NATIONAL PASTA ASSOCIATION

2026 Annual Meeting

PLANT to Plate

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Savannah, Georgia

# Topics in Sustainability

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# What Does Sustainability Mean?

# Sustainability for Durum Producer

- Farm profitability - ability to pass the farm to next generation
  - Includes durum competitiveness vs. other crops
  - NDSU 2026 crop budget forecasts durum at -$10.20/a
- Environmentally friendly practices improving soil & crop health
  - Minimum/no-till, cover crops
  - Precision ag tech:
    - Variable-rate fertilizer, see-and-spray, seed-rate adjustments, GPS guidance
    - Smart irrigation, drones for scouting/spraying,

# Defining "Sustainability" – People, Planet, Profit

- **"<u>CSR</u>" = Corporate Social Responsibility –** expanding beyond ***profit-driven***, to ***purpose-driven***


- **"<u>ESG</u>" = Environmental, Social, & (Corporate) Governance**
  - — Captures non-financial risks and opportunities inherent to a company's day to day activities
  - — The individual "pillars" represent the 3 main topic areas that companies are expected to report in: Environmental, Social and Governance

- The difference… ESG is defined by external standards (vs. CSR is internally-driven) and is more *quantitative* than CSR

**<u>Winland Sustainability Pillars</u>**


Source: Winland Sustainability Report

# Regenerative Agriculture Focus

- Regenerative = soil focus.
  - — Increase soil organic matter, improved nutrient and water holding

- Minimal disturbance: no-till, soil fertility management
- Continuous cover: cover crops
- Biodiversity: crop diversity, crop rotations, livestock
- Integrated livestock: grazing, organic matter cycling
- Water management: no-till, watershed management
- Carbon sequestration: no-till, cover crops

# “Regenerative Agriculture”

FOODDIVE Deep Dive Opinion Library Events Press Releases Topics

DIVE BRIEF

## Kellanova leans on regenerative agriculture to slash supply chain emissions

The deal with Varaha will focus on implementing climate-friendly practices on smallholder corn farms in India, which is emerging as a major hub for carbon removals.

Published Dec. 4, 2025

Lamar Johnson
Reporter


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## Regenerative agriculture benefits crops and biodiversity

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## PepsiCo, NatGeo Bet Big on Regenerative Agriculture

GEORGE HAJJAR | SEPTEMBER 29, 2025

JAN 26, 2026

## Nestlé announces two global collaborations to help scale regenerative agriculture and support the next generation of farmers

Regen ag is ***farming in harmony with nature*** – practices meant to ***restore soil and ecosystem health***, ***address inequity***, and leave our ***land, waters, and climate better*** for future generations. It positively impacts ***soil health***, ***water & air quality***, ***carbon capture*** and ***biodiversity***

Source: National Resources Defense Council.

# Does Sustainability Still Matter?

# Does It Still Matter?

Yes

- Production input costs are higher and profit margins thinner → need to reduce inputs and save resources
- Sustainability practices = good business
- Biggest discount is losing market access for grain/product

TWEAKED

# ..But, Does It Actually Matter?

## Climate Frameworks

GREENHOUSE GAS PROTOCOL

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

IFRS Sustainability

CDP

*Climate specific standards & frameworks align how we measure, assess and report*

## Regulatory / Certifications

State by state regs (e.g., EPR, cage free)

how2recycle.info

how2recycle.info

Widely Recyclable

Inflation Reduction Act – (Climate Smart ag)

*Regulatory driving requirements across value chain*

## Industry Commitments


*Commitments to **Net Zero** – For example, by 2039 (Unilever), 2040 (P&G), 2050 (Coca Cola, Mars, General Mills, Mondelez, Kraft Heinz, PepsiCo)*

## Retailers

Walmart

Requires suppliers to report to CDP; Encourages science-based targets

TARGET

Require 80% of suppliers to set science-based climate targets by 2023

Introducing emission reduction targets to suppliers in 2023

COSTCO WHOLESALE

Albertsons

Engaging suppliers to set SBTi by '26

*All of the above retailers have set SBTi targets*

# How Does it Show Up in The Value Chain?

# Sustainability Across The Pasta Value Chain

Grower Plants & Harvests Wheat

Grain Brought To Mill & Stored In Elevator

Grain Tested & Unloaded To Bin

Grain Cleaning, Destoning, Color Sorting

Water Tempering

Debranning

Grinding Bin

*Sustainable Sourcing*

*Carbon footprint measure, report and reduce*

Sifting

Purifying

Finished Product Loaded Into Bulk Bins

Flour To Pasta Plant & Stored in Silo

Sifter

Use Bins

Feeder (e.g., Whole Grains, Pea Flour)

*Reduce footprint including focus on efficiency and energy savings*

Mixer adding Eggs, Additives, Enrichments, etc.

