as the National Minority Supplier Development Council, through whom Deere engaged with more than 500 minority-owned businesses and businesses located in historically underutilized business zones. The company intends to continue to engage with diverse suppliers to meet or exceed the 2025 supplier diversity strategy ambitions.
As data and connectivity become a greater part of our work at John Deere and in our customers’ operations, we continue to dedicate cybersecurity teams around the globe who are committed to helping protect our customers, dealers, products, and infrastructure.

To learn more about Deere’s approach to digital security click here.

Our Audit Review Committee and Corporate Governance Committee provide board oversight of our cybersecurity and data privacy programs. Information on the latest cybersecurity trends, strategic initiatives, and metrics are presented quarterly. Our Digital Risk Governance Council and Executive Business Conduct Council provide senior leadership oversight on information security governance, data governance, digital risk management, and privacy.

We leverage the National Institute of Standards and Technology (NIST) Cybersecurity Framework as the foundational building block of our global information security program. We work with third parties to assess the maturity of our program in the NIST Cybersecurity Framework and develop strategic areas of focus from those assessments.

Building a companywide culture of cybersecurity starts with cybersecurity education. Our goal is to teach employees about key security concepts, trends, and the role each employee plays in helping to prevent cyberattacks. Our methods include mandatory training, phishing simulations, newsletters, and educational events.

Another key part of Deere’s cybersecurity culture is the Security by Design program. It combines people, processes, and technologies to integrate security concepts throughout the product development lifecycle. Our cybersecurity professionals partner with software engineers in the development process and use technologies, such as code scanning, to enhance security.

John Deere also takes care to respect people’s privacy in handling personal data. Our data privacy program is structured to monitor and adapt to comply with changes in global privacy laws and regulations. To learn more about our privacy practices click here.

While the European General Data Protection Regulation and other laws have brought increased requirements and general awareness to privacy, we have long focused on ensuring the responsible use of personal data. John Deere maintains its European Binding Corporate Rules, often considered the global gold standard for the transfer and processing of European personal data. Reflecting our commitment to privacy, we routinely submit significant parts of our global privacy program to European regulators for review, as appropriate.

The Center for Global Business Conduct provides ongoing education and training to help ensure compliance with laws and regulations.

The Code of Business Conduct and our framework of global ethics and compliance policies serve as the foundation for our compliance program and culture. The Supplier Code of Conduct and the Dealer Code of Conduct clarify the expectations Deere has for suppliers and dealers to conduct business in an ethical, compliant manner.

Deere’s compliance training program includes a robust curriculum for newly hired employees, as well as regular, periodic training on a rotating list of topics for all employees. Training topics are defined by balancing data from our compliance program and enterprise risk management with legal and regulatory requirements. Training provided in 2022 included, but was not limited to, the following topics: cybersecurity, data privacy and protection, workplace and sexual harassment, Code of Business Conduct, and trade sanctions. Training material is translated into as many as 20 languages and generally delivered and tracked through an online learning management system.

Outreach to employees is an important element of our compliance program, led by compliance team members embedded in key geographies. Deere makes a concerted effort to connect with employees around the world through compliance networks, Employee Resource Groups, and global events, such as our Compliance Week 2022. The week kicked off with a conversation between the Chairman & CEO and Vice President & Chief Compliance Officer. Throughout the week, employees had opportunities to attend various discussion groups hosted by compliance team members around the world, often in local time zones and languages. These discussion groups featured recent compliance-related case studies or articles for employees to read and discuss. The week also included several email outreach efforts featuring real hotline cases from within the company.

The John Deere compliance hotline is operated by an independent company and is available to receive confidential reports from anyone within or outside the company. To access country-specific hotline information, employees can view the posters on display at each company location or visit the John Deere intranet. The John Deere Compliance Hotline website is listed in the Code of Business Conduct, the Dealer Code of Conduct, and the Supplier Code of Conduct.

Creating more transparency around our reporting and investigating processes has been an ongoing effort. In 2022, in addition to sharing real hotline cases through email and in our monthly e-newsletter, we launched a podcast series featuring lessons learned from hotline cases. In each episode, a compliance team member interviews a member of our investigations team about a recent, fully anonymized case. We also feature a senior leader speaking directly to the topics raised in the investigation and their personal commitment to ethics and compliance. Each episode reiterates the company commitment to non-retaliation.

