FARM FOUNDATION® FORUM
DEFINING SUSTAINABILITY: INDUSTRY LEADERS ON ACTIONABLE GOALS
DECEMBER 12, 2023

Today’s webinar is made possible by a grant from Farm Credit

#FarmFoundationForum
MARTHA KING

Vice President, Programs and Projects
Farm Foundation
MEET FARM FOUNDATION

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Farm Foundation is an **ACCELERATOR** of practical solutions for agriculture.

We accelerate **PEOPLE AND IDEAS** into **ACTION**.
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GUIDE OUR WORK

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To build trust and understanding at the intersections of agriculture and society.

VISION:
To build a future for farmers, our communities, and our world.
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Submit questions by clicking on the **Q&A Button** at the bottom of your screen.

Please **include your name and company** so questions may be contextually understood.

Due to **time limits**, we may not be able to ask all questions submitted.

This Forum is being recorded and will be posted on our website at [farmfoundation.org](http://farmfoundation.org) as well as the Farm Foundation [YouTube](https://www.youtube.com) channel.

Please take the **short survey** at the conclusion of the Forum.
FARM FOUNDATION® FORUM
DEFINING SUSTAINABILITY: INDUSTRY LEADERS ON ACTIONABLE GOALS

NOVEMBER 12, 2023

Today’s webinar is made possible by a grant from Farm Credit

#FarmFoundationForum
TREY MALONE, PH.D. - MODERATOR
Assistant Professor, Department of Agricultural Economics and Agribusiness, University of Arkansas
Farm Foundation Agricultural Economics Fellow
Australian Agricultural Sustainability Framework

Demonstrating the economic, environmental and social sustainability of Australian agriculture
AASF PRINCIPLE

P1: Net anthropogenic emissions are limited to minimise climate change

Criteria 1: GHG emissions are reduced throughout lifecycle
Criteria 2: Carbon emissions are sequestered throughout lifecycle
Criteria 3: Where necessary (if C1 & C2 are impracticable) GHG emissions are offset throughout lifecycle by purchasing recognised credits or participating in recognised projects

### Indicators & Metrics

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Progress</th>
<th>Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net industry emissions</td>
<td>🙂</td>
<td>✔</td>
</tr>
<tr>
<td>Industry emissions intensity</td>
<td>�.hasMore</td>
<td>❌</td>
</tr>
<tr>
<td>Share of energy from renewables</td>
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<td>❌</td>
</tr>
<tr>
<td>Emissions per kg liveweight livestock</td>
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<tr>
<td>Emissions per tonne Hot Standard Carcase Weight (HSCW) livestock</td>
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<tr>
<td>Carbon sequestration in on-farm vegetation per area</td>
<td>🱹</td>
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</tr>
<tr>
<td>Nitrous oxide emissions</td>
<td>🌄</td>
<td>✔</td>
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</table>

### Progress Reporting

- **Moving in a positive direction**: Good access to multiple sets of robust data
- **Neutral / stayed about the same**: Reasonable access to some reliable data
- **Moving in a negative direction**: Limited access to some sets of unverified data
- **Unable to report**: Insufficient data

### Key: graphics & terms

- **Principles**: are overarching statements about a desired outcome.
- **Criteria**: are conditions to be met to comply with a principle.
- **Indicators* & Metrics***: are measurable states enabling assessment whether criteria have been met. They are measures of quantitative assessment which provide context via comparative data.
- **Measures**: are non-contextual numbers, figures, descriptions (i.e. data)

*NB: these two terms are often interchangeable*
Examples of progress

- Australian beef industry **reduced net emissions (CO2e) 64.1%** 2005 > 2020
- Sheep meat & wool emissions intensity **reduced by 9%** 2005 > 2020
- Aust. dairy industry **reduced emissions intensity 23.5%** 2010 > 2020
- Emissions from production / distribution of Aust. wines **reduced by 10%** 2016 > 2022


![Graph showing emissions by economic sector](image-url)

**AGRICULTURE, FORESTRY & FISHING**

**INDICATOR** | **DATA**  | **TREND**
--- | --- | ---
1.1 Percentage total CO₂e reduced by beef industry from a 2005 baseline | 64.07% (2020) | ![trend symbol] (improving)
1.2 Net emissions: Mt of CO₂e emitted by the beef industry | 45.21 (2020) | ![trend symbol] (stable)
1.3 kg CO₂e emitted per kg liveweight when raising beef | 13.1 (2020) | ![trend symbol] (improving)
1.4 kg CO₂e emitted per tonne HSCW when processing beef | 47.6 (2023) | ![trend symbol] (improving)
1.5 Percentage CO₂e captured and reused in processing | 10.0% (2022) | ![trend symbol] (stagnating)
1.6 Carbon sequestered in on-farm vegetation (Mt CO₂e) | 28.42 (2020) | ![trend symbol] (improving)