*Sustainable Sourcing*

Press

Shaker

Pre-Drier

Drier

Cooler

*Sustainable Sourcing*

WIP Storage

Packaging

Palletizing

Warehousing

Shipping

*Sustainability in product development and packaging design*

*Reduce footprint via optimized network and lanes*

# How Sustainability Shows Up at the Producer Level

- Direct Grower–Buyer Connections
  - — AB InBev (SmartBarley), Minot Milling, Ardent Mills, etc
- 3rd Party Data Connectors
  - — Indigo Ag, Bushel, Verity, Farmers Edge, Watershed, Persefoni, Greenly, IBM, Microsoft, etc
  - — US Soybean Export Council sustainability verification (70% global sales)
- Companies with sustainable or regenerative programs
  - — General Mills, ADM, Mondelez, AB InBev, Barilla, Cargill, Coca-Cola, Danone, Bimbo, Ingredion, Kellogg, Land O'Lakes, Nestlé, Smithfield, Walmart, and many others…

# Agronomy & Input Partners

- Growers already using sustainability practices or have data access, may connect to:

  - Agronomy centers & grain buyers
  - Equipment manufacturers: John Deere, Case
  - Input suppliers with sustainability/regenerative programs
    - Bayer, Syngenta, Corteva

# Cage-Free Eggs Offers Interesting Reference Point On Food Sustainability

## Cage-Free Definition

- Hens may roam in a building or open area, usually a barn or poultry house
- Unlimited access to fresh food and water
- Protection from elements, disease and predators