The John Deere compliance hotline is operated by an independent company and is available to receive confidential reports from anyone within or outside the company. To access country-specific hotline information, employees can view the posters on display at each company location or visit the John Deere intranet. The John Deere Compliance Hotline website is listed in the Code of Business Conduct, the Dealer Code of Conduct, and the Supplier Code of Conduct.
At John Deere, we honor human rights and respect the individual dignity of all people. Our commitment to human rights requires that we understand and carry out our responsibilities consistent with company values and practices upheld for all employees and workers in our value chain. We strive to ensure that human rights are upheld for our employees and all workers in our value chain. Our commitment to respecting human rights is defined in our Code of Business Conduct, Supplier Code of Conduct, Dealer Code of Conduct, and John Deere’s Support of Human Rights in Our Business Practices. These codes establish clear guidelines for our employees and suppliers, while helping to inform our business decisions. Deere closely monitors and assesses global human rights-related risks and developments. Deere develops region- or location-specific guidance and processes as appropriate to address human rights risks in those areas.

John Deere employees have a responsibility to uphold the standards of honor and integrity in the Code of Business Conduct. All employees are required to review the code and incorporate it into their work and behavior. To foster an inclusive workplace, the code provides guidance on creating an environment that promotes mutual respect and acceptance. It also discusses how to maintain a high level of integrity when working with customers and suppliers. When choosing suppliers as appropriate, we seek to engage with those who comply with laws and uphold values aligned with our own. Our employees regularly discuss the Supplier Code of Conduct with suppliers, and most supplier contracts require adherence to the Supplier Code of Conduct. This code addresses the following key areas: labor and human rights, health and safety, environment, and ethics. Deere uses these results in our procurement processes and sourcing decisions as appropriate. Deere uses the results of these assessments in our procurement processes and sourcing decisions as appropriate. The company conducts periodic audits of its suppliers to assess risk.

As the face of the brand to our customers, our dealers, distributors, and their sub-dealers (collectively, dealers) are expected or required to commit to conducting business ethically and in compliance with all applicable laws. Like the other codes, the Dealer Code of Conduct covers many topics, including labor, human rights, health and safety, environment, and ethics.

Because we believe corporate governance is integral to creating long-term shareholder value, our board of directors has adopted companywide corporate governance policies that are periodically reviewed and revised to ensure that they reflect the board’s corporate governance objectives. These policies, along with the company’s Code of Business Conduct and other work-specific policies, establish the framework by which we seek to conduct ourselves and our global business in compliance with the law and by which we affirm our commitment to integrity in everything we do.

This policy sets forth our commitment to conducting worldwide business operations in a manner that complies with applicable laws and regulations regarding conflict minerals.

This code requires that all our suppliers conduct business with a high degree of integrity and in a socially and environmentally responsible manner.

This guidance outlines how John Deere strives to ensure that human rights are upheld for our employees and all workers in our supply chain.
At John Deere, we believe that participating in democratic political processes around the world and advocating for public policies that permit us to compete fairly and freely in the marketplace are vitally important to all our stakeholders. In whatever form it might take, our engagement in the political process is grounded in and guided by our firm commitment to strong corporate governance and global corporate citizenship.

John Deere engages in public policy advocacy around the world to understand the responsibilities of a global business to participate in our communities. We engage in public policies such as trade, agricultural and infrastructure development, and regulations to help shape the policies that allow Deere to operate around the world. We seek to promote policies that provide solutions to food security, rural broadband, rapid adoption of precision technologies, multifaceted infrastructure, renewable fuels and alternative power, and tax and financing access that impacts our customers, among other policies. As part of these efforts, we engage with trade organizations, non-governmental organizations (NGO), and associations as well as participate in public-private partnerships, to reach global audiences and policymakers.

U.S. POLITICAL CONTRIBUTIONS

In compliance with U.S. federal and state election laws, John Deere administers the John Deere Political Action Committee (JDPAC), a voluntary, non-vested, non-employee, non-profit, not-for-profit organization comprised of U.S. employees. JDPAC members voluntarily pool their personal financial contributions to support federal and state office candidates who understand and support the business interests of our company, customers, employees, and stakeholders. Under federal law and company policy, participation in JDPAC is limited to eligible, salaried U.S. employees.

