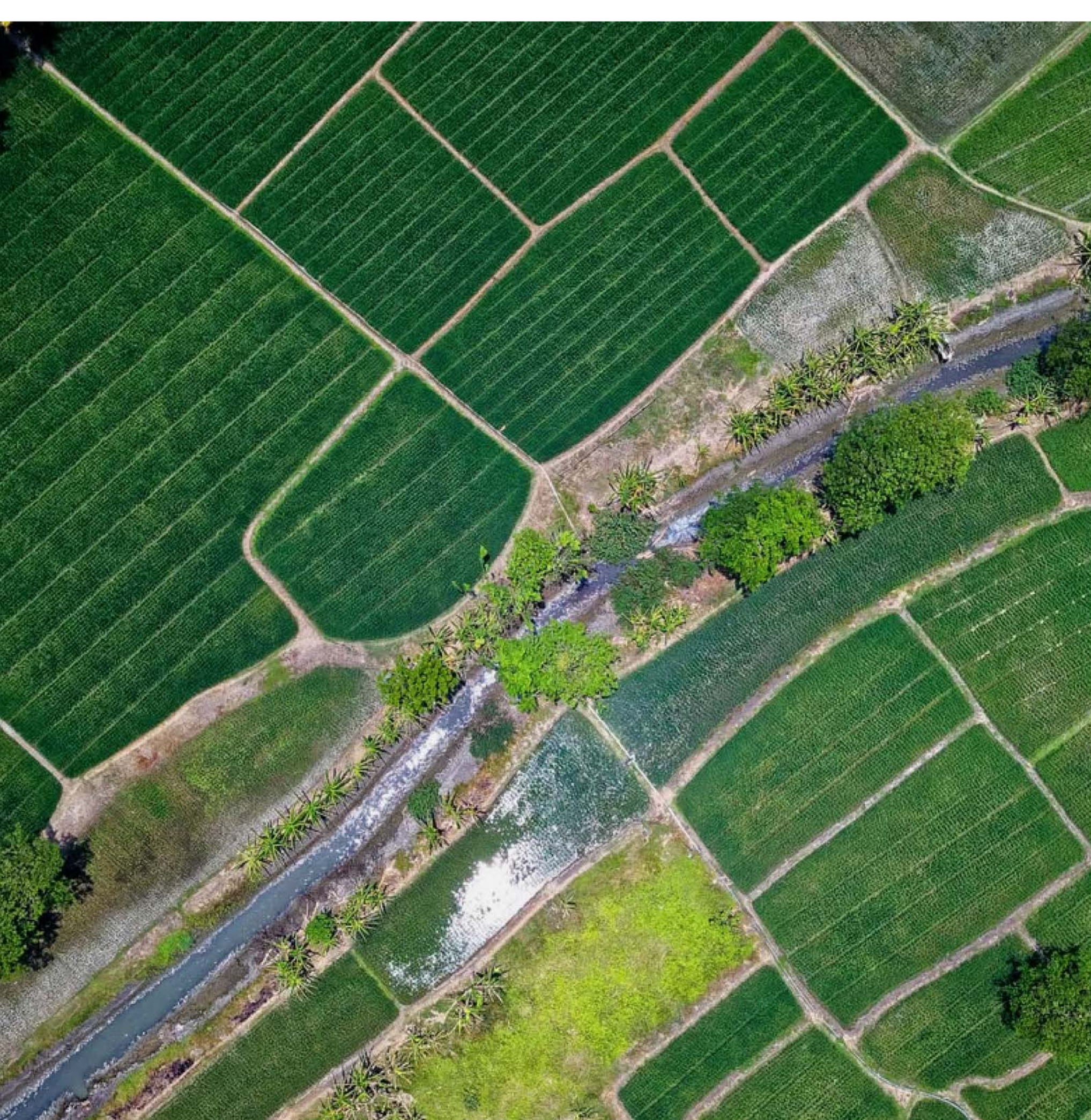




The Food & Farming Industry *2026 Outlook* by C3

For most food companies, the largest share of emissions lies not in their own operations but on the farms that supply their ingredients, which they neither own nor control. In 2026, that agricultural carbon is priced for the first time. The lowest-cost reductions sit on those same farms, yet remain dispersed across millions of smallholders that buyers have long struggled to reach. This report examines where agricultural emissions concentrate, and how the reductions can be financed and delivered.

THE ONE-PAGE THESIS

A food brand's carbon lives *on the farm*.

For a food company, direct operations account for only a small share of total emissions. The majority is agricultural in origin: methane from livestock, flooded rice paddies, and land cleared for cultivation, generated on farms the company does not own and reported as Scope 3, the emissions it inherits from its suppliers. At Nestlé, more than two-thirds of the footprint originates in purchased ingredients.

In 2026, this agricultural carbon is priced and accounted for. The EU Deforestation Regulation takes effect, Denmark's farm-carbon tax becomes law, SBTi FLAG establishes the accounting rules, and California's LCFS rewards reductions in dairy methane. The reduction is made on the farm, while the reporting obligation falls on the company downstream. Carbon3 links the two: each verified farm-level reduction is divided into units and allocated, in proportion, across the companies that source from the same farms, with every unit retired once so that a tonne is counted only once.

16.5

GT CO₂E • 32% OF ALL EMISSIONS

the food system's 2023 footprint, about a third of all human-caused greenhouse gas, most of it on the farm.

FAO STAT, 2025 release (2023 data).

~40

% OF HUMAN METHANE

comes from farming: livestock 32% and rice 8%. A tonne cut now avoids ~80× its CO₂ over 20 years.

FAO; IEA Global Methane Tracker 2026.

30 Dec 2026

EUDR DEADLINE

from this date, farms must be mapped and shown to be deforestation-free to sell into the EU.

Regulation (EU) 2023/1115, as amended 2025/2650.