**GHG emissions over the life cycle of Australian wine delivered to domestic and export markets, 2016-2022. Source: AWRI**

- Australian beef industry GHG Emissions & Carbon Capture report.
  Source: Australian Beef Sustainability Framework 2023 Annual Update
**AASF PRINCIPLE 1**

**P1: Net anthropogenic emissions are limited to minimise climate change**

**Criteria 1:** GHG emissions are reduced throughout lifecycle

**Criteria 2:** Carbon emissions are sequestered throughout lifecycle

**Criteria 3:** Where necessary ... GHG emissions are offset throughout lifecycle by purchasing recognised credits or participating in recognised projects

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Sources</th>
<th>Indicator Alignment</th>
<th>Data Source</th>
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<tbody>
<tr>
<td><strong>Emissions per kg liveweight livestock</strong></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Australian Beef Sustainability Framework</td>
<td>Emissions per kg liveweight when raising beef</td>
<td>Integrity Ag &amp; Environment – E SUB.0010</td>
</tr>
<tr>
<td></td>
<td>Australian Sheep Sustainability Framework</td>
<td>Emission intensity per kg liveweight (LW) when raising sheep</td>
<td>Likely as above but unclear</td>
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<tr>
<td></td>
<td>Australian Chicken Meat Federation</td>
<td>Kg feed per kg liveweight produced</td>
<td>ACMF Current Footprint</td>
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<tr>
<td></td>
<td>Global Farm Metric Framework</td>
<td>Global Farm Metric Framework Aim 1 – Climate</td>
<td>No data collected – guidance framework</td>
</tr>
<tr>
<td></td>
<td>U.N. Sustainable Development Goals</td>
<td>SDG 12.2: By 2030, achieve the sustainable management and efficient use of natural resources</td>
<td>No data collected – guidance framework</td>
</tr>
<tr>
<td></td>
<td>Taskforce on Climate-Related Financial Disclosures – Recommendation b.</td>
<td>SDG 2.4: By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production ...</td>
<td>No data collected – guidance framework</td>
</tr>
<tr>
<td></td>
<td>Taskforce on Nature-Related Financial Disclosures Recommendations</td>
<td>Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks</td>
<td>No data collected – guidance framework</td>
</tr>
<tr>
<td></td>
<td>Taskforce on Climate-Related Financial Disclosures Recommendations</td>
<td>Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets</td>
<td>No data collected – guidance framework</td>
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<tr>
<td></td>
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<td>Productive output per unit energy input</td>
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<td></td>
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<tr>
<td></td>
<td>Australian Beef Sustainability Framework</td>
<td>Carbon sequestration in on-farm vegetation</td>
<td>CSIRO – B.CCH.2301</td>
</tr>
<tr>
<td></td>
<td>Australian-Grown Horticulture Framework</td>
<td>Carbon sequestration of horticultural plantings (CO2e)</td>
<td>Indicator data not yet gathered</td>
</tr>
<tr>
<td></td>
<td>SAI Platform Regenerative Agriculture Framework</td>
<td>Carbon sequestration per area</td>
<td>Indicator data not yet gathered</td>
</tr>
<tr>
<td></td>
<td>U.N. Sustainable Development Goals</td>
<td>SDG 2.4: By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems ...</td>
<td>No data collected – guidance framework</td>
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<td></td>
<td>Global Farm Metric Framework</td>
<td>Global Farm Metric Framework Aim 1 – Climate</td>
<td>No data collected – guidance framework</td>
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<td></td>
<td></td>
<td>Aim 13 – positive impacts of farming on people and planet increase and are valued</td>
<td></td>
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<tr>
<td></td>
<td>Taskforce on Climate-Related Financial Disclosures – Metrics and Targets – Recommendation c.</td>
<td>Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets</td>
<td>No data collected – guidance framework</td>
</tr>
</tbody>
</table>
AASF PRINCIPLE

P5: Biodiverse ecological communities are protected and enhanced

Criteria 9: Farms support a diverse range of beneficial flora and fauna species
Criteria 10: Farm-related ecosystems are functioning and thriving

Indicators & Metrics

- % Agricultural land actively managed for biodiversity outcomes
- Total net deforestation
- % Agricultural operations actively engaged in pollinator protection
- % Total agricultural property with undisturbed native vegetation
- Total number of species in farm area

Examples of progress

- Carbon + Biodiversity (C+B) Pilot
- All Aus ag sustainability frameworks highlight biodiversity
- Net positive improvement in Aust. forest & woodland cover
- >50% farms protecting resources for conservation