Except for administrative expenses, JDPAC is funded solely by the voluntary contributions of John Deere employees and is not supported by funds from John Deere itself. The company does not reimburse employees directly or indirectly for political contributions, including contributions to JDPAC.

Oversight of JDPAC’s contributions and related activities is governed by its board, comprised of 13 John Deere employees from throughout our various business units. JDPAC does not engage in legislative matters or lobbying activity. Further, JDPAC does not seek to influence any particular vote through contributions.

JDPAC fully discloses all contributions made and received through reports filed with the Federal Election Commission and various state ethics commissions, as required by law. For transparency, John Deere posts an annual report on our website summarizing JDPAC contributions made in the most recent calendar year or election cycle, categorized by state, candidate, and amount. To view the annual report for the 2021–2022 election cycle, please click here.

John Deere complies with federal, state, and local campaign finance laws and regulations governing political contributions, controls over the use of funds, and the disclosure of these contributions. Consistent with U.S. federal law, John Deere does not contribute corporate funds to federal candidates, national party committees, or other federal political committees. For example, when permitted by applicable law in connection with certain state and local elections, we do not make contributions to or support or oppose any candidate for political office or ballot measure. The company does, however, reserve the right to make exceptions to this practice so long as any contribution we make is consistent with our public policy agenda, in accordance with our Code of Ethics, Conduct, and previously approved by our relevant leadership.

John Deere does not pay for any independent expenditures or electronecizing communications, as those terms are defined by applicable law. Moreover, John Deere did not make any political expenditures out of corporate assets in the 2020 and 2021 calendar years. In the interest of transparency for our shareholders and other stakeholders, we publicly disclose and annually update our corporate contributions to associations for advocacy purposes. John Deere belongs to several trade and industry associations and pays regular dues to these groups. We participate in trade associations in part to join other like-minded companies in engaging in public education and advocacy efforts regarding major issues of common concern to our industries.

Our participation in trade associations is subject to management approval and oversight. We publicly disclose and annually update a list of the trade associations to which John Deere pays dues or makes other contributions of $50,000 USD or more, as well as the portions of such dues or payments that are not deductible under Section 162(e)(1) of the Internal Revenue Code. To view the 2022 report for U.S. trade association memberships and expenditures, please click here.

Safe Harbor Statement under the Private Securities Litigation Reform Act of 1995:
Statements in this report that relate to future events, expectations, and trends involve factors that are subject to change and therefore may differ materially from our historical experience and our current expectations and anticipated results. Forward-looking statements are neither historical facts nor at the control of the company. When used in this report, the words “may,” “could,” “anticipates,” “targets,” “plan,” “continue,” “goal,” “commit,” “believes,” “subject,” “extend,” “estimate,” “believe,” “expect,” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain such words. Forward-looking statements are a reflection of our current expectations and could result in actual results that differ materially from our historical experience and our present expectations or anticipated results. Forward-looking statements are neither historical facts nor are they intended to be warrants or guarantees as to performance, results, or outcomes. Instead, they are based only on the company’s current beliefs, expectations, and assumptions regarding the future of its business, strategic objectives, projections, anticipated economic changes and trends, and other conditions. Forward-looking statements in this report may include, but are not limited to, estimates of addressable market size statements regarding the market potential, market forecasts, market growth estimates, design that optimize performance outcomes for customers, business impacts regarding energy, water, and emissions; and the development of mechanisms for tracking sustainability metrics. Important factors that could cause actual results to differ materially from those indicated in the forward-looking statements include, among others, the following: (i) compliance with and changes in laws, government regulations, including health, safety, and human rights laws, including emissions and noise regulations, and other applicable laws; (ii) design or development of innovations and new designs, including capacity, and supply constraints and prices; (iii) availability and price of raw materials, components, and whole goods; (iv) attracting, developing, engaging, and retaining qualified employees; (v) weather conditions and natural calamities; (vi) availability of enabling technologies, including GPS and radio-frequency spectrum; (vii) network security vulnerabilities and the ability to protect our systems and information from cyber-attack and other security breaches; (viii) privacy and data protection laws and regulations; (ix) natural and regional and weather events; (x) public policy, (xi) governmental banking, monetary, and fiscal policies; (xii) global tax laws, (xiii) demand for and food and bioenergy impacting farm commodity pricing and demand for the company’s products; (xiv) global political, economic, and social events and uncertainty; (xv) competitors’ actions and competitive pressures; (xvi) adapting products to customer preference around the world; (xvii) infringement of the company’s intellectual property rights; (xviii) weak economic environment; demand for and limited access to funding and higher funding costs; (xix) ability to realize the anticipated benefits of our business strategies, including acquisitions, joint-ventures, divestitures, or at our product or efficiency initiatives; (xx) general global macroeconomic conditions, including volatility and growth or recession; (xxi) higher interest rates, and currency fluctuations. The company, except as may be required by law, undertakes no obligation to update or revise any forward-looking statements, whether as a result of new developments or otherwise. The forward-looking statements speak only as of the date of this report, and the company does not intend to update those statements or comments related to the statements on or after that date except as may be required by law. Any forward-looking statement speaks only as of the date of this report and the company does not undertake any obligation to update any of the forward-looking statements, or otherwise. The forward-looking statements speak only as of the date of this report, and the company does not intend to update those statements or comments related to the statements on or after that date except as may be required by law. Any forward-looking statement speaks only as of the date of this report, and the company does not undertake any obligation to update those statements or comments related to the statements on or after that date except as may be required by law.