3–4

GT CO₂E / YR BELOW USD 50

of cheap carbon cuts sit on farms, much of it profitable, but locked behind hundreds of millions of small farmers.

Project Drawdown 2025; McKinsey 2024.

STRUCTURE OF THE ANALYSIS

What this report *covers*.

PART I

WHERE THE EMISSIONS SIT

The *inheritance*.

Nearly all sit on farms the brand does not own, and now carry a price.



The plate · A brand's books · The 2026 rules · Who pays
· Three crops

P. 04–08

PART II

WHERE ABATEMENT SITS

The levers that *pay now*.

The lowest-cost reductions pay for themselves. C3 allocates them to brands.



Rice · Feed additives · Manure · The smallholder gap ·
Palm · The C3 model · Two deals

P. 09–15

PART III

WHERE THIS GOES NEXT

Legible, then *bankable*.

2026 makes low-cost cuts visible, and the report sets out its own risks.



Why 2026 · Soil-carbon frontier · The 2050 path · Key
risks

P. 16–20

A photograph of a cornfield with rows of green corn plants in the foreground. In the background, a village with red-roofed houses is visible on a hill under a dark, overcast sky. The image is dimly lit, with the text overlaid in white and orange.

PART I / THE INHERITANCE

I A food brand's carbon lies not in its factories but on the *farms it does not own*.

For most food companies, almost all emissions sit upstream, on farms they never owned. Those emissions fall entirely within Scope 3. In 2026 they are priced and counted, and a party must carry them. This part follows the tonne, not the headline.

THE SCOPE 3 PARADOX

Where the *emissions sit*.

Public discussion tends to consider the farm and the brand separately. The more consequential fact is structural: for a food company, direct operations, its factories, transport and retail, account for only a small fraction of total emissions. Almost the entire footprint is upstream, in the goods the company purchases rather than the assets it operates. That is Scope 3.

32%

OF ALL HUMAN-CAUSED GREENHOUSE GAS COMES FROM THE AGRIFOOD SYSTEM, 16.5 GT CO₂e IN A SINGLE YEAR
FAOSTAT, Oct 2025 release (2023 data).

That figure applies to the food system as a whole, not to any single company within it. At the company level, the pattern is consistent: roughly nine in ten tonnes of a food company's emissions are upstream, in purchased goods rather than owned operations, and agriculture is the largest component. Nestlé reports approximately **95%** of its emissions as Scope 3, over two-thirds of it in purchased ingredients; for PepsiCo the figure is about **94%**. Improvements to a company's own facilities therefore address only a small part of the total. The emissions now being priced originate with the growers, dairies and processors that lie outside its direct control.

THE CENTRAL POINT

The reduction must be made on the farm, yet the emissions, and the commercial value of reducing them, sit with the company that has to report them. Closing that gap, between where carbon is cut and where its value accrues, is the challenge this report addresses.

The composition of that footprint reinforces the point. Livestock is its single largest component, at **4.3 Gt CO₂e**, and agriculture accounts for close to 40% of global anthropogenic methane. A company cannot address emissions of this scale through its own operations alone; it must engage the supply chain it does not control and finance reductions at their source.

→ These emissions are increasingly being priced, and in 2026 that cost becomes material. The following section examines one company's disclosed footprint.

READ THE BRAND'S OWN BOOKS

A food brand's *own books*.

A single company's emissions inventory illustrates the pattern. Its own factories and purchased power represent a small share of the total. The majority is upstream, in the crops and livestock it sources from farms it does not own. For a typical food company, roughly nine of every ten tonnes of emissions fall outside its own operations.