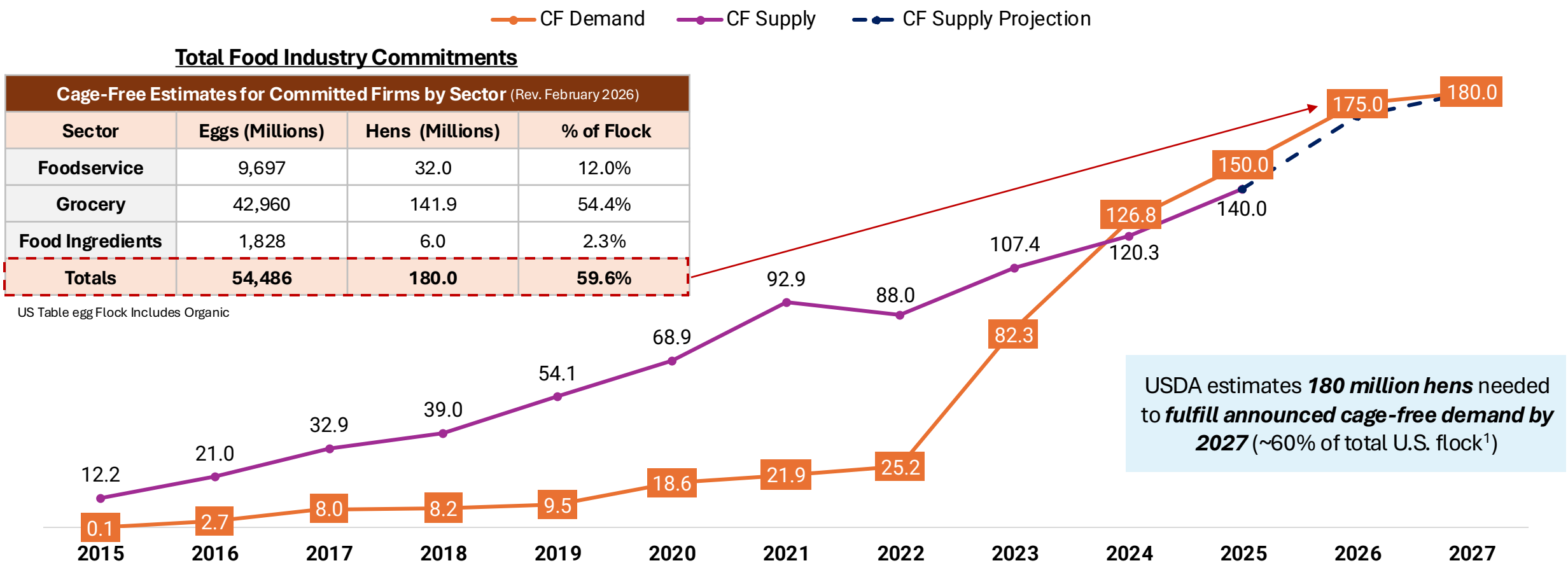
## Cage-Free Initiatives

- Drivers of cage-free include food companies (industry commitments) and states
- Many commitments at corporate level vs. on-pack


Source: Publicly announced in trade journals / websites.
Note: *Pending timelines and / or legislation.

# Sustainability Commitments Have Ability To Fundamentally Change An Industry

**Projected Cage-Free Demand Relative to Current Commitments (Layer Hens, Millions)**




**Total Food Industry Commitments**

| Cage-Free Estimates for Committed Firms by Sector (Rev. February 2026) | | | |
|---|---|---|---|