The forward-looking statements described in this report are the company’s intentions as of the date of this report and the company reserves the right to change any of these statements, without notice, at any time and in Deere’s sole discretion.

In whatever form it might take, our engagement in the political process is grounded in and guided by our firm commitment to strong corporate governance and global corporate citizenship. At John Deere, we believe that participating in democratic political processes around the world and advocating for public policies that permit us to compete fairly and freely in the marketplace are vitally important to all our stakeholders. In whatever form it might take, our engagement in the political process is grounded in and guided by our firm commitment to strong corporate governance and global corporate citizenship.

John Deere systems, products, and brands are protected by intellectual property that is subject to the laws of the United States and other countries. John Deere’s intellectual property includes trademarks, trade names, service marks, patents, designations of origin, and other forms of intellectual property protection. Deere is not under any obligation to update or keep current the information contained herein. Statistics and metrics relating to ESG matters are estimates and may be based on assumptions or historical trends, and may be based on models or other estimates or projections. Certain information contained herein has been obtained from third parties, and in certain cases has not been updated through the date hereof.

We have not independently verified the data from these third-party sources in every instance and make no representation with regard to the veracity of third-party data, unless explicitly otherwise indicated. While these third-party sources are believed to be reliable, we make no representation or warranty, express or implied, regarding the accuracy, completeness or reliability of any of the information contained herein, and we expressly disclaim any representation, warranty, or liability for any reliance on the accuracy or completeness of any of the information contained herein or for any or all of the information contained therein.

The information contained herein is only as current as the date indicated and may be superseded by subsequent market events or for other reasons. Deere is not under any obligation to update or keep current the information contained herein. Statistics and metrics relating to ESG matters are estimates and may be based on assumptions or historical trends, and may be based on models or other estimates or projections. Certain information contained herein has been obtained from third parties, and in certain cases has not been updated through the date hereof.

Deere is not under any obligation to update or keep current the information contained herein. Statistics and metrics relating to ESG matters are estimates and may be based on assumptions or historical trends, and may be based on models or other estimates or projections. Certain information contained herein has been obtained from third parties, and in certain cases has not been updated through the date hereof.
### ENVIRONMENTAL