OWN OPERATIONS • SCOPE 1+2

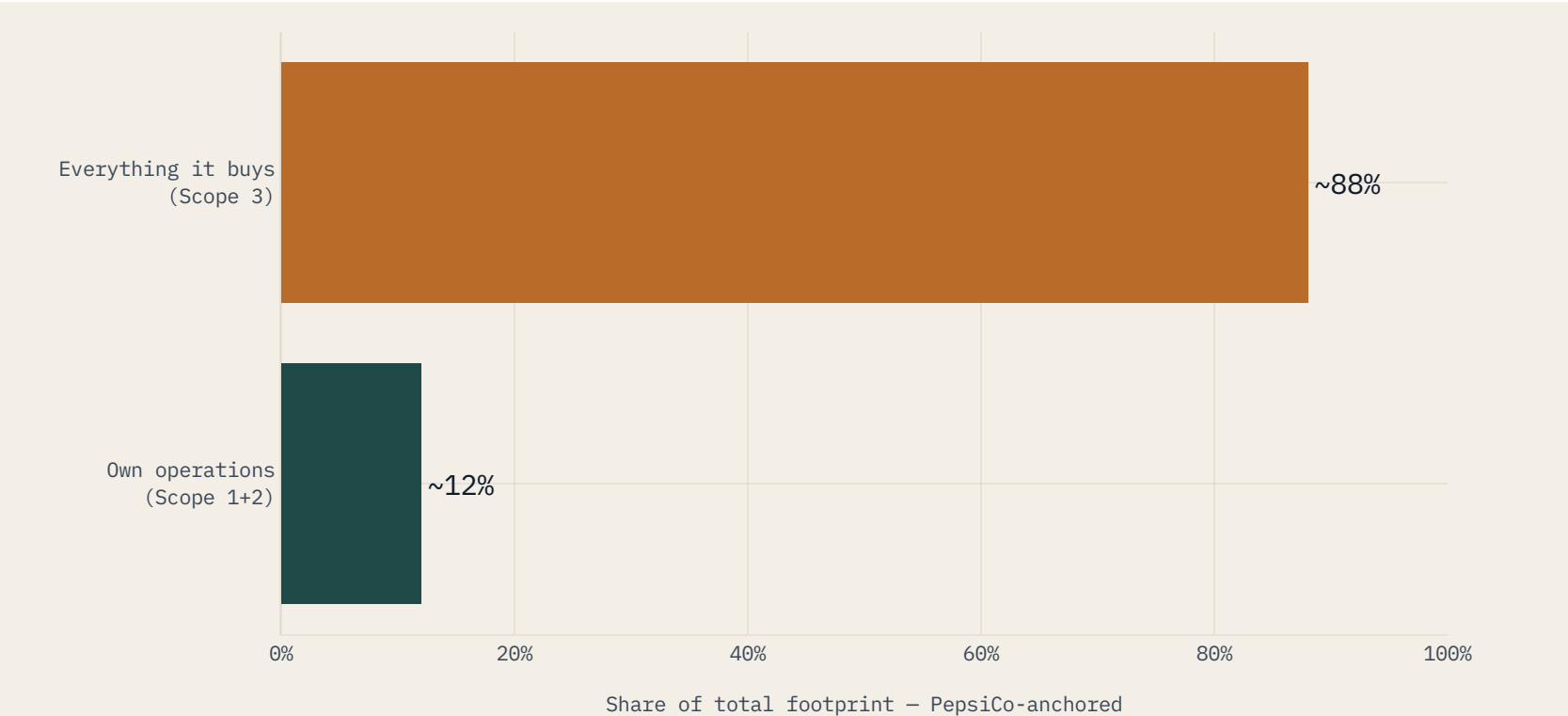
~12% of footprint

EVERYTHING IT BUYS • SCOPE 3

~88% of footprint

PepsiCo reports approximately **88%** of its footprint in purchased goods rather than owned operations, against a total of about 53 Mt CO₂e, with agriculture the largest component. Nestlé shows the same structure: over two-thirds of its footprint originates in sourced ingredients. A company can decarbonize its own facilities entirely and still be defined by a supply chain it does not control.

SHARE OF A FOOD BRAND'S FOOTPRINT, OWN OPERATIONS VS EVERYTHING IT BUYS (PEPSICO-ANCHORED, ILLUSTRATIVE)



The chart shows shares of the footprint rather than absolute tonnes, since the ratio is more stable than any single year's inventory. Direct operations are the portion a company can address through its own capital projects. The larger share is upstream, distributed across thousands of suppliers, with agriculture the largest part. The principal opportunity therefore lies not within the company's own facilities but in its supply chain, where insetting finances verified reductions on the farms whose emissions it ultimately reports. Source: PepsiCo 2024 CTAP; Nestlé Net-Zero Roadmap.

FARM CARBON IS PRICED • 2026

The new *rules for farm carbon*.

For years farm emissions carried no price and no measurement, moving through the supply chain unaccounted. In 2026 a set of new rules makes them a number the buyer must declare, priced and graded, within Scope 3. Roughly nine in every ten tonnes of a food brand's carbon sit on farms it does not own. As such, these rules land on the brand's books, not the farmer's, and the pressure on a food company passes almost in full back to the field, the dairy and the mill.

DECLARED • EU DEFORESTATION RULE

EUDR, from 30 Dec 2026

Deforestation-free sourcing and mapped plot locations become the price of EU market access. Delayed twice, it is now real. Large and medium firms comply from 30 December 2026, smaller ones from 30 June 2027, for cattle, cocoa, coffee, oil palm, rubber, soya and wood, with proof of no clearance after 31 December 2020. It forces traceable, mapped farm data, the same rails insetting runs on.

Regulation (EU) 2023/1115, as amended by Reg. (EU) 2025/2650.

PRICED • DENMARK'S FARM TAX

The first farm tax

Denmark is the first country to price livestock emissions, and it is now law. The tax runs DKK 300 per tonne from 2030, rising to DKK 750 by 2035. A 60% cut leaves an effective DKK 120 climbing to DKK 300, roughly EUR 16 to EUR 40. The rate is modest; the signal is not. Farm emissions now carry a cost set in law, and other governments are watching.

Danish Ministry of Taxation; Green Tripartite, law passed 18 Nov 2024.

GRADED • REPORTING STANDARDS

FLAG • LSRS • LCFS

Three accounting standards make farm reductions a booked, claimable number. SBTi FLAG now guides more than 300 companies to a 2030 no-deforestation deadline. The GHG Protocol's new land rulebook takes effect January 2027. California's clean-fuel program (LCFS) pays for dairy methane at roughly USD 63 per tonne, its digesters earning a negative carbon score. Abatement becomes a reportable asset.

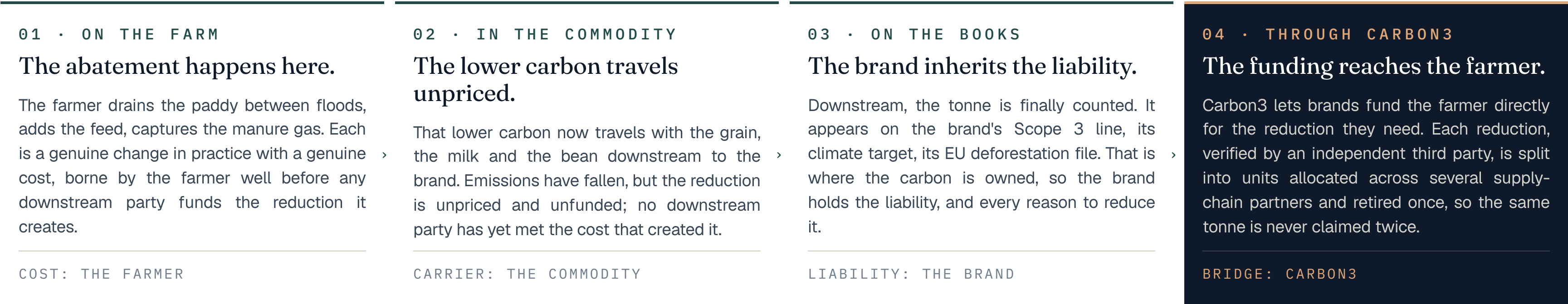
SBTi FLAG v1.2 (Mar 2026); GHG Protocol LSRS (Jan 2026); CARB LCFS Q1 2026.