| **Sector** | **Eggs (Millions)** | **Hens (Millions)** | **% of Flock** |
| **Foodservice** | 9,697 | 32.0 | 12.0% |
| **Grocery** | 42,960 | 141.9 | 54.4% |
| **Food Ingredients** | 1,828 | 6.0 | 2.3% |
| **Totals** | **54,486** | **180.0** | **59.6%** |

US Table egg Flock Includes Organic

USDA estimates ***180 million hens*** needed to ***fulfill announced cage-free demand by 2027*** (~60% of total U.S. flock[1])

Source: USDA AMS.
Note: 1. Estimated total flock size is 302M layer hens.

# Sustainability in Packaging

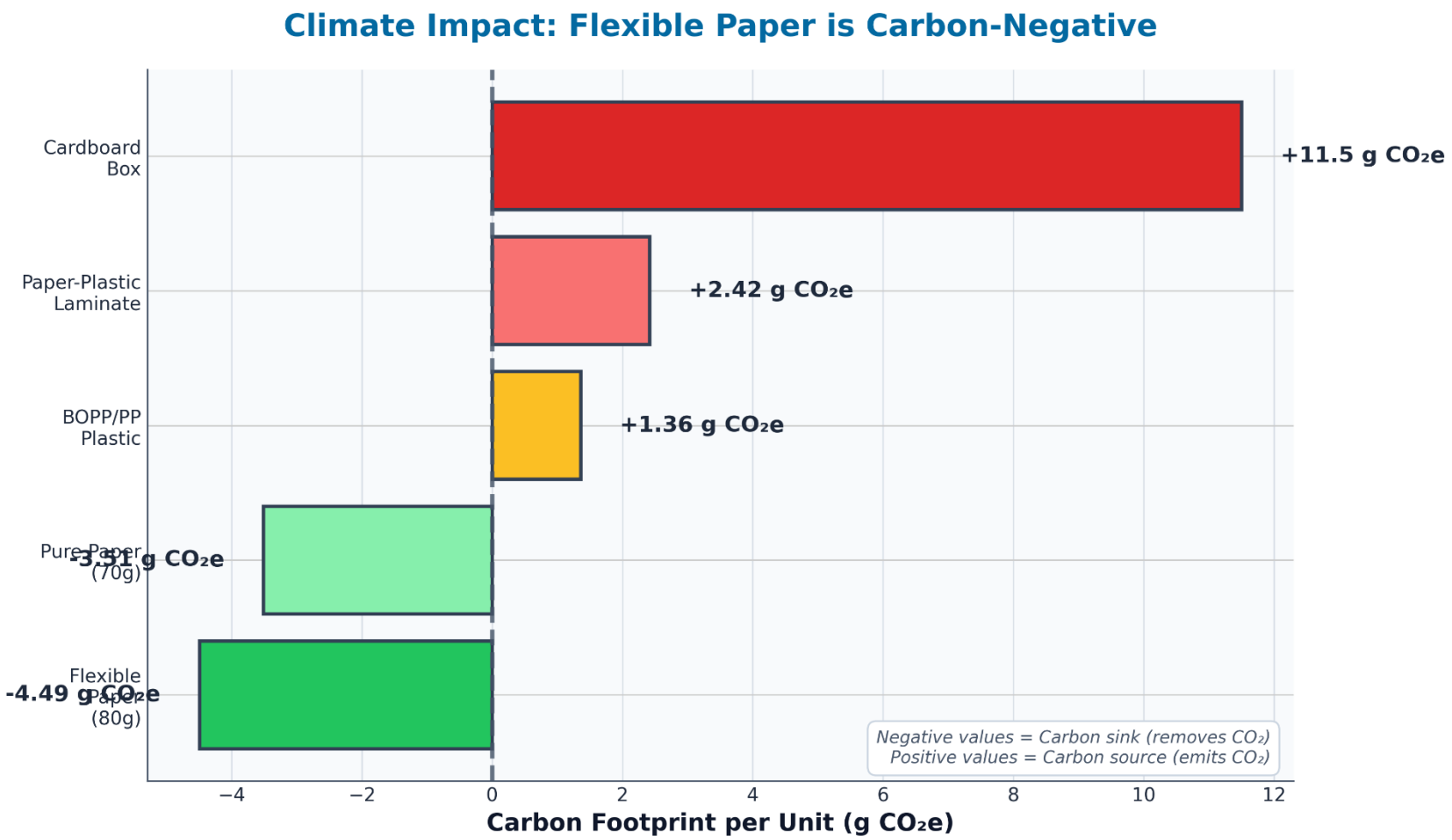
# Climate Impact of Packaging: A Holistic Approach