<table>
<thead>
<tr>
<th>Metric</th>
<th>2022</th>
<th>2021</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Consumption (GJ) 1,2</td>
<td>13,770,000</td>
<td>12,890,000</td>
<td>11,806,000</td>
</tr>
<tr>
<td>% Renewable Electricity 1,2</td>
<td>58.9%</td>
<td>40.5%</td>
<td>29.2%</td>
</tr>
<tr>
<td>Scope 1 Emissions (metric tons CO₂e) 1,2</td>
<td>418,200</td>
<td>403,300</td>
<td>343,500</td>
</tr>
<tr>
<td>Scope 2 (market-based) Emissions (metric tons CO₂e) 1,2</td>
<td>298,500</td>
<td>407,700</td>
<td>491,000</td>
</tr>
<tr>
<td>Scope 3 Emissions (metric tons CO₂e) 1,3,4</td>
<td>92,353,000</td>
<td>100,456,000</td>
<td>—</td>
</tr>
<tr>
<td>Category 7a</td>
<td>7,461,000</td>
<td>7,336,000</td>
<td>—</td>
</tr>
<tr>
<td>Category 7a b</td>
<td>8,990,000</td>
<td>9,031,000</td>
<td>—</td>
</tr>
<tr>
<td>Water Consumption (megaliters) 5</td>
<td>23,900</td>
<td>23,900</td>
<td>20,246</td>
</tr>
<tr>
<td>% of Waste Recycled</td>
<td>84%</td>
<td>83%</td>
<td>78%</td>
</tr>
<tr>
<td>Total Waste (metric tons)</td>
<td>143,200</td>
<td>117,200</td>
<td>88,222</td>
</tr>
<tr>
<td>Hazardous Waste (metric tons)</td>
<td>14,900</td>
<td>11,600</td>
<td>7,399</td>
</tr>
<tr>
<td>Non-Hazardous Waste (metric tons)</td>
<td>128,300</td>
<td>105,600</td>
<td>—</td>
</tr>
<tr>
<td># of ISO14001 Manufacturing Sites Certified</td>
<td>52</td>
<td>35</td>
<td>13</td>
</tr>
</tbody>
</table>

1. Apex Companies, LLC has verified greenhouse gas (GHG) emissions data in accordance with the ISO 14064-3: Greenhouse gases — Part 3: Specification with guidance for the validation and verification of GHG statements assurance standard and water and waste data in accordance with the ISAE 3000 Revised, Assurance Engagements Other than Audits or Reviews of Historical Financial Information assurance standard.
2. Data associated with the operation of Unimil is not included in the reported 2021 metrics. Data associated with the operation of Unimil, PLA Holding Netherlands B.V., Mazzotti S.r.l., and King Agro Europe, S.L., and their related subsidiaries, and the Wirtgen Group entities are not included in the reported 2020.
3. Manufacturing correlates to definition in our Form 10-K; Wirtgen Group entities are not included in the reported 2020 metrics.

### SOCIAL

<table>
<thead>
<tr>
<th>Metric</th>
<th>2022</th>
<th>2021</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Employees</td>
<td>82,200</td>
<td>75,600</td>
<td>69,600</td>
</tr>
<tr>
<td>% of Part-Time Student and Student Employees</td>
<td>2.1%</td>
<td>1.9%</td>
<td>1.4%</td>
</tr>
<tr>
<td>% of Women in Revenue-Generating Positions</td>
<td>18.2%</td>
<td>17.3%</td>
<td>—</td>
</tr>
<tr>
<td>% of Women in STEM-Related Positions</td>
<td>15.2%</td>
<td>17.3%</td>
<td>—</td>
</tr>
<tr>
<td>Global Production Employees Covered by Collective Agreements</td>
<td>84.4%</td>
<td>91.7%</td>
<td>—</td>
</tr>
<tr>
<td>Turnover Rate Overall 8-10</td>
<td>13%</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Voluntary Turnover Rate Production 8-10</td>
<td>6.0%</td>
<td>7.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Voluntary Turnover Rate — Salaried 8-10</td>
<td>5.7%</td>
<td>5.4%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Training Hours per FTE 8-10</td>
<td>21.1</td>
<td>19.5</td>
<td>19.8</td>
</tr>
<tr>
<td>Total Recordable Incident Rate 8-10</td>
<td>2.18</td>
<td>1.98</td>
<td>1.32</td>
</tr>
<tr>
<td>Lost Time Frequency Rate 8-10</td>
<td>0.67</td>
<td>0.78</td>
<td>0.32</td>
</tr>
<tr>
<td>Near Miss Frequency Rate 8-10</td>
<td>12.9%</td>
<td>11.96</td>
<td>15.03</td>
</tr>
<tr>
<td>Fatality Rate 8-10</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>% of ISO9001 Manufacturing Sites Certified</td>
<td>49%</td>
<td>48%</td>
<td>44%</td>
</tr>
<tr>
<td># of Suppliers</td>
<td>4147</td>
<td>4,457</td>
<td>4,533</td>
</tr>
<tr>
<td># of Supplier Audits</td>
<td>936</td>
<td>880</td>
<td>402</td>
</tr>
</tbody>
</table>

