

Current state of carbon pricing and supplier engagement

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Introduction

Carbon insets (generated within the supply chain) and carbon offsets (generated outside of it) have been commonly used in food and agriculture to abate carbon impacts and support the long-term health of soils, farms, and communities. Deloitte set out to better understand the current state of carbon pricing in food supply chains and supplier engagement strategies commonly used among US-based companies. In March 2025, we surveyed 51 industry leaders across agriculture, food and beverage, foodservice, and grocery with sustainability commitments on the actions they are taking to progress against these goals. The survey included questions regarding the use of financial incentives to monetize the benefits of on-farm practices, specifically through carbon insets and offsets in nine supply chains: corn, soy, wheat, rice, dairy, beef, pork, poultry, and fruits and vegetables. See the appendix for more information about the methodology and respondent profiles.

The survey results provide insights into trends and opportunities around carbon pricing, value chain collaboration, and supplier engagement:

Carbon pricing

- The data revealed a wide range in prices for both insets and offsets, indicating a lack of standardization and transparency in carbon pricing. In addition, some respondents reported paying nothing for insets and offsets. For example:
 - For **beef insets**, prices ranged from **\$0 to \$550** per MT CO₂e^a
 - For **wheat offsets**, prices ranged from **\$0 to \$500** per MT CO₂e
- Despite the broad spread of carbon prices reported, in most cases, respondents converged around a narrower range of prices. For example, **more than 70% of respondents paid \$20 or less on the low end and up to \$100 on the high end for animal protein insets** per MT CO₂e (including beef, dairy, poultry, and pork), despite absolute maximum inset prices reaching \$400 (dairy) and \$550 (beef) per MT CO₂e.

- **Surveyed processors are paying 28% more for insets and 32% more for offsets than the survey average, while retailers are paying 87% less for insets and 83% less for offsets than the survey average.**

Value chain

- Surveyed processors and retailers also diverge on the length of contracts they offer suppliers. **While 43% of processors offered suppliers contracts lasting three or more years, only 25% of retailers did the same.**

Supplier engagement

- The data also revealed differences within organizations on their approach to supplier engagement on sustainability. For example, **70% of respondents belonging to the sustainability function viewed long-term offtake agreements as a priority supplier engagement strategy, compared to only 46% of respondents from the procurement function.**

^a MT CO₂e refers to Metric Tons of Carbon Dioxide Equivalent. Throughout this paper, one inset is considered 1 MT CO₂e and one offset is considered 1 MT CO₂e.

Carbon pricing

Respondents were asked to share whether carbon insets and/or offsets are part of their strategies and, if so, the low- and high-end prices they paid. Respondents could indicate whether they used metric tons of CO₂e (MT CO₂e) and/or carbon intensity (CI) scores to evaluate the environmental impact of commodities they sourced. Sixty-five percent of respondents quantified emissions in MT CO₂e, 49% utilized CI scores, and 14% used both. While MT CO₂e is useful for aggregated carbon accounting and regulatory reporting and CI score per product or per acre can be useful for on-farm decision-making, survey responses suggest there is no dominant standard. The use of both metrics may make it challenging to compare inset and offset transactions.

Respondents who procure carbon insets or offsets as part of their emissions reduction strategy disclosed the lowest (minimum) and highest (maximum) prices they paid for each based on the commodities their organization sources.^b The data showed significant variability in carbon prices respondents paid. For example, inset prices for beef ranged from \$0 to \$550 per MT CO₂e while offset prices ranged from \$0 to \$250 per MT CO₂e.¹

Table 1: Inset and offset prices by commodity

		Row crops			
		Corn	Soy	Wheat	Rice
Insets	Min. price	\$0	\$0	\$0	\$0
	Max price	\$225	\$240	\$550	\$400
Offsets	Min. price	\$0	\$0	\$0	\$1
	Max price	\$300	\$250	\$550	\$500
Sample size		n=22	n=23	n=23	n=16

		Animal proteins				Others
		Dairy	Beef	Pork	Poultry	Fruits & veg.
Insets	Min. price	\$0	\$0	\$0	\$0	\$5
	Max price	\$400	\$550	\$300	\$200	\$170
Offsets	Min. price	\$0	\$0	\$0	\$0	\$1
	Max price	\$400	\$250	\$200	\$200	\$65
Sample size		n=27	n=18	n=18	n=20	n=13

^b To solicit pricing data, respondents were asked “What price do you pay for insets and/or offsets for this commodity? Low? High?” for each commodity.

However, survey responses across categories of commodities, including row crops (corn, soy, wheat, rice) and animal proteins (dairy, beef, pork, poultry) showed price clustering that suggests some consistency in prices. For example, approximately 70% of respondents who procured insets/offsets associated with row crops paid less than \$8 for insets and \$15 or less for offsets on the low end, or up to \$30 for insets or offsets on the high end. For proteins, the range of minimum versus maximum prices paid for insets and offsets was wider.