→ Once farm carbon is a declared, priced and graded liability on the brand's books, the question becomes where the lowest-cost tonnes sit, and who funds the reduction when the farmer makes it but the brand reports it. The next section examines those levers.

WHO PAYS , WHO CAPTURES

Cost on the farm, *value at the brand*.

A tonne of carbon reduced on a farm moves through the whole food chain, yet the cost and the liability sit at opposite ends. The farmer changes practice and pays first. The lower carbon then travels with the grain, the milk and the bean downstream to the brand, where it is finally counted. That is where the funding should originate, and Carbon3 links the two.



The reduction is on the farm. The liability is on the brand. *Carbon3 moves the funding across that distance, once.*

AGRICULTURE IS NOT ONE SECTOR

Where the strategy actually *lives*.

Treating agriculture as one number is a costly error, as there is no single farm carbon problem to solve. Livestock, rice and palm oil each sit in a different supply chain, answer to a different rule, and hold a different lowest-cost reduction. A dairy program does nothing for a rice field, and palm oil traceability does nothing for enteric methane. Seen as one block, agriculture appears intractable. Split into three, each part has a defined lever and a group of farms whose verified reductions are allocated in proportion to each brand's uptake.



Livestock

DAIRY & BEEF · THE LARGEST SHARE

The single largest share of farm carbon. Enteric methane is the lowest-cost lever to identify but the hardest to secure adoption for: the science is sound, and demonstrating that farmers applied it is the difficulty. The farm base is dispersed: India alone makes roughly 230 Mt of milk, near a quarter of the world, across some 80 million small farms. That is where the reductions sit, and where pooling farms pays off.

4.3 Gt

LARGEST AGRIFOOD SLICE

2.5–3.2

KG CO₂E/KG MILK



Rice

PADDY METHANE · ALL APAC, SMALLHOLDER

Rice-field methane is the lowest-cost reduction in the economy. Draining the paddy between floods cuts field methane by 30 to 70 percent, and often pays for itself on water savings alone. The constraint is where it sits: rice is largely Asian and smallholder, grown across roughly 165 million hectares of Asian paddy. The economics already work; what is missing is third-party verification and retire-once accounting at that scale.

~8%

OF HUMAN METHANE

30–70%

AWD METHANE CUT



Palm oil

THE EUDR TEST CASE

The forest-and-peat crop, and the test case for the 2026 rulebook. Certified palm runs about 2.3 kg CO₂e per kg, while clearing peat raises that to 6 to 10. Output is concentrated, with Indonesia at 60 percent and Malaysia at 25, making it the principal target of the EU deforestation rule (EUDR). Traceability is already required by law, so once a third party verifies the reduction, the added cost to turn mapped supply data into an allocable inset is small.

79 Mt

OUTPUT/YR · 85%
INDO+MALAYSIA

6–10

KG CO₂E/KG WITH PEAT

Sources: FAOSTAT 2025 (livestock 4.3 Gt); FAO GLEAM 3.0 2024 (dairy intensity); NDDDB/FAO 2024 (India milk); IRRI and Our World in Data (rice methane, AWD); RSPO 2023 and Carlson et al. 2018 (palm intensity). Two more run alongside: coffee and cocoa, where farm trees are the lever and EUDR the rule, and fish farming, where feed and mangrove protection carry the footprint.

An aerial photograph of a rice paddy field, showing rows of young rice plants in the foreground and a combine harvester in the background. A large, stylized orange Roman numeral 'II' is overlaid on the image, positioned to the left of the main text.

PART II / THE LEVERS THAT PAY

The low-cost cuts in food *already pay for themselves.*

Draining a paddy saves water; capturing manure gas sells power. Rice, digesters and feed additives are proven and in use today, so the technology is no longer the constraint. The task left is to allocate those reductions along the crop, to the brands that must now account for the carbon.

THE CHEAPEST CUT • RICE METHANE

Rice cultivation and *methane*.