Work in progress

- The Australian Farm Biodiversity Certification Scheme
  - Promote biodiversity friendly farming by certifying farms / businesses
- Australian-Grown Horticulture Sustainability Framework
  - Proportion of nursery plants sold that are Australian native or can provide biodiversity value
- Australian Sheep Sustainability Framework
  - Maintaining and increasing biodiversity in the sheep industry
GREGORY BOHRER

Director, Natural Capital, Walmart
Walmart Sustainability

Greg Bohrer, Director, Natural Capital
Farm Foundation
December 12, 2023
Gregory.Bohrer@walmart.com
Our Path to Regeneration
Walmart and Hurricane Katrina
Highlights from Our Journey

- **2005**: Cemented commitment to sustainability, set ambitious goals
- **2009**: Developed index for sustainable products
- **2016**: Set broader vision for Walmart’s role in society through new sustainability goals
- **2017**: Launched Project Gigaton
- **2020**: Committed to become a regenerative company, announced new climate and nature goals
Why Now?

**Climate crisis**
- CO₂ levels at record high
- More frequent and extreme weather events like heatwaves, droughts and cyclones

**Nature in peril**
- 68% decline in many animal populations in just over 45 years
- Disappearance of one-fifth of the Amazon in just 50 years

**Waste on the rise**
- Annual flow of plastic into the ocean set to nearly triple by 2040
- One-third of all food produced in the world is never eaten

**Injustice**
- 40M+ victims trapped in modern-day slavery
- 2B+ people in developing countries depend on agriculture for their livelihoods

Our Customers Are #1 and They Care About Sustainability (But it Must be Premium-Free and Easy)

- **78% of consumers** say that a sustainable lifestyle is important to them and **30% are more likely** to purchase products with sustainable credentials.¹

- Products making environment and social responsibility-related claims averaged **28% cumulative growth** over the past 5-year period, versus **20% cumulative growth** for products without them.²

However, price premiums or complicated messaging act as barriers in this intention to action journey.

**We create value for our customers by addressing the issues that matter to them through our business – and aspire to make the more sustainable choice the everyday choice for them, without a price premium or sacrificing on quality or durability.**

Walmart is on a path to become a regenerative company, one dedicated to placing nature and humanity at the center of our business practices.”

Doug McMillon
President and CEO, Walmart Inc.
Our aspirations and strategies for each issue aim for shared value and whole-system change through business, philanthropy and collaboration.

- **SOCIETAL IMPACT**
  - Create shared value
  - Catalyze whole-systems change
  - **Lead through the business**
  - Use philanthropy to accelerate social impact
  - Collaborate with others

- **BUSINESS IMPACT**
Our Approach
Becoming a Regenerative Company: Walmart's Priority Issues

**Our purpose:** Helping people save money and live a better life

**Through core products and services:** Health and wellness, food, apparel and financial services

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Sustainability</th>
<th>Community</th>
<th>Ethics &amp; Integrity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good jobs and advancement for associates</td>
<td>Climate and renewable energy leadership</td>
<td>Serving communities</td>
<td>Highest ethical and compliance standards</td>
</tr>
<tr>
<td>Growth for suppliers, sellers and local economies</td>
<td>Zero waste in operations, products, packaging</td>
<td>Access to safer, healthier products and services</td>
<td>Strong corporate governance</td>
</tr>
<tr>
<td>Equity and inclusion at Walmart and beyond</td>
<td>Regeneration of natural resources: forests, land, oceans</td>
<td>Disaster preparedness &amp; response</td>
<td>Engagement in public policy</td>
</tr>
<tr>
<td></td>
<td>Dignity of people in supply chains</td>
<td></td>
<td>Digital citizenship</td>
</tr>
<tr>
<td></td>
<td>Sustainable product supply chains</td>
<td></td>
<td>Respect for human rights</td>
</tr>
</tbody>
</table>
What does regeneration mean for sustainability?

Our position: We are a people-led, tech-powered omnichannel retailer dedicated to helping people save money and live better.

Our commitment: To become a regenerative company, dedicated to placing nature and humanity at the center of our business practices.

**Climate**
Galvanize collective action to reduce emissions through our advocacy, supplier engagement, philanthropy, and innovation in product supply chain practices, while taking steps to strengthen resilience against climate change.

**Nature**
Foster sustainable production of commodities (regenerative agriculture and fisheries; preventing deforestation), transition operations to more regenerative practices, and support conservation and restoration of critical ecosystems.

**Waste**
Aspire to achieve zero waste in our global operations and work with suppliers, customers and communities to accelerate adoption of innovative packaging and products designed for circularity.

**People**
Create economic opportunities for people working in supply chains, and work with others to tackle the biggest risks to worker dignity.

### WHY for Customer
- **Live better**: Shop intentionally and prioritize brands and products that align with things that matter.
- **Trust and loyalty**: Products are at everyday low prices while being good for families, the people who made them and the planet.