The variability in carbon pricing indicates evolving market maturity and price transparency. This was further underscored by respondents’ divided views on whether prices for insets and/or offsets are likely to increase (24%), decrease (27%), or remain the same (27%) over the next year—with 22% uncertain about the future trajectory.

A degree of variability in carbon pricing is expected given inset and offset prices are influenced by several factors, including a project’s additionality; the clarity of its baseline emissions; the rigor of its measurement, monitoring, reporting, and verification (MMRV); and the risk of credit reversal.

Table 2: Inset and offset pricing summary for row crop and protein

	Row crops <i>corn, soy, wheat, rice</i>	
	Insets (n=37)	Offsets (n=47)
70% of respondents paid a minimum of...	<\$8	≤\$15
70% of respondents paid a maximum of...	≤\$80	≤\$30
	Proteins <i>dairy, beef, pork, poultry</i>	
	Insets (n=30)	Offsets (n=53)
70% of respondents paid a minimum of...	<\$20	≤\$13
70% of respondents paid a maximum of...	≤\$100	≤\$60

These components determine credibility and effectiveness—and ultimately the market value—of carbon insets and offsets.

Without reliable and transparent carbon pricing, value chain actors may struggle to confidently assess the return on investment (ROI) from carbon insets and offsets, which increases perceived risk, discourages upfront investment, and slows the adoption of practice changes that generate credits and support producers (farmers and ranchers). Approaches such as cost-plus pricing, which allows buyers and

Value chain collaboration

Supplier engagement on sustainability was a high priority for survey respondents, given that 69% of their organizations have set scope 3 carbon reduction targets, which pertain to value chain emissions and necessitate engaging suppliers to reduce emissions. An additional 16% of respondents were in the process of establishing targets. The majority of respondents (85%) were either currently allocating, or planned to allocate, company resources toward collaborating with suppliers to reduce their impact on the organization's emissions. Organizations at various nodes of the value chain differed in how they encourage suppliers to adopt practice changes that may result in carbon reductions.

For example, the survey revealed two areas of notable discrepancy between

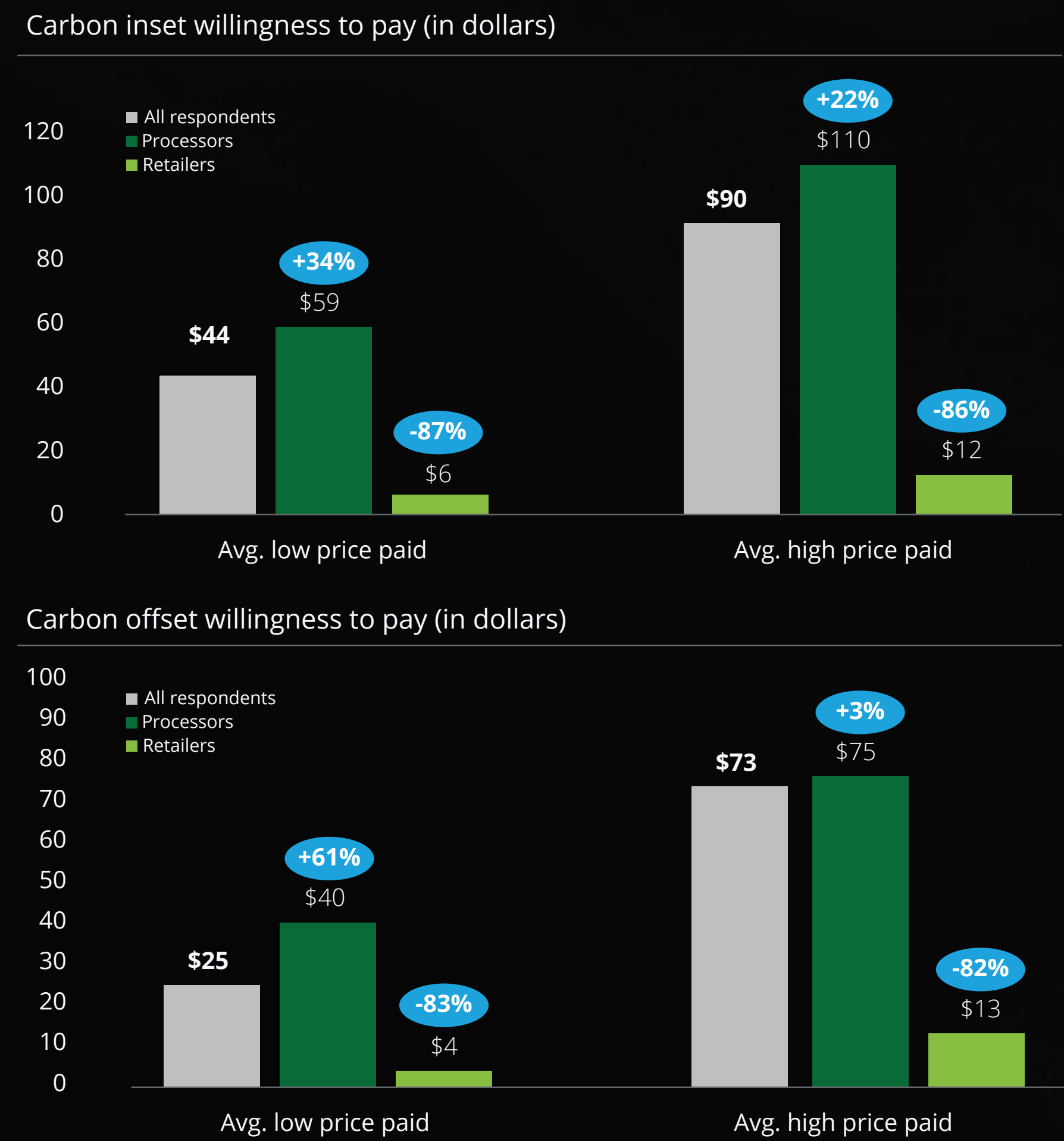
processors and retailers, both in willingness to pay for insets/offsets and supplier contract duration. Given that processors and retailers often share upstream suppliers, they have an opportunity to encourage adoption of practices that help achieve scope 3 targets by:

1. Precompetitively collaborating to support carbon market standardization and maturation, and
2. Better aligning contract duration with the needs of producers who may only see returns on on-farm practice changes three to five years after initial adoption.²

Processor versus retailer willingness to pay

Based on low-end and high-end prices for insets and offsets reported across respondents, averages for all responses from organizations identifying as processors or retailers showed key differences in willingness to pay for carbon insets/offsets. The survey data indicated that processors pay significantly more for both carbon insets and offsets across commodities—up to 61% more in some cases. This discrepancy could be due to a combination of factors, including processors' relative proximity to farm-level activities, their regulatory obligations concerning ingredients and traceability, and the upfront role they play in sourcing lower-carbon inputs.³ On the other hand, retailers tended to pay considerably less.

Figure 1: Willingness to pay for insets and offsets



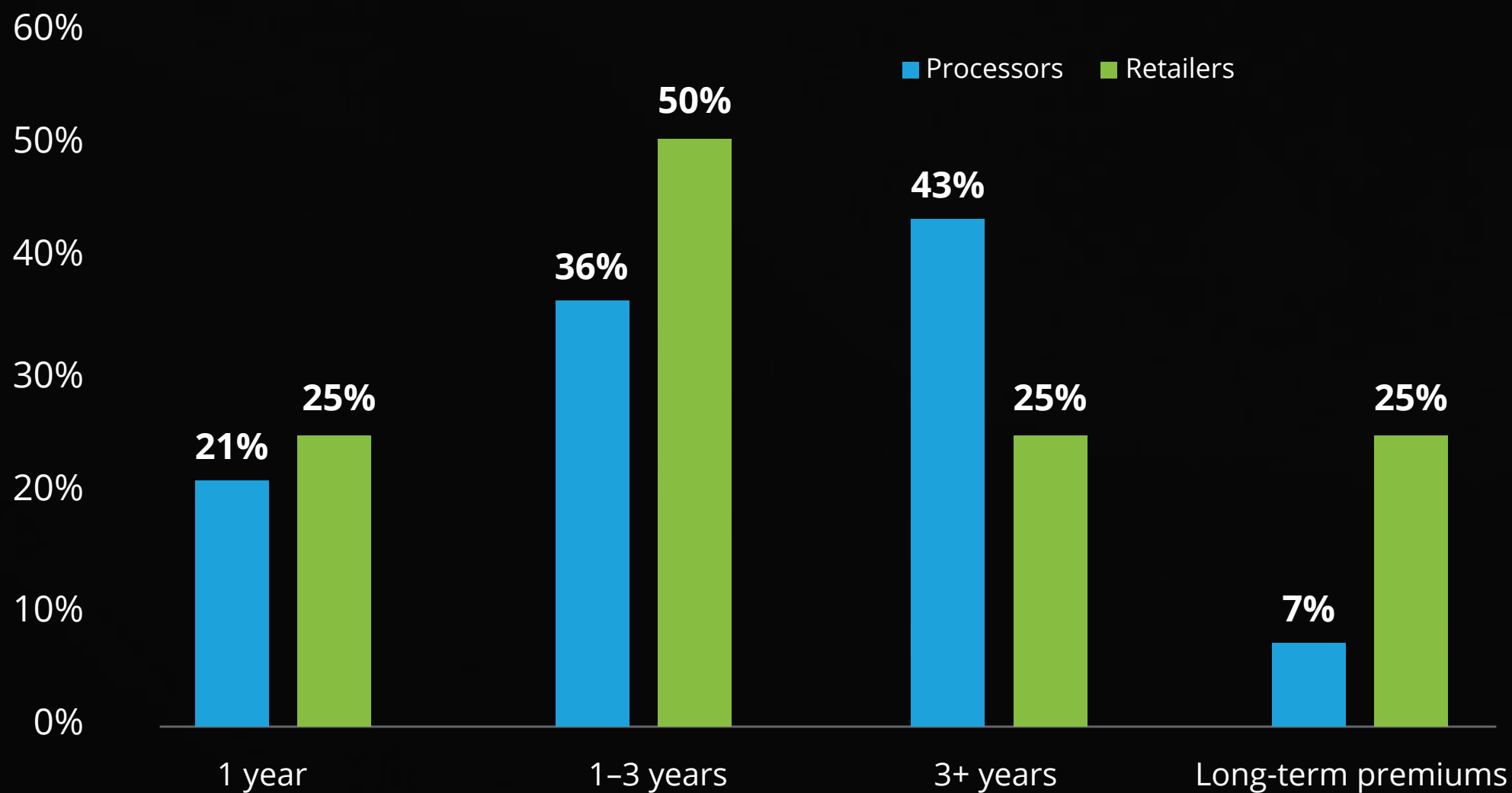
In the absence of common benchmarks or shared frameworks for evaluating credit quality and price (e.g., uniform project development standards, a global carbon price floor, or consistently rigorous MMRV approaches), each actor may be operating on different assumptions. Processors and retailers could work together to align approaches to carbon credit valuation, verification, and pricing to facilitate broader adoption of on-farm practices within shared value chains.