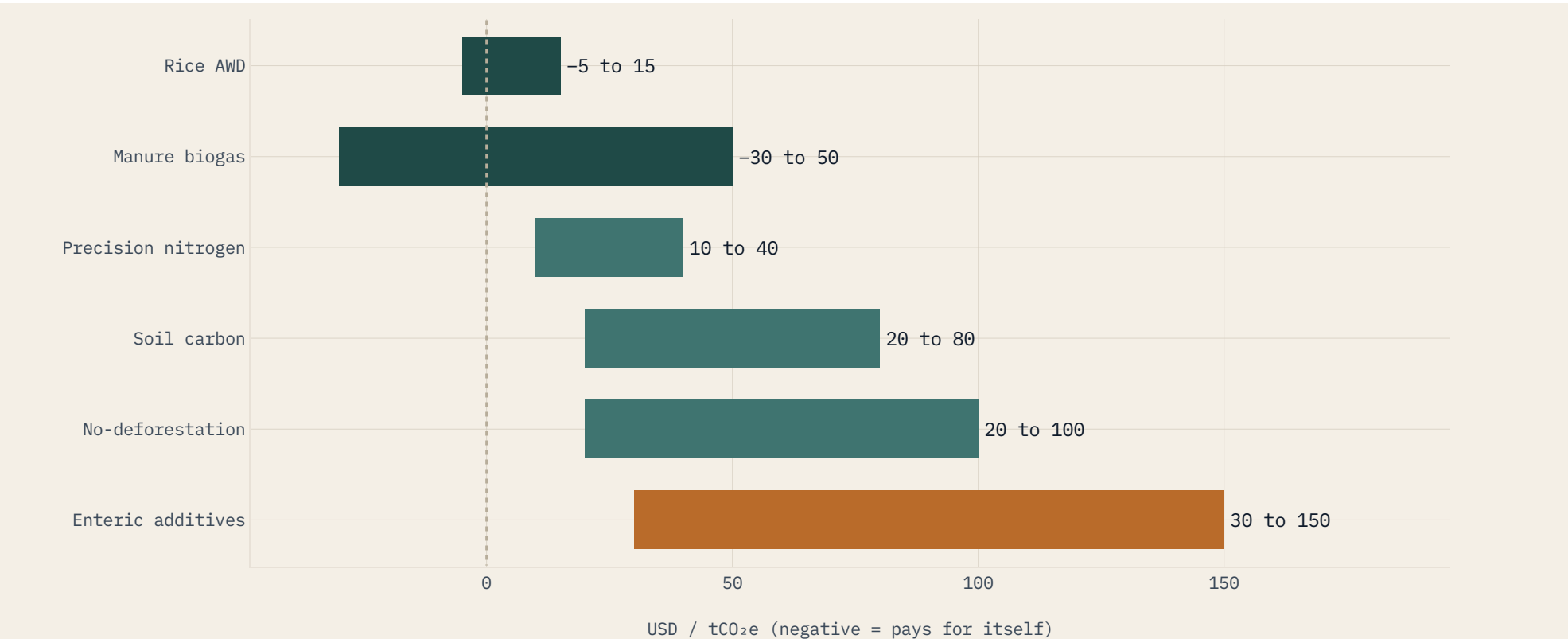
Flooded rice paddies are the largest farm source of methane after livestock, yet the mitigation is simple. Draining the field a few times each season, a practice known as alternate wetting and drying, suppresses the bacteria that make the gas. It reduces paddy methane by a third to two-thirds, holds or raises yield, and uses about a quarter less water. That water saving is why the reduction often pays for itself before any carbon unit is sold.

30–70%

PADDY METHANE REDUCTION FROM ALTERNATE WETTING AND DRYING, WHILE HOLDING OR RAISING YIELD AND SAVING 25–30% OF IRRIGATION WATER
IRRI, 2024.

Rice is not the only low-cost lever. Ranked by the cost to abate one tonne, the lowest-cost reductions available are on farms. Roughly **3 to 4 Gt of CO₂e a year sits below USD 50 per tonne.**

COST TO CUT ONE TONNE OF CARBON, BY FARM LEVER (USD)



Negative bars pay for themselves before any payment. Rice draining often profits from the water saved; manure biogas runs net-negative where California's clean-fuel program (LCFS) applies. Sources: Project Drawdown 2025; McKinsey Ag & Climate 2024; IRRI.

→ The economics already hold: Thailand's NAMA Rice put draining and balanced fertiliser on 320,000 hectares for about 267,000 tCO₂e a year; the Global Methane Hub gave USD 30M to low-emission rice in late 2025; and Vietnam's one-million-hectare Mekong programme has USD 330M of World Bank backing. Low cost is not the same as captured: the lowest-cost reductions are dispersed across millions of farms too small to measure one by one.

ENTERIC METHANE • FEED ADDITIVES

Enteric methane and *feed additives*.

Enteric methane from cattle is the single largest source of farm carbon, and for the first time the chemistry to reduce it is proven and on shelves. 3-NOP, sold as Bovaer, reduces about 30 percent of that methane in dairy cows and roughly 45 percent in beef cattle; red-seaweed additives reduce more still in trials. The molecule is no longer the constraint. What is scarce, and what a market must reward, is proven on-farm use with credible measurement behind it.

~30%

ENTERIC METHANE IN DAIRY COWS CUT BY 3-NOP (BOVAER); ~45% IN BEEF CATTLE
dsm-firmenich; ADSA 2025.

>500K

COWS ON BOVAER ACROSS 25+ COUNTRIES BY EARLY 2025
dsm-firmenich; ADSA 2025.

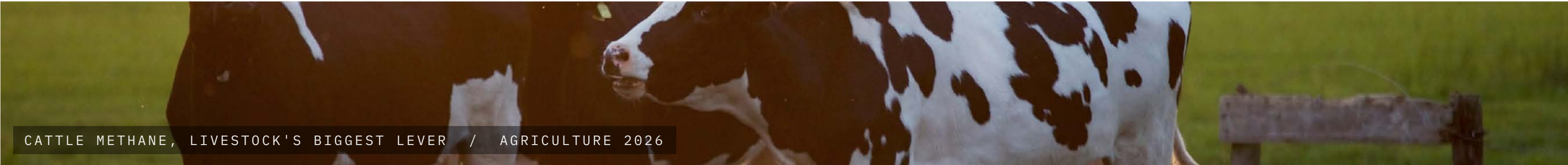
65–90%

METHANE CUT FROM ASPARAGOPSIS RED SEAWEED IN TRIALS; FIRST COMMERCIAL PLANT OPENED JAN 2025
Company disclosures 2025.

+30–150

COST TO CUT ONE TONNE, USD/TCO₂E: A REAL COST ONLY A PAID MARKET COVERS
Project Drawdown 2025; McKinsey 2024.

The constraint is trust, not chemistry. A 2024-25 consumer backlash, driven by false rumours, hit Bovaer in the UK after Arla's trial and prompted boycotts. Policy and opinion then diverged. Denmark mandated the additive from October 2025 on roughly 1,600 farms; Norway and Sweden paused their trials; the European Commission asked EFSA to re-assess it, data due March 2026; and Nestlé left the Dairy Methane Action Alliance in October 2025. The technology is proven. Proven on-farm use, verified by an independent auditor, is the scarce input, and that is what insetting, reducing carbon within a firm's own supply chain, is built to reward.