### WHY for Company
- **Shared value**: Addressing societal issues in ways that strengthen our business—for example, social license to operate, surety of supply, energy security, cost, risk management, new revenue streams, innovation.

### WHY for Associates
- **Inspiring hearts and minds**: Purpose-driven work while playing a direct role in sustainability, across all teams/functions.
- **Community effect**: Associates are our customers and little steps can make a big difference, both at work and at home.
<table>
<thead>
<tr>
<th>What Does Regeneration Mean for Sustainability?</th>
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</thead>
<tbody>
<tr>
<td>Spurring a circular economy, eliminating waste along the product chain</td>
</tr>
<tr>
<td>Decarbonizing operations</td>
</tr>
<tr>
<td>Restoring, renewing, replenishing and conserving natural resources</td>
</tr>
<tr>
<td>Adopting regenerative practices in agriculture, forest management and fisheries</td>
</tr>
<tr>
<td>Advancing prosperity, equity for associates, customers, people across our supply chains</td>
</tr>
</tbody>
</table>
Our Ambition

Become a regenerative company; to help people live better and restore and replenish our planet

People
- Equity, inclusion, opportunity
- Dignity of people in supply chains
- Safer, healthier ingredients

Walmart
- Customer trust
- Everyday low *true* cost
- Product supply chain
- Quality products

Planet
- Sustainable sourcing and packaging
- Zero waste, zero emissions
- 100% renewable energy
- Regeneration of nature
Our Sustainability Goals

Aiming to become a regenerative company to help people live better and restore and replenish our planet

**Climate**
- Target **zero emissions** across global operations by 2040
- Achieve **100% renewable energy** by 2035
- Reduce or avoid **1 gigaton of greenhouse gas emissions** across supply chain by 2030

**Nature**
- With the Walmart Foundation, help **protect, more sustainably manage or restore ~50M acres of land and 1M square miles of ocean** by 2030
- Source **~20 key commodities more sustainably** by 2025

**Waste**
- Generate **zero waste** in key market operations by 2025
- Achieve **100% private brand recyclable, reusable, or industrially compostable packaging** by 2025
- Aim for a **15% absolute reduction of our virgin plastic footprint** by 2025

**People**
- Make **responsible recruitment standard business practice** by ~2026
- Expand **economic opportunity for small-scale suppliers** through direct farm, inclusive sourcing
- Invest additional **$350B in products that support American jobs** by 2031
Our Focus
Our Sustainability Progress as of 2022/FY23*

<table>
<thead>
<tr>
<th>Climate</th>
<th>Nature</th>
<th>Waste</th>
<th>People</th>
</tr>
</thead>
<tbody>
<tr>
<td>46% of global electricity needs supplied by renewable sources in 2021</td>
<td>2M acres of land conserved through the Walmart Acres for America program</td>
<td>63% of global private brand packaging estimated to be recyclable, reusable or industrially compostable in 2022</td>
<td>99% of Walmart U.S. fresh produce and floral net sales came from suppliers who have endorsed the Ethical Charter on Responsible Labor Practices in FY2023</td>
</tr>
<tr>
<td>23.2% reduction in scopes 1 and 2 emissions (2021 vs. 2015 baseline)</td>
<td>$43M invested by the Walmart Foundation to help protect, restore, and/or more sustainably manage nature since 2021</td>
<td>78% of global operational waste diverted from landfill and incineration in 2022</td>
<td>1M smallholder farmers expected to be reached in India, Mexico and Central America through Walmart Foundation grants to expand market access since 2017</td>
</tr>
<tr>
<td>&gt;5.2K suppliers engaged in Project Gigaton and &gt;750M metric tons of CO2 emissions reduced or avoided since 2017 (according to supplier reports)</td>
<td>Investing in and working with suppliers to source from place-based efforts</td>
<td>96% of Walmart U.S. private-brand food supplier-reported sales came from items carrying “Best if Used By” or “Use By” standardized date label in FY2023</td>
<td></td>
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</tbody>
</table>

*Results are abbreviated. For full information, visit: corporate.walmart.com/esgreport
Project Gigaton: Driving Action With Suppliers Toward Regeneration

Aiming to reduce or avoid 1 billion MT of emissions by 2030

Cumulative 750+ million MT CO2e avoided and 5,200+ suppliers engaged since 2017 (supplier reported)

+175 million MT CO2e avoided in FY2023 (supplier reported)

Energy
- Renewable Energy
- Energy Efficiency

Nature
- Regenerative Agriculture
- Forestry

Waste
- Food, Solid Waste Reduction
- Recycling, Composting

Packaging
- Recycled Content
- Recyclability Reduction

Transportation
- Optimized Shipping
- Zero Emission Vehicles

Product Use & Design
- Design Optimization
- Sustainable Sourcing

*Results are abbreviated. For full information, visit: corporate.walmart.com/esgreport
Protecting, Restoring Nature

Transform food, product supply chains to be more regenerative.