Supplier contract duration

According to the survey results, processors and retailers offered contracts of different durations to suppliers, even though they almost equally used long-term offtake agreements as a supplier engagement strategy (64% of processors and 63% of retailers). Processors were more likely to provide longer-term contracts than retailers. Across the board, organizations with higher annual revenues (\$10 billion or more) were more likely to provide longer contract terms than organizations with lower annual revenues (\$1 billion to \$5 billion). Retailers were 4% more likely than processors to provide one-year contracts, 14% more likely to provide one-to-three-year contracts, and 18% less likely to offer contracts longer than three years. At the same time, according to survey data, retailers were more likely than processors to implement long-term premiums, indicating a potential discrepancy in how processors and retailers define “long term.”

The survey data showed a variance in contract duration between processors and retailers, as well as a bias toward contract terms of three years or fewer.

Figure 2: Supplier contract duration across processors and retailers



Studies have indicated that producers may not see economic returns from practice changes until three to five years after adoption. Research on the net profit impact of various farm practices, including high-yield density crops and crop rotation, indicates that initial upfront investment reduces profit in the early years, and over the three-to-five-year time horizon the net profit impact of these practices often turns positive.⁴ This data suggests the possibility that contracts may end before producers can realize economic benefits. Therefore, processors and retailers have an opportunity to better align contract lengths with producer returns.