CATTLE METHANE, LIVESTOCK'S BIGGEST LEVER / AGRICULTURE 2026

MANURE METHANE • BIOGAS

Manure management and *biogas*.

An uncovered manure lagoon is a continuous source of methane. Captured in a digester, that gas becomes renewable natural gas. Where a carbon price reaches the project, the economics reverse. Under California's clean-fuel program (LCFS), dairy biogas earns a deeply negative carbon score, which stacks on top of US clean-fuel credits. Together they can recover the cost in five to eight years, converting the reduction into a revenue line and making manure one of the few net-negative abatement options in the economy. A carbon score rates a fuel's full lifecycle emissions under the program.

USD 1–3M

DIGESTER CAPEX FOR A MEDIUM DAIRY, FIVE-TO-EIGHT-YEAR PAYBACK UNDER CALIFORNIA LCFS
CARB LCFS; industry disclosures 2025.

–350

GCO₂E/MJ CARBON INTENSITY A DAIRY DIGESTER CAN REACH; SCORES RUN –150 TO BELOW –350
CARB LCFS reports Q1–Q2 2026.

USD 3.1M

ONE-QUARTER REVENUE AT AEMETIS BIOGAS IN Q2 2025, UP FROM USD 1.6M IN APRIL, FROM LCFS + US FUEL CREDITS + GAS
Aemetis disclosures 2025.

~140

DAIRY DIGESTER PILOTS CO-FUNDED BY NESTLÉ AND DANONE INSIDE THEIR SUPPLY CHAINS
Corporate ESG 2024.

A negative cost is only negative where a carbon price reaches it. The credit stack places the project near or below zero cost, roughly –30 to +50 USD per tonne abated. That result holds only within California's price; the same lagoon in an unpriced market remains uneconomic. That gap is what insetting closes. The methane reduction is a verified reduction, split into units and shared across the several brands sourcing that milk, each unit retired once. Insetting finances the reduction within the buyer's own supply chain, not an unrelated offset.



MANURE CAPTURED, METHANE INTO GAS / AGRICULTURE 2026

THE BINDING CONSTRAINT

The *smallholder* problem.

The lowest-cost abatement in the economy sits on farms. Roughly 3 to 4 gigatonnes a year can be cut across agriculture at low or negative cost, the majority of it on land that food companies do not own. This abatement is dispersed across hundreds of millions of smallholders, too small individually to verify and too fragmented to transact. For decades the constraint was assumed to be capital. It is not. The binding constraint is proving the reduction, pooling the farms, and allocating one real reduction across many buyers without double counting.

MECHANISM • THE COST OF PROOF HAS FALLEN

The barrier to small-farm proof was the cost of measurement. Conventional soil sampling ran USD 15,000 to 30,000 per farm, which no small plot could repay. That cost has fallen sharply. Satellite tools now reduce monitoring budgets 25 to 40 percent, mapping runs under USD 0.05 per hectare, and phone-based tracking runs under USD 5 per farmer per year. Aggregation resolves the remainder: cooperatives and clusters of 80 to 100 farmers pool thousands of plots into one verifiable unit and, as Circkular's India biochar clusters show, pay farmers 60 percent of revenue upfront at no cost to the farmer.

THE BINDING CONSTRAINT • THE GAP IS INSTITUTIONAL

Low-cost measurement does not by itself make a market. The farms must still be pooled into a financeable unit, verification must stay in independent third-party hands, one real reduction must be allocated pro-rata across the many buyers sourcing from those farms so no tonne is claimed twice, and farmers who cannot wait years must be paid. None of this is a sensing problem. It is an institutional one, which is why the lowest-cost abatement stayed inaccessible even as measurement became nearly free.

That institutional layer is precisely what Carbon3 provides. Verification remains with ISCC, RSB and ISO 14064-3; C3 pools the farms, allocates each verified reduction pro-rata across the supply-chain partners sourcing from those farms, retires each unit once, and pays out. The mapped EUDR tracing file, which large and medium firms must file from 30 December 2026, runs on the same rails insetting requires, so the data cost is already met. For the first time, in 2026, small-farm insetting is viable, and the operator that builds these rails defines food's supply-chain carbon market.

PALM OIL • THE EUDR TEST

Palm oil and the *EUDR test*.

Palm oil is the clearest case of the thesis, because almost none of its emissions arise in the mill. They arise in the land: in peat that decomposes and releases carbon, and in forest cleared for planting. Palm is thus the leading test of the EU deforestation regulation (EUDR). Large and medium EU exporters must show, for each plot, its location and that no forest was cleared for it, from end 2026; smaller growers follow in mid-2027. Producers and brands that treat the regulation as an asset rather than a cost stand to capture the low-carbon premium.

MECHANISM • THE CORE COST IS ALREADY INCURRED

The plot-by-plot, no-deforestation file EUDR requires of every grower is most of the proof a verified inset needs, so converting that spend into a saleable Scope 3 reduction costs little more. An inset reduces emissions inside a brand's own supply chain, not an unrelated offset. With mill methane capture, worth about 30,000 tCO₂e a year per mill, and re-wetting of drained peat, a group of small farms becomes real low-carbon palm supply for many brands, not a cost.

THE CONSTRAINT • BASELINES DETERMINE CREDIBILITY

Integrity is decisive here, because avoided-deforestation accounting is where voluntary markets lost credibility. Independent review found only 6 to 25 percent of REDD+ credits were real, reductions that would not otherwise have occurred. The rule is firm: an independent standard sets the baseline the reduction is measured against, never C3 or the grower, and each saved tonne is claimed once, never twice. A reduction that fails this test cannot be sold.

79 Mt / yr

GLOBAL PALM OIL OUTPUT; INDONESIA 60%, MALAYSIA 25%
RSPO 2023; Carlson et al. 2018.

6–10 kg CO₂e/kg

FOOTPRINT WITH PEAT CONVERSION, VERSUS 2.3 CERTIFIED
Carlson et al. 2018; RSPO 2023.