- Walmart, Walmart Foundation set a goal to help **protect, more sustainably manage, or restore ~50M acres of land, 1M square miles of ocean by 2030.**
- Expands on our existing goal to **source 20+ key commodities like seafood, cotton, beef, etc. more sustainably by 2025.**
- Focus on critical landscapes that produce food, products to:
  - Continue supporting Acres for America’s conservation efforts;
  - Promote regenerative agriculture practices, more sustainable fisheries management, forest protection, restoration;
  - Invest in, work with suppliers to source from place-based projects to help preserve natural ecosystems, improve livelihoods.

NATURE SPOTLIGHT: Place-based partnerships
Levers for Positive Impact

**Direct Sourcing & Private Brand**
Work with suppliers to:
- Advance adoption of nature-friendly policies, certifications
- Source from established place-based projects
- Develop sustainably-sourced product, ingredient lines

**Supplier Engagement & Reporting**
Work with suppliers to:
- Encourage the development and reporting of nature efforts
- Incubate supplier-led coalition efforts

**Capacity Building & Investment**
Target investments to:
- Evolve standards to increase strength, credibility
- Support place-based projects, capacity
Arkansas Rice

Place-based initiative in collaboration with Indigo Ag to source our Great Value brand rice from Arkansas.

• Started in 2021, the initiative focuses on incentivizing landscape-level changes by working with multiple partners in the value chain.
• The project aims to help farmers implement on-farm practices that demonstrate water and land stewardship, including:
  • Crop rotation from legumes (such as soybeans);
  • Fertilizer management;
  • Zero-grade rice production;
  • Multiple-inlet irrigation with computerized hole-selection;
  • Furrow irrigation;
  • Wetting and drying irrigation.
• In 2022, the program expanded to encompass more than 9,500 acres of Arkansas farmland.
• Anticipated outcomes include:
  • A reduction in GHG emissions of more than 2,000 MT;
  • A reduction of 1.5 billion gallons of water usage relative to regionally standard practices.
• We have committed to further expand this initiative in 2023 to encompass an estimated 13,100 acres of farmland.
Northern Great Plains Beef

Placed-based partnership helping bring more sustainable, regenerative practices to the beef industry.

- The Walmart Foundation, McDonald’s, Cargill invest ~$6M to support WWF’s grassland management efforts.
- Help combat climate change, reverse nature loss by:
  - Improving the health of **1M acres** of grasslands by 2025;
  - Increasing underground carbon storage;
  - Improving water quality;
  - Creating better wildlife outcomes.
- Ranchers are the heart of the Northern Great Plains and manage 70%+ of the remaining intact grass lands.
- Supports ranchers in planning and improving their operations ecologically, economically.
Our Future
What Does a Regenerative Future Look Like?

- Less resources are needed because **what gets made gets used** – again and again
- Natural systems of the planet **begin to heal**
- Producers can **grow their businesses, livelihoods**
- Communities have access to **safer, healthier products**
- Drivers of systemic disparities have been tackled; society is **equitable and inclusive**
- Workers in our global supply chains can **work without fear** of forced labor or harassment
- People have access to **affordable, nutritious food** and know how to make better food choices
- Harmful greenhouse gas emissions are reduced and sequestered to **preserve our climate**
Sustainability Resources

To learn more, please visit the Sustainability section of the Walmart corporate site. Those interested in learning more about our philanthropic work to advance sustainability can visit the Walmart.org site.

BLOG POSTS

- Walmart’s Regenerative Approach: Going Beyond Sustainability
- Toward Regeneration, Together

VIDEOS

- Sustainability Anthem
- 2020 Regeneration Doug McMillon Speech
- Achieving Zero Emissions by 2040
- Sustainability Milestone Summit 2022
- Project Gigaton - as featured at the 2022 Sustainability Milestone Summit
- Creating a Circular Economy - as featured at SMS22
- Regeneration – as featured at The 2023 Investment Community Meeting
Sustainability Resources Cont.

Additional resources for each stakeholder group can be found below:

• **Suppliers** can find out more about working with Walmart on sustainability efforts, including Project Gigaton™, by visiting our Sustainability Hub.

• **NGOs** can explore the latest news from Walmart on Sustainability through our Corporate Blog.

• **Investors and other stakeholders** can find out about our approach to Environmental, Social and Governance (ESG) issues by visiting our reporting site.

• **Customers** can shop for products that align with their values through our Built for Better site.