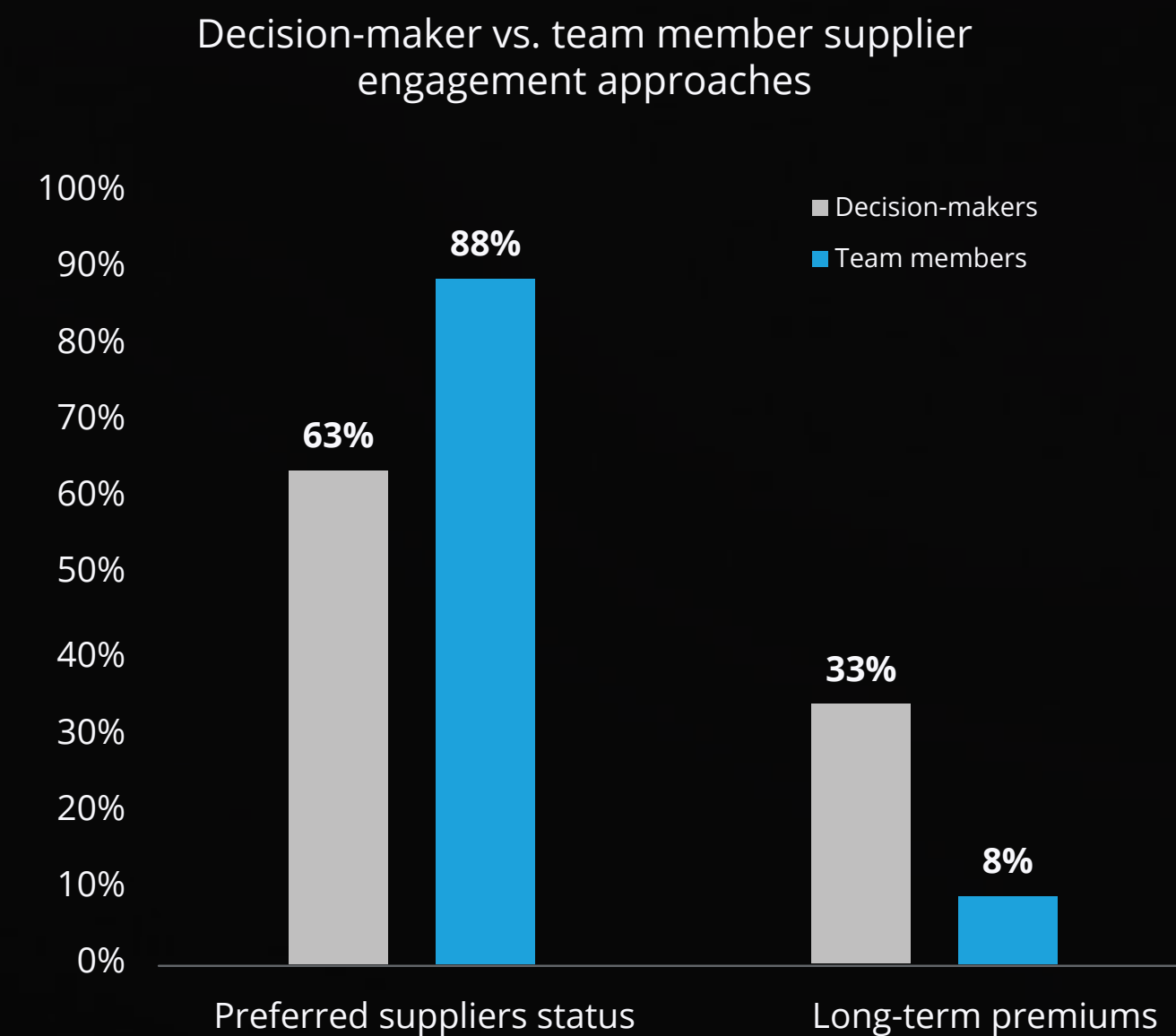
Supplier engagement

For organizations that are committed to scope 3 targets, internal misalignment between departments—particularly procurement and sustainability—may delay or derail progress on supplier engagement strategies. As a part of the survey, respondents identified their department within their organization (e.g., procurement, sustainability, strategy, or sales), indicated whether they are a key decision-maker or are part of the team that informs decisions on sustainability, and indicated which (if any) of the following supplier engagement strategies they leverage to help meet targets:

- Preferred supplier status
- Procurement guarantees
- Long-term offtake agreements
- Temporary premiums
- Long-term premiums
- Supplier requirements

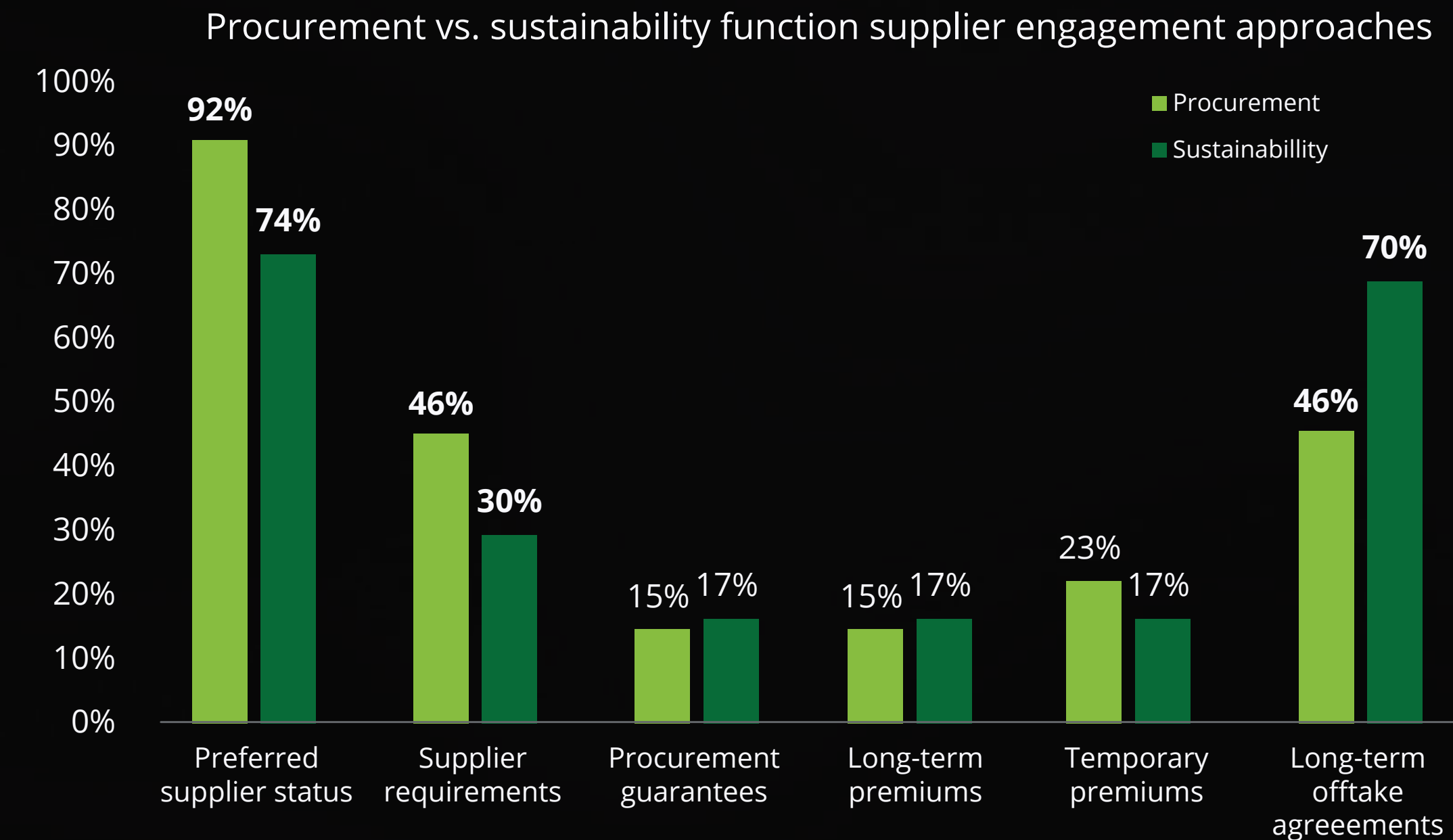
The survey data revealed stark contrasts in how different internal stakeholders perceive the effectiveness of various approaches. For example, 88% of team members consider preferred supplier status a strong strategy, compared to 63% of decision-makers. Conversely, only 8% of team members favor long-term premiums as a strategy, compared to 33% of decision-makers.⁵ These differences suggest that decision-makers and team members may have asymmetrical information on the trade-offs, financial constraints, and/or historical performance data that influence decisions.