The economics rest on a single point. EUDR mandates the tracing spend regardless, so the marginal cost of turning that no-deforestation file into a verified reduction is small. With mill methane and peat re-wetting, a baseline set by an independent standard, and each tonne retired once across the many EU brands sourcing those farms, producers that read EUDR as an asset, not a line cost, capture the premium for low-carbon palm.

THE INTEGRITY MOAT

The *insetting* chain, farm to brand.

A reduction on the farm is not yet an asset a brand can book. Turning a verified farm reduction into a tonne the brand can claim in its Scope 3 takes three steps. C3 performs two and never the first. Measurement remains with an independent party, because every later claim is only as sound as the tonnes behind it, and those tonnes must be certified by a party with no interest in who claims them.

STEP 01 · VERIFY

An independent party certifies the tonne.

An accredited third party measures the farm reduction against a baseline it sets, then certifies the tonnes. That role belongs to ISCC, RSB, an ISO 14064-3 auditor, SustainCERT or Verra, never to C3. Measurement is separated from allocation by design: the chain is credible only if the party quantifying the carbon has no stake in who claims it.

THIRD-PARTY VERIFIED

STEP 02 · ALLOCATE

One reduction, allocated across buyers.

C3 divides the verified reduction into units and allocates them across the brands sourcing from that group of farms, pro-rata to each brand's volume. A co-op's methane reduction rarely belongs to one company; several buyers source the same farms, so each gets a proportionate share. No single buyer takes the whole amount, and no tonne is issued twice.

MULTI-BUYER · PRO-RATA

STEP 03 · RETIRE

One tonne, one claim, retired once.

Each unit is retired exactly once on the C3 ledger and recorded in that brand's product Scope 3 report. Retirement is the control: a tonne claimed by one buyer cannot be claimed by another. That single retirement prevents the same tonne being claimed twice across national inventories, the supplier's own accounts and the brand's Scope 3.

RETIRE-ONCE · ON-LEDGER

WHAT AN INSET IS, AND IS NOT

An inset pays for a real reduction **inside** the buyer's own supply chain, on the farms whose emissions the brand already inherits. It is **not** an offset purchased from an unrelated project, and it is **not** an EU carbon-market permit or a CBAM certificate. An inset does not cancel a product's footprint or render food, beef or milk carbon-neutral. It records, accurately and once, that a tonne inside the brand's own farms was genuinely reduced.

TWO WAYS THE MONEY MOVES

Two *deal structures*.

DEAL 1 • INDIA DAIRY → APAC FOOD BRANDS

Aggregate the cooperative, then allocate the verified reduction across many brands.

One district cooperative under India's national dairy body pools about 250,000 small farms and 750,000 cattle into one financeable unit. The interventions are established: a feed additive that reduces enteric methane by about **25%** on small farms, shared biogas units, and improved feed rations. Together they abate about 370,000 tonnes of methane from cattle and 50,000 from manure, close to **420,000 tCO₂e a year**. At USD 35 to 55 a tonne, that reduction is worth USD 15 to 23 million a year.

Integrity: once a third party verifies the reduction, C3 allocates it into units across the many food brands sourcing that milk, pro-rata to each brand's volume. Each unit is retired once into that brand's Scope 3, with C3 at a 5 to 8% fee. These insets reduce real emissions; they are not offsets and confer no carbon-neutral claim.

Both structures are illustrative and modelled, not executed C3 transactions or market quotes. Figures are indicative ranges built on published abatement, pricing and adoption data; every real deal is sized and priced against third-party-verified, farm-level measurement.



WHERE THE VALUE MOVES / AGRICULTURE 2026

DEAL 2 • ASEAN PALM → EU BRANDS

Turn the mandated EUDR file into a low-carbon palm supply.

A palm-oil sustainability body groups about 25,000 small farms across 75,000 hectares feeding one mill. The tracing work the EU deforestation regulation (EUDR) mandates regardless becomes the base: mapping each plot, satellite no-deforestation checks, capture of methane from palm-mill wastewater worth about **30,000 tCO₂e a year**, and optional peat rewetting. The total reduction runs **110,000 to 260,000 tCO₂e a year**, priced at USD 45 to 80 a tonne on the deforestation-free premium. Because the data already exists, the marginal cost to convert it into a credit is small.

Integrity: C3 allocates the verified reduction across the many EU brands sourcing from that palm, each unit retired once into that brand's Scope 3. Small farms are paid up front against the future order, so payment reaches the farm before the credit is delivered. The insets reduce real emissions; they are not offsets and confer no carbon-neutral claim.

PART III / THE FRONTIER AND THE RECKONING

III

The abatement was always cheap.
2026 makes it visible.

What changes in 2026 is not the cut itself but whether it can be measured, priced and claimed. Further out, soil carbon offers durable storage. This part also names the risks that could undermine the case. It takes all three in turn.

THE LEGIBILITY TURN

The *legibility* turn.

The abatement was never the constraint. Roughly 3 to 4 Gt of cheap or free farm cuts went unused for years, because they could not be measured, priced or claimed cleanly. Four developments converge in 2026 to change that. The EU deforestation rule (EUDR) mandates farm-level data. Satellites and phone tools under USD 5 make measurement affordable. SBTi FLAG and the GHG Protocol land rulebook (LSRS) supply shared accounting language. Denmark's farm-carbon tax and California's clean-fuel program (LCFS) put a price on the cut. As cheap abatement becomes provable and priced at once, the scarce asset shifts from the tonne to clean, verified supply inside a brand's own value chain.

25–40%

LOWER COST TO PROVE A CUT USING SATELLITES, AGAINST USD 15,000–30,000 PER FARM FOR OLD SOIL SAMPLING

Spacenus / ESA 2025.