• **Associates** can get involved, stay up to date and connect with other sustainability advocates across Walmart through our Workplace Sustainability Group.
PHILIP “P.J.” HAYNIE III
Owner/CEO,
Haynie Farms/Arkansas River Rice
SYLVIA WULF
Chair and CEO, AquaBounty Technologies Inc.
Farm Foundation Round Table Fellow
Farm Foundation: Defining Sustainability: Industry Leaders on Actionable Goals

December, 2023
Aquaculture and Biotechnology Approaches to Sustainable Food Systems

- Why Aquaculture and Why Biotechnology?
- AquaBounty’s Approach and Business Model
- Next Generation Agricultural Biotechnology
Population Growth and Environmental Challenges Creates Need for New Solutions

Population Growth:
- Global population projected to grow to more than 9 billion people by 2050 – 26% growth in 30 years\(^1\), with a growing middle class driving increased protein demand
- Protein consumption is predicted to nearly double from 2017 to 2050, with marine-based proteins gaining a growing market share\(^2\)

Environment:
- More than 90% of world’s fisheries are fully fished or overfished, according to FAO’s The State of World Fisheries and Aquaculture 2020
- Critical impacts on water and energy usage & the need to reduce greenhouse gas emissions
- Viable sea cage farming has significant limitations:
  - Sea lice, algae bloom, ocean contamination

It is projected that Aquaculture must produce nearly 47.5 million additional tons of fish by 2050 to meet future demand\(^3\).

We believe there is a better way!

The ocean and wild fisheries are not the answer to feeding our growing population

---

2. Mowi Handbook 2020
3. Mowi Annual Report 2019
Atlantic Salmon – Large Market With Inefficient Supply Chain

Land-Based RAS Farming Has Potential to Disrupt The Industry

Global Atlantic Salmon Market\(^2\) = 2.6 million metric tons\(^3\) worth $17.1 billion\(^3\)
(Global supply is estimated to grow 4% annually from 2021 to 2026)

Demand Drivers:
- Salmon is widely known to be healthy & nutritious\(^1\)
- Growing population and rising middle class, bringing an increased demand for healthy protein
- COVID-19 drove demand for salmon for at home preparation
- Per capita consumption of seafood has increased at an annualized rate of 1.3% over the last five years\(^5\)

Inefficient Supply Chain:
- Current sea-cage operations are highly dependent on air freight
- Supply is constrained in production locations for environmental & regulatory issues related to production methods

---

2. Kontali Analyse - Mowi Handbook 2021
3. FAO Statistical Data Search May 11, 2021
5. IBISWorld "Fish & Seafood Aquaculture in the US" April 2021
AquaBounty is Well Poised to Take Advantage of Fragmented State of Aquaculture

- Aquaculture now supplies the majority of the fish we consume
- Enormous growth potential in land-based farming with shrinking wild salmon sizes and marine-based salmon farms under mounting pressure to clean up or close down
- Fewer than 100 land-based salmon projects globally, some attracting significant interest from private equity and investment banks
- Although more capital intensive than sea based net pens, proponents say land-based salmon farms offer the best opportunity at making seafood sustainable while reducing carbon footprint

**Market fragmentation plus favorable industry tailwinds ideally position AquaBounty to take market share**

**Well-positioned over competitors to produce safe, secure, and sustainable salmon without premium pricing**

Sourcing the World's Fish
Global capture fisheries and aquaculture production, in metric tons
- Capture fisheries, inland waters
- Capture fisheries, marine waters
- Aquaculture, inland waters
- Aquaculture, marine waters

Excludes aquatic mammals, crocodiles, alligators, and caimans; and seaweeds and other aquatic plants.
Data: Food and Agriculture Organization of the United Nations
Our Purpose and Our Values

“Feed the world by transforming aquaculture with technology, creating a safe, secure, and sustainable future.”

While demonstrating our care for our people, our environment and our fish through our EPIC values

**EXCELLENCE**
Doing our best everyday to learn new skills and solve real problems that lead to a better world, a rewarding workplace and fulfilled customers.

**PASSION**
Embracing an authentic belief in our mission and purpose. Doing what we love and loving what we do with dedication and energy.

**INNOVATION**
Pioneering change by enabling courage, curiosity and creative thinking. Seeking continuous improvement of methods, practices and technologies.

**COLLABORATION**
Respecting our differences as we work together to achieve shared success with humility, compassion and open-mindedness.