Figure 3: Supplier engagement approaches across decision-makers and team members



The divergence between sustainability and procurement teams was similarly notable. While sustainability leaders primarily preferred long-term offtake agreements (70%), only 46% of procurement professionals did.⁶ Meanwhile, procurement favored mechanisms like supplier requirements and preferred supplier status, which offer more immediate leverage and clearer procurement key performance indicators.

Figure 4: Supplier engagement approaches by function



The result is an ecosystem where supplier expectations vary not just between organizations but within them, potentially slowing progress and risking supplier disengagement. Clear governance structures, shared metrics, and strong internal communication may help to improve internal alignment and enable organizations to engage with suppliers in a manner that strengthens the credibility and efficiency of scope 3 action.



Conclusion and call to action

Carbon insets and offsets remain an important strategy across the food and agriculture supply chain to support the long-term health of soils, farms, and communities. However, Deloitte's survey reveals several points of information asymmetry, resulting in disparate outcomes for farmers and ranchers, processors, retailers, and others who buy or sell insets and offsets.

To support positive long-term outcomes, value chain stakeholders should work together to support inset/offset market maturation and transparency.

Key opportunities for further engagement include:

- 1. Increased pricing transparency:** Survey results indicated significant price discrepancies within commodity groups and across value chain stakeholders. Increased price transparency, through mechanisms such as cost-plus pricing, would enable purchasers of insets and offsets to more readily compare options and tie purchases to specific outcomes.
- 2. Market standardization:** Aligning across stakeholder groups on common approaches to carbon credit valuation, verification, and pricing could facilitate broader adoption of practices within shared value chains. This could include the development of new uniform standards, as well as consistent approaches to MMRV.
- 3. Contract duration alignment:** The survey indicated that many contracts with producers are short term (less than three years), which may not align payments to the ROI necessary for farmers and ranchers to adopt practice changes. Coordinating to offer contracts that meet farmer and rancher needs could unlock greater market activity.
- 4. Internal function alignment:** The survey found that different teams within organizations prefer differing metrics to encourage practice change at the farm level. Collaborating internally across procurement, sustainability, and other functions could help to standardize the mechanisms and payments used to support practice changes.