**Key Points:**

- Flexible Paper (80g): -4.49g $CO_2e$ per pack – CARBON NEGATIVE
- Pure Paper (70g): -3.51g $CO_2e$ per pack – carbon negative
- BOPP/PP Plastic: +1.36g $CO_2e$ per pack – carbon positive
- Laminate (60/40): +2.42g $CO_2e$ per pack – worst plastic option
- Cardboard Box: +11.50g $CO_2e$ per pack – WORST PERFORMER

**Critical Finding:**
Cardboard requires 4× more truck trips than flexible paper due to rigid format and 3.3× weight. This logistics penalty (+1,343 tons $CO_2e$/year) completely reverses cardboard's apparent recycling benefit.

**Bottom Line:**
At 100M units/year, flexible paper removes 448 tons $CO_2e$ from the atmosphere annually. Cardboard emits 1,150 tons $CO_2e$ – making it the worst climate performer once full lifecycle is included.



# Total Economics (Material + EPR Fees)

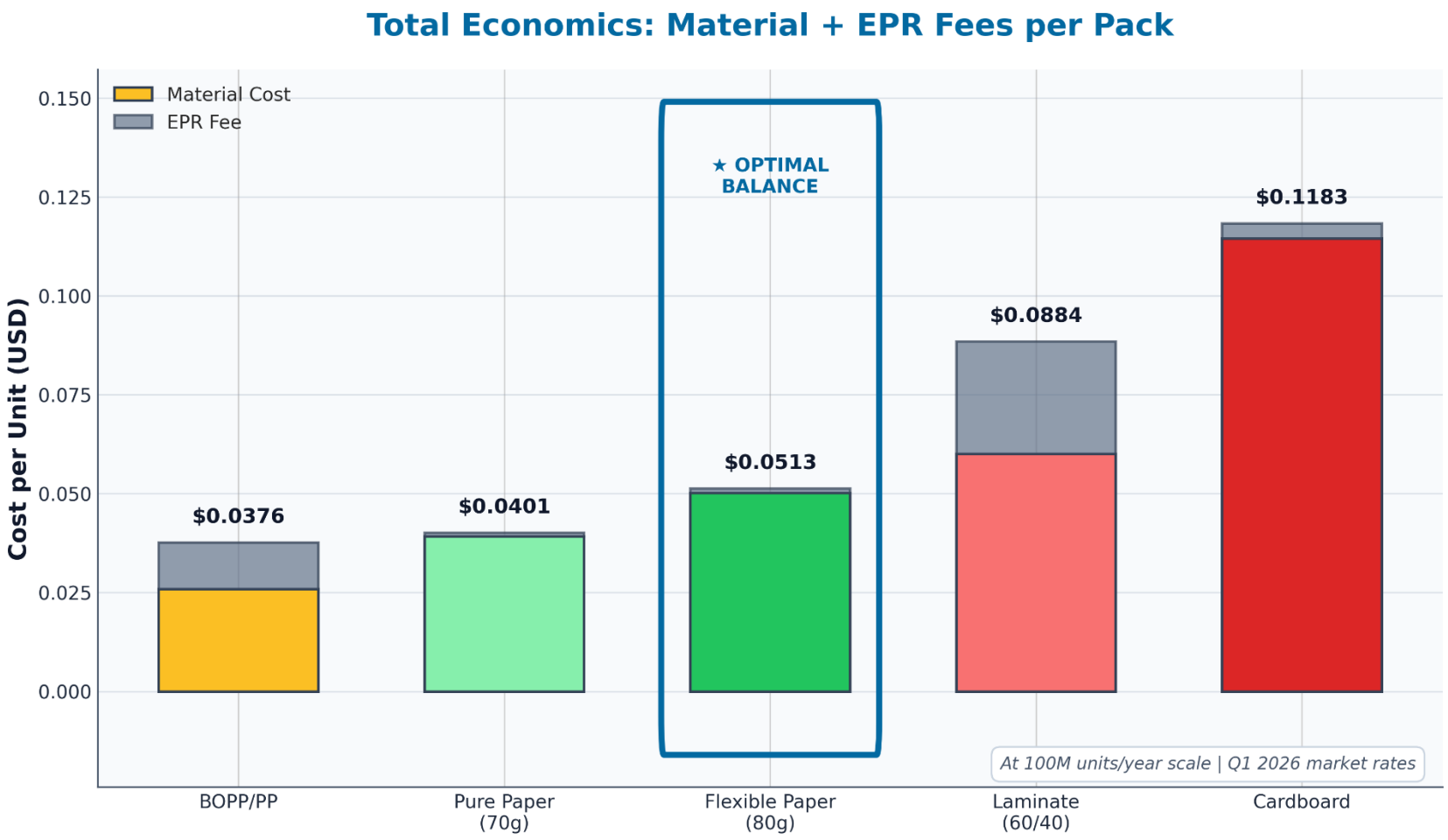
**Cost per Pack at 100M Units/Year:**

- BOPP/PP Plastic: $0.0376 (cheapest, but carbon-positive)
- Pure Paper (70g): $0.0401 (low cost, mechanical limitations)
- Flexible Paper (80g): $0.0513 ★ OPTIMAL BALANCE
- Laminate (60/40): $0.0884 (high EPR burden)
- Cardboard Box: $0.1183 (most expensive)

**EPR Fee Impact:**

- Fiber-based packaging (paper): $0.0009-0.0012/pack
- Plastic flexibles/laminates: $0.0117-0.0284/pack (12-25× higher)

**Key Insight:**
PP remains marginally cheaper per pack, but that narrow delta does not justify carbon-positive positioning for companies accountable to environmental balance sheets. Flexible paper is the strongest compromise between cost, climate, and compliance.