Sustainability (ESG) is fundamental to our Purpose and EPIC Values and a critical foundation as to how we operate our business, deliver results and drive continuous improvement throughout our operations. ESG ensures disciplined focus on Sustainable Risk Management.
AquaBounty’s Journey

2003
First regulatory study to the FDA for a New Animal Drug Application (NADA)

1995
FDA issues INAD # for AAS salmon

1989
First AquAdvantage® (AAS) line was created

2008
• FDA approves AquaBounty Canada’s hatchery
• AquaBounty Technologies begins construction of a land-based aquaculture farm in Panama

2008
• FDA approves AquaBounty Canada’s hatchery
• AquaBounty Technologies begins construction of a land-based aquaculture farm in Panama

2009
Submits final regulatory study to the FDA

2009
• FDA approves AquaBounty Canada’s hatchery
• AquaBounty Technologies begins construction of a land-based aquaculture farm in Panama

2010/11
FDA concludes AAS is indistinguishable from Atlantic salmon; safe to eat; and poses no threat to the environment

2010/11
• FDA approves AquaBounty Canada’s hatchery
• AquaBounty Technologies begins construction of a land-based aquaculture farm in Panama

2015
FDA approved AAS for consumption in USA

2015
• FDA approves AAS for consumption in USA

2016
• FDA Import Alert issued prohibiting importation of AAS eggs into USA until labeling requirements announced by FDA
• Health Canada announces approval of AAS for production, sale and human consumption in Canada

2016
• FDA Import Alert issued prohibiting importation of AAS eggs into USA until labeling requirements announced by FDA
• Health Canada announces approval of AAS for production, sale and human consumption in Canada

2018
• Received approval from the FDA to raise AAS Salmon at the Company’s Indiana farm
• Commenced production operations at the Indiana farm with traditional Atlantic salmon eggs

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• Commenced production operations at the Indiana farm with traditional Atlantic salmon eggs

2019
• FDA lifts the Import Alert allowing importation of AAS eggs into US
• Environment and Climate Change Canada (ECCC) approved the Rollo Bay production facility for the commercial production

2019
• FDA lifts the Import Alert allowing importation of AAS eggs into US
• Environment and Climate Change Canada (ECCC) approved the Rollo Bay production facility for the commercial production

2020
• FDA Import Alert issued prohibiting importation of AAS eggs into USA until labeling requirements announced by FDA
• Health Canada announces approval of AAS for production, sale and human consumption in Canada

2020
• FDA Import Alert issued prohibiting importation of AAS eggs into USA until labeling requirements announced by FDA
• Health Canada announces approval of AAS for production, sale and human consumption in Canada

PRESENT
• Continuous harvesting in Indian
• Broodstock facility in place in Canada
• R&D focus on breeding, genetics, health & nutrition

AquaBounty runs farms efficiently and effectively because we are committed!
Our Operating Model is designed to facilitate Growth & Expansion

Our operating model allows us to seek out opportunities to grow organically through our internal expertise and inorganically through M&A, JV or investments.

**RAS Farming Expertise**
- Translatable to new species
- RAS technology improvements in biofiltration, fish husbandry, water quality

**Technology**
- Breeding and genetic improvements in salmon and other species
- Fish Health and Nutrition including feed additives/ingredients
- Data solutions to improve operations or fish health
- Regulatory expertise facilitating required approvals

**SUSTAINABLE:** Good For Planet
Greater than 95% water recycled. Reduced transportation to consumption results in lower carbon footprint compared to other farming practices. Waste streams utilized for energy and farming inputs.

**EFFICIENT:** Less Feed Used
Improvement in Feed Conversion Rate (FCR)\(^1\)

**CONSISTENT:** Domestic Salmon Supply
Optimized conditions and carefully monitored, land-based fish farms provide a consistent supply of salmon raised in the U.S.

**FRESH:** Close Key Markets
Atlantic salmon raised near consumer consumption and delivered fresh.

**SECURE:** Biosecurity
Designed to prevent escapement and impacts on broader ecosystem and protects against exposure to disease and parasites.

**SAFE:** No Antibiotics or Contaminants
Disease-free environment reduces the risk of infections commonly seen in sea-cage farming.

Our Operations: Built for Smart and Sustainable Growth
Optimizing Current Technology While Innovating for the Future

- Biotechnology leader providing molecular solutions that address problems & opportunities for the global aquaculture industry
- World Class operator of land-based Recirculating Aquaculture Systems
- Committed to the excellent husbandry and nutrition of fish

<table>
<thead>
<tr>
<th>Seafood Genetics</th>
<th>RAS Technology Enhancements</th>
<th>Nutrition and Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving &amp; delivering enhanced traits, particularly in salmon:</td>
<td>o Land-based aquaculture experience expanded to additional species</td>
<td>o Better feed formulations</td>
</tr>
<tr>
<td>o Selective breeding</td>
<td>o Maximize system performance</td>
<td>o Sustainability of feed</td>
</tr>
<tr>
<td>o Gene editing</td>
<td>o Biofilter optimization</td>
<td>o Improve RAS performance</td>
</tr>
<tr>
<td>o Accelerated trait delivery</td>
<td>o Biomass optimization</td>
<td>o Enhanced performance &amp; resilience</td>
</tr>
<tr>
<td></td>
<td>o Energy efficiency</td>
<td>o Nutritional profile</td>
</tr>
</tbody>
</table>