Appendix

Survey overview

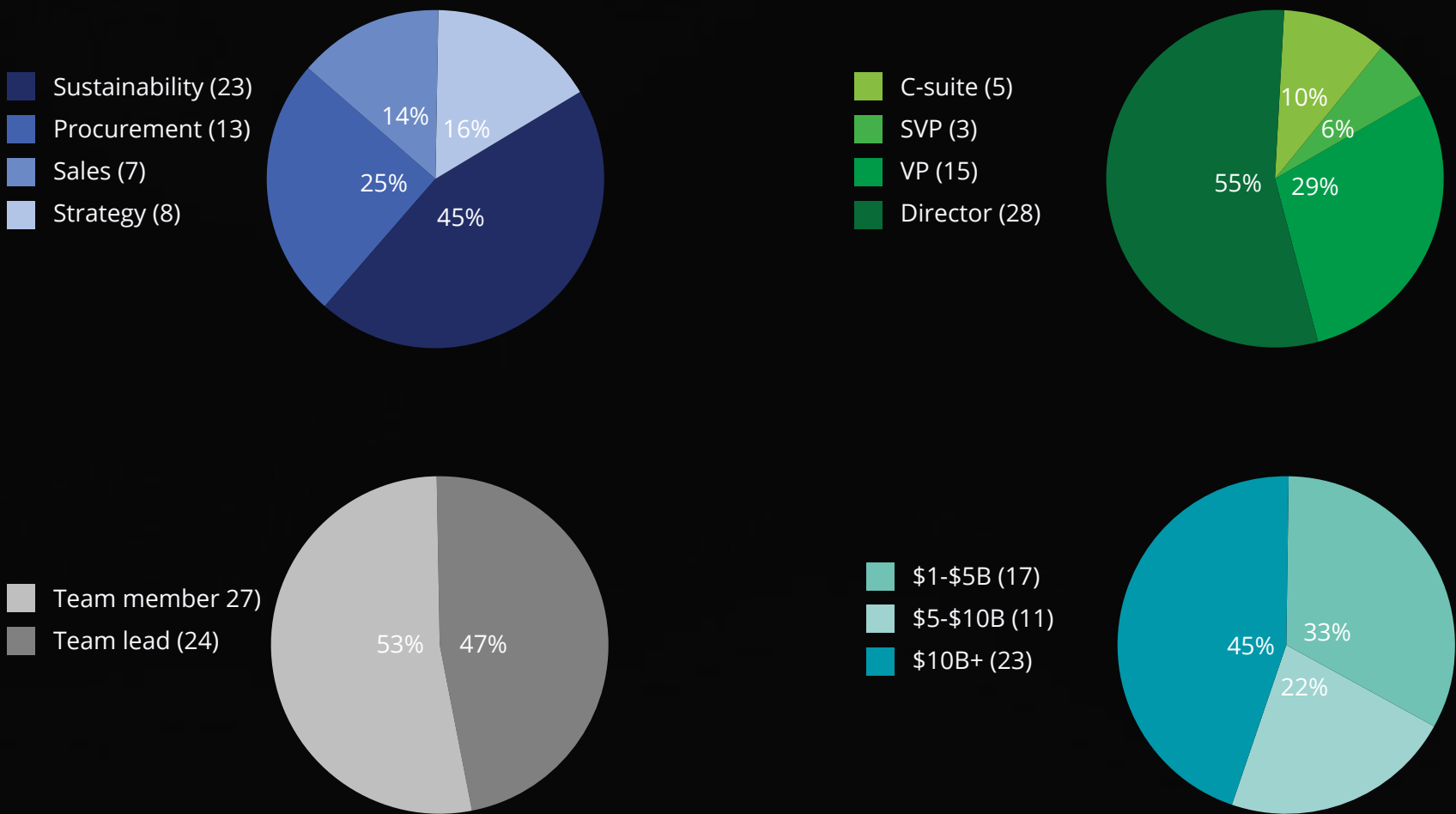
Deloitte designed and conducted a survey to understand whether and how food and agriculture companies incentivize suppliers to offer low-carbon row crops, animal proteins, and/or fruits and vegetables. A third-party research and survey firm helped facilitate a double-blind survey to minimize potential biases in responses, supporting the collection of a total of 51 anonymous responses from food and agriculture companies. To identify stakeholders with adequate background in their organization’s efforts to reduce scope 3 emissions, respondents were required to be in roles that are director level or higher and have a role in sustainability, strategy, procurement, or sales. All organizations represented had a minimum of \$1 billion (USD) in annual revenue in 2025.

- **Objective:** Survey companies to understand how much they pay for insets and offsets today
- **Approach:** Leveraging the input of subject-matter specialists in agriculture and sustainability, Deloitte designed a 12-question survey. A third-party research and survey firm helped facilitate a double-blind survey to minimize potential biases in responses, supporting with the collection of a total of 51 anonymous responses from executives representing food and agriculture companies
- **Runtime:** February 2025–March 2025
- **Sample size:** 51 respondents
- **Respondents:** US-based leaders at food, beverage, and grocery companies who use agricultural commodities as inputs to their core product offerings. Sample titles include Senior Director of Sustainability, Senior Global Procurement Manager, Chief Strategy Officer, Chief Sustainability Officer, Global Head of Safety—Health & Environmental.

• **Screening:** To target respondents with this specific expertise, respondents who answered the following questions with responses in blue during the survey window were considered.

1. Where are you located? United States
2. Which of the following best describes your company’s industry vertical? Agriculture, Food & Beverage, Grocery, Foodservice, Retail, Energy
3. Which of the following best describes your department within your organization? Strategy, Sustainability, Procurement, Sales
4. What best describes your title? C-level, SVP-level, VP-level, Director-level (or equivalent)
5. Does your company have sustainability targets? Yes
6. Which of the following best describes your ability to speak about scope 3–related decisions at your organization? I am a key decision-maker regarding sustainability, carbon abatement, and/or procurement at my company; I am part of the decision-making team regarding sustainability, carbon abatement, and/or procurement at my company
7. Which of the following best describes your organization’s annual revenue? >\$1B, >\$5B, >\$10B+

Respondent demographics



Assumptions and limitations

- **Self-reported data:** Given survey responses are composed of self-reported data from individuals who work at represented companies, there is a potential bias introduced by the respondents' results. Respondents provide results based on their specific purview and experience. Potential social desirability bias may also influence results.
- **Value chain node:** Respondents were asked to identify where in the value chain their organization sits and were able to select all that apply from the following list: input provision, production, processing, distribution, and retail. Most respondents (66%, or 34 respondents) selected more than one value chain node, making it challenging to classify respondents as belonging to a particular position on the value chain.
 - o **Processor-retailer comparisons:** To work around the lack of attribution of a respondent to one specific value chain node, we identified 14 “processors” by extracting data from respondents who described their company as sitting in the “processing” node of the value chain, including respondents who additionally selected “production” and “distribution.” We identified 8 “retailers” by extracting data from respondents who solely described their organization as sitting in the “retail” node of the value chain and who did not identify their organization as pertaining to other value chain nodes. We verified there was no overlap in these two categories to enable comparison.