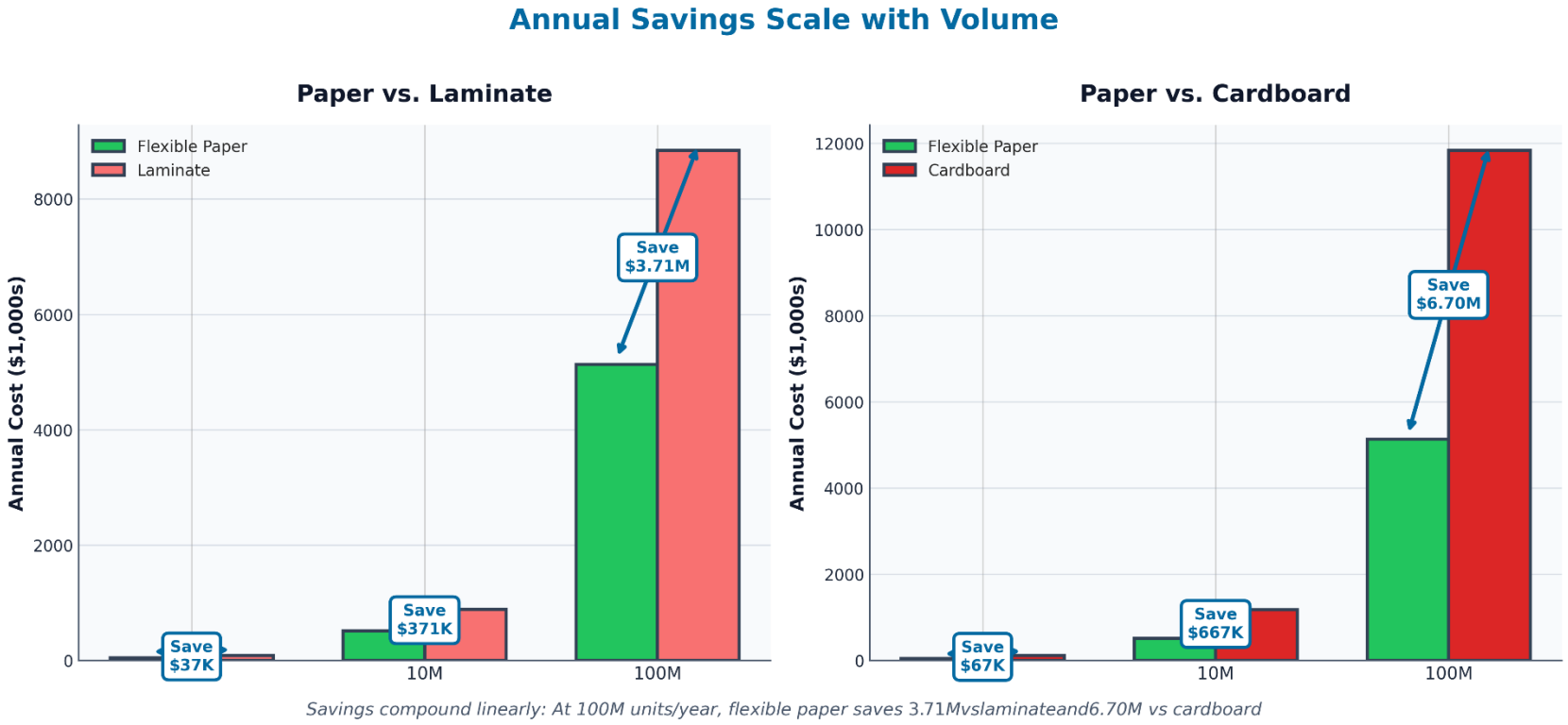


# Savings Compound with Volume

**Paper vs. Laminate Annual Savings:**
- 1M units/year: Save $37,000
- 10M units/year: Save $371,000
- 100M units/year: Save $3.71 MILLION

**Paper vs. Cardboard Annual Savings:**
- 1M units/year: Save $67,000
- 10M units/year: Save $667,000
- 100M units/year: Save $6.70 MILLION

**Bottom Line:**
At 100M units/year, flexible paper saves $3.71M vs laminate and $6.70M vs cardboard.
These differentials scale linearly with volume – the business case strengthens at enterprise scale.



# Environmental and Economical Sustainability Showdown

**Strategic Conclusion:**
Flexible Paper 80g is the ONLY solution that delivers:

- ✓ Carbon-negative performance (#1 climate)
- ✓ Lowest EPR exposure (#1 regulatory)
- ✓ Validated industrial robustness (#1 operations)
- ✓ Competitive cost structure (#3 economics)

PP plastic may be slightly cheaper but delivers carbon-positive impact. Cardboard is structurally inefficient: worst climate performer + highest cost base.

**Core Message for Panel:**
Today Environmental and Economical Sustainability can coexist in a single solution that also delivers top performance across the board: **that's Flexible Paper**.