1. Metric is based upon data availability and accounts for approximately 86 percent of total Deere employees.
2. Data is associated with the average of Deere’s employees over a 12-month fiscal year period.
3. Data includes all separations (retirements, involuntary, and voluntary).
4. Global salaried employees only.
5. Rate is per 100 employees. Data associated with the operation of Unimil is not included in the reported 2021 metrics. Data associated with the operation of Unimil, PLA Holding Netherlands B.V., and King Agro Europe, S.L., and their related subsidiaries, Mazzotti S.r.l., and the Wirtgen Group entities are not included in the reported 2020 metrics.
6. Rate is per 100 employees. Data associated with the operation of Wirtgen Group and entities is not included in the 2022, 2021, and 2020 metrics. Data associated with the operation of Unimil, PLA Holding Netherlands B.V., and King Agro Europe, S.L., and their related subsidiaries, Mazzotti S.r.l., are not included in the 2020 metrics.
7. Manufacturing correlates to definition in our Form 10-K; Wirtgen Group entities are not included in the reported 2020 metrics.

### GOVERNANCE

<table>
<thead>
<tr>
<th>Metric</th>
<th>2022</th>
<th>2021</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Compliance Training Course Completed</td>
<td>302,983</td>
<td>279,147</td>
<td>247,899</td>
</tr>
<tr>
<td># of Suppliers</td>
<td>4147</td>
<td>4,457</td>
<td>4,533</td>
</tr>
<tr>
<td># of Supplier Audits</td>
<td>936</td>
<td>880</td>
<td>402</td>
</tr>
</tbody>
</table>

1. Data includes direct, logistics, and aftermarket Deere suppliers. Data does not account for any Deere acquisitions.
2022 DIVERSITY KEY

GENDER2
- Female (F)
- Male (M)
- Undisclosed (U)

RACE AND ETHNICITY2,3
- American Indian or Alaska Native (AI/AN)
- Asian (AS)
- Black or African American (B/AA)
- Hispanic or Latino (H/L)
- Multiple Races (MR)
- Native Hawaiian or Pacific Islander (NH/PI)
- White (W)
- Undisclosed (U)

1 Metrics are calculated on the basis of the 11 members of the Board of Directors as of October 31, 2022.
2 Metric is based upon data availability and accounts for approximately 86 percent of total Deere employees.
3 U.S. employees only

For more diversity statistics see the 2020 Sustainability Report and the 2021 Sustainability Report.

AGE DIVERSITY <30 30–50 50<
2022 Overall Age Diversity2 25.0% 58.4% 16.6%

For more diversity statistics see the 2020 Sustainability Report and the 2021 Sustainability Report.
2022 AWARDS

AE50 Awards
1775NT Planter
C770 Cotton Harvesters
HDF Hinged Frame Flexible Cutterbar Draper
Integrated ExactRate™ Liquid Fertilizer System
MY22 9 Series Tractors
Quick Change Blade feature for ProSeries™ Opener
See & Spray™ Select
W200 Series Self-Propelled Windrowers and Platforms
ASABE

Inclusive Employer Award — John Deere Limited
Australia Inclusive Employers Index

Bronze Top Employer
India Workplace Equality Index

CES® 2022 Innovation Awards — Best in Innovation Honoree
Robotics
Vehicle Intelligence & Transportation
Consumer Technology Association

CES® 2023 Innovation Awards
Robotics
Vehicle Intelligence & Transportation
Consumer Technology Association

CIVIC 50
Points of Light

DesignEuropa Industry Award Finalist
European Union Intellectual Property Office

Germany’s Top Employer in Mechanical and Plant Engineering Industry
Germany Focus Magazine

Show Me Service — Business Excellence for John Deere Reman, Springfield
Missouri Community Service Commission

Top 50 Inclusive Brands
DEI National Convention

Top Employer Spain
Top Employers Institute

World’s Most Ethical Companies
Ethisphere