Carbon pricing data

- **Pricing data analysis:**
 - o Price **ranges** were determined by identifying the lowest inset/offset low-end price and the highest inset/offset high-end price.
 - o **Averages** were determined by calculating the sum of all data points within a given segment (e.g., within dairy, inset low-end prices are one segment, inset high-end prices are another segment) and dividing that sum by the number of price points within the segment.
 - o **Median and mode** were determined by arranging all pricing data in an array where each price point was tagged to a commodity (e.g., dairy) and a data segment (e.g., inset low-end price) and leveraging spreadsheet formulas and filtering to determine the median/mode for the array.
 - o **Outliers** were identified and tagged manually. Given that the majority of price points fell within a \$0 to \$550 range across commodities, price points vastly outside of this range (e.g., \$600 or more), or prices tied to units of measurement other than MT CO₂e, were excluded from the data analysis.
- **Sample sizes:** Sample sizes (e.g., n=X) in the context of carbon pricing data refer to the number of low/high-end price point pairs provided for the commodity. Because each respondent was asked to report the low-end and high-end prices for a given carbon inset or offset, each low-end price reported therefore has a corresponding high-end price. Each of these pairs of a low-end and a high-end price in a data set was counted as n=1.

Other indicators of market uncertainty

- **Predictions for carbon pricing:** After participants provided low/high-end prices for carbon insets and offsets, they were asked "What do you believe will happen to these prices in the next 12 months?" and chose from Increase, Decrease, Stay the same, or if they were uncertain, they could opt to skip the question. For the purposes of this analysis, we considered non-answers as a given participant’s uncertainty about the future direction of carbon pricing.
 - o Increase: 24% or 12 respondents
 - o Decrease: 27% or 14 respondents
 - o Stay the same: 27% or 14 respondents
 - o Uncertain: 22% or 11 respondents (remaining respondents)
- **Measurement approaches:** To evaluate which measurement methodology respondents most commonly use, they were asked “Which of the following applies to how you evaluate environmental impact for the commodities that you’ve identified?” and were able to choose one or both options between carbon intensity (CI) score and volume of metric tons CO₂e.
 - o CI score: 49% or 25 respondents
 - o MT CO₂e: 65% or 33 respondents
 - o Both: 14% or 7 respondents

Supplier engagement strategies

- **Revenue/organization size:** Though respondents were not asked to disclose their respective company’s employee population, respondents were asked to disclose whether their organization

falls into the following low, medium, or high revenue bands, defined by in annual revenue in USD: \$1 billion to \$5 billion, \$5 billion to \$10 billion, \$10 billion or more. Annual revenue was used as a proxy for organization size and applied to survey analyses.

- o Survey data from these three revenue categories was used to understand how preferences for different supplier engagement strategies and how contract duration varied by organization size.

Carbon credit pricing data

		Row crops				Animal proteins				Others
		Corn	Soy	Wheat	Rice	Dairy	Beef	Pork	Poultry	Fruits & veg.
Insets	Min. price	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5
	Max price	\$225	\$240	\$550	\$400	\$400	\$550	\$300	\$200	\$170
	Low avg.	\$15	\$27	\$72	\$53	\$48	\$98	\$50	\$21	\$27
	High avg.	\$55	\$80	\$129	\$81	\$97	\$172	\$93	\$66	\$52
Offsets	Min. price	\$0	\$0	\$0	\$1	\$0	\$0	\$0	\$0	\$1
	Max price	\$300	\$250	\$550	\$500	\$400	\$250	\$200	\$200	\$65
	Low avg.	\$18	\$20	\$58	\$36	\$31	\$15	\$9	\$16	\$11
	High avg.	\$83	\$74	\$135	\$73	\$83	\$52	\$48	\$58	\$27
Sample size		n=22	n=23	n=23	n=16	n=27	n=18	n=18	n=20	n=13

¹ Deloitte internal survey, February-March 2025.
² Deloitte Global, Closing the gap: An analysis of the costs and incentives for regenerative agriculture in Europe, World Business Council for Sustainable Europe, March 19, 2025.
³ Deloitte survey; US Environmental Protection Agency (EPA), Multimedia environmental compliance guide for food processors, March 1999.
⁴ Deloitte Global, Closing the gap: An analysis of the costs and incentives for regenerative agriculture in Europe.
⁵ Deloitte survey.
⁶ Ibid.



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