Seafood Genetics

RAS Technology Enhancements

Nutrition and Disease
AquaBounty Continues to Achieve Key Milestones

**Scaling the Business**
- Made strong strides against our long-term plans to scale commercial production and **expand production capacity**
- Selected Pioneer, OH as location for our **technologically advanced, modern RAS farm**; broke ground in Q1 2022
- Construction progressing on the hatchery and early-rearing areas to increase egg/fry production
- Ramping R&D/Technology investments to support operational improvements

**Fine Tuning Production**
- Implemented primary processing capability in Indiana farm
- **Continuous harvesting and sale of (GE) salmon** since Q2 2021
- Converted 250 MT facility in PEI to Broodstock facility for **production of both GE and conventional salmon eggs** to meet internal demand and to sell conventional eggs externally

**Commercialized the Business**
- **Robust communications platform** in place to engage consumers, customers and the culinary community
- On-going dialogue with various sales channel partners to continue refining messaging and pricing
- All harvested GE salmon continue to be sold with demand building
- Indications of interest in **long-term supply agreements**

**Bolstering our Balance Sheet**
- Completed four equity transactions, providing **net proceeds of $224 million**
- Toledo-Lucas County Port Authority board has approved the issuance of up to $425 million in bonds to support the financing of the Ohio Farm project
- **Wells Fargo Corporate and Investment Banking** to underwrite and market the bond placement
Which, if any, of the following phrases have you heard of?

- Organic farming: 72%
- Sustainable farming: 57%
- Climate-smart farming: 19%
- Regenerative farming: 18%
- I have not heard of any of these: 17%

Base: All respondents

Consumer Reports nationally representative American Experiences Survey of 2,121 US adults (June 2023)
What do you think the phrase "sustainable food" means, as far as you know?  
*Please select all that apply. Just make your best guess if you aren’t sure.*

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>The food is produced without depleting the soil</td>
<td>46%</td>
</tr>
<tr>
<td>The food is produced with a low carbon footprint</td>
<td>43%</td>
</tr>
<tr>
<td>The food is produced using less water than traditionally produced food</td>
<td>32%</td>
</tr>
<tr>
<td>The food is produced without chemical fertilizers or pesticides</td>
<td>30%</td>
</tr>
<tr>
<td>The food is made without genetically modified organisms (GMOs)</td>
<td>24%</td>
</tr>
<tr>
<td>The food is minimally processed</td>
<td>23%</td>
</tr>
<tr>
<td>Farm animals are not given growth hormones</td>
<td>19%</td>
</tr>
<tr>
<td>Farm animals are treated humanely</td>
<td>18%</td>
</tr>
<tr>
<td>Farm animals are not given antibiotics</td>
<td>16%</td>
</tr>
<tr>
<td>Farm workers are treated fairly</td>
<td>12%</td>
</tr>
<tr>
<td>The food is vegetarian</td>
<td>5%</td>
</tr>
<tr>
<td>The food is vegan</td>
<td>4%</td>
</tr>
<tr>
<td>None of the above</td>
<td>3%</td>
</tr>
<tr>
<td>Unsure</td>
<td>18%</td>
</tr>
</tbody>
</table>

Base: All respondents

Consumer Reports nationally representative American Experiences Survey of 2,121 US adults (June 2023)
Which, if any, of the following would you expect a company that says that it advances sustainable agriculture to do? 

*Please select all that apply. Just make your best guess if you aren’t sure.*

<table>
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<tr>
<th>Description</th>
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<tbody>
<tr>
<td>Ensure that ingredients in the foods they make come from farms using sustainable farming practices</td>
<td>64%</td>
</tr>
<tr>
<td>Purchase crops from farmers who are using sustainable farming practices</td>
<td>61%</td>
</tr>
<tr>
<td>Pay farmers more for using sustainable farming practices</td>
<td>42%</td>
</tr>
<tr>
<td>Donate money to groups that help farmers do more sustainable farming practices on their farms</td>
<td>34%</td>
</tr>
<tr>
<td>Unsure</td>
<td>17%</td>
</tr>
</tbody>
</table>

Base: All respondents

Consumer Reports nationally representative American Experiences Survey of 2,121 US adults (June 2023)
Agriculture Priorities to Strengthen the Bioeconomy

GROWING THE BIOECONOMY IS CRITICAL TO SOLVING SOCIETAL CHALLENGES

<table>
<thead>
<tr>
<th>Grow Trust in Innovation</th>
<th>Address Climate Change and Food Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve Regulatory and Approval Processes to Promote Innovation</td>
<td>Increase Market Access and Acceptance</td>
</tr>
</tbody>
</table>
Thank you
THANK YOU

Support our Mission

Become a Friend of Farm Foundation today!

farmfoundation.org/friends

#FarmFoundationForum