300+

COMPANIES WITH SBTi FLAG-VALIDATED TARGETS BY MID-2026, UP FROM 260 A YEAR EARLIER

SBTi, March–June 2026.

<USD 5

PER FARMER PER YEAR TO PROVE A CUT BY PHONE; MAPPING A PLOT UNDER USD 0.05/HA BY SATELLITE

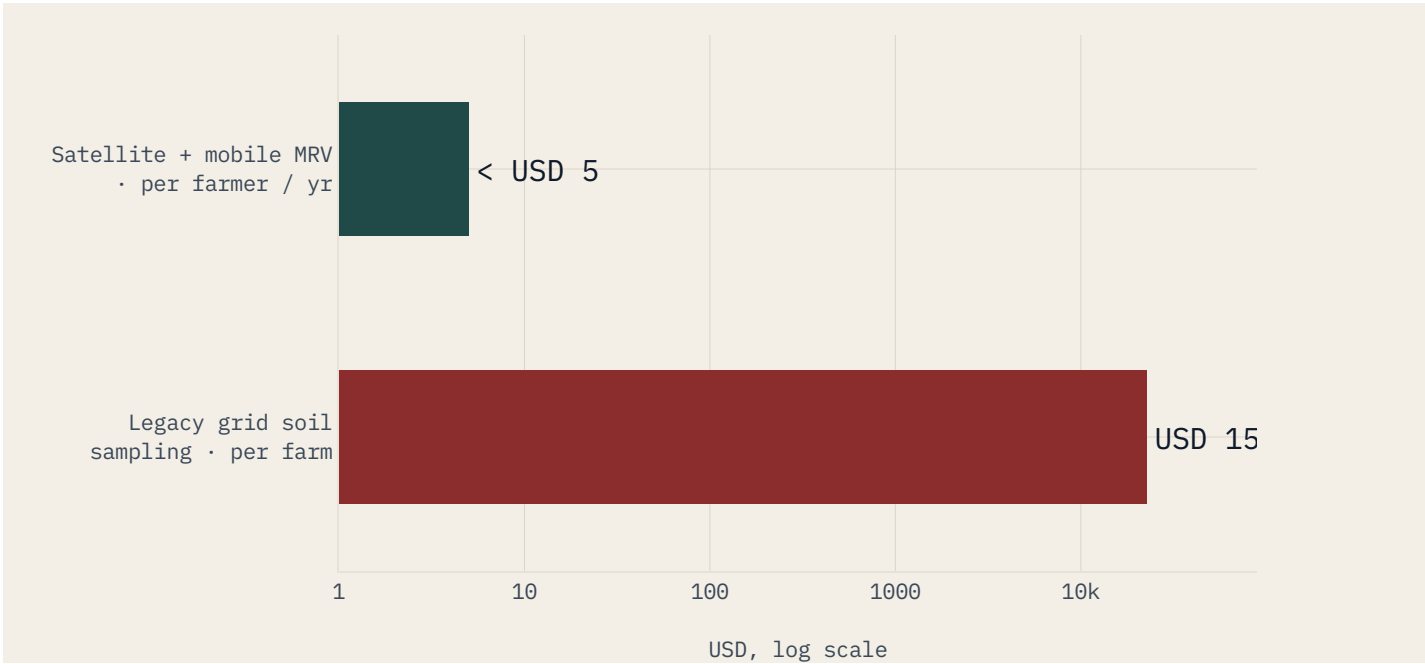
Trase 2025; Sentinel-2 / PlanetScope.

~USD 63

CALIFORNIA LCFS CREDIT PRICE PER TONNE IN Q1 2026, ALONGSIDE EUDR'S 30 DEC 2026 DEADLINE

CARB LCFS Q1 2026; Reg (EU) 2025/2650.

COST OF PROVING A FARM-LEVEL CUT (USD, LOG SCALE)



Measuring a farm's cut once required USD 15,000 to 30,000 of soil sampling per farm, a cost exceeding the value of the tonnes it verified. Satellites now reduce that by a quarter to 40%, phone tools run under USD 5 per farmer a year, and satellite measurement of farm cuts has become a multi-billion-dollar market. As the cost of proof approaches zero, the scarce asset is no longer the tonne but clean, verified supply that a brand exposed on its Scope 3 will pay to secure. Sources: Spacenus / ESA 2025.

THE FRONTIER • REMOVAL, NOT REDUCTION

The *removals* frontier.

Beyond the emission cuts that pay today lies a harder, more durable opportunity: sequestering carbon in soils and trees. Soil carbon and afforestation can hold a tonne for decades, and because farms already work the land, the raw material and the labour are in place. Removals are also where the voluntary market lost trust. As such, C3 treats this as a frontier to fund, not a store to draw on today, and accounts for every removed tonne separately from the cuts that carry the near-term case.

THE OPPORTUNITY • DURABLE REMOVALS

Soil carbon and afforestation are the rare farm options that remove carbon from the atmosphere and hold it for **decades**, unlike the short-lived methane cuts that carry the near-term case. The economics appear favourable, because the two scarcest inputs are already on the farm. The grower owns the land and supplies the labour, with no plant or pipeline to build. Accordingly, the frontier warrants patient funding rather than dismissal.

THE PRINCIPAL CONSTRAINT

Removals are also where trust broke. Soil-carbon measurement remains imprecise even at **USD 30 to 50 per hectare** of sampling, and stored carbon can reverse the moment a field is ploughed or a forest burns. Forest credits illustrate the risk: an independent review found only **6 to 25%** of forest-protection (REDD+) credits were additional, and CarbonPlan estimated roughly 29 Mt of over-crediting in California forests alone. C3 funds this frontier; it does not draw on it.

THE ACCOUNTING BOUNDARY

A cut tonne and a removed tonne are distinct, and conflating them erodes trust. Emission cuts, enteric methane, rice methane, manure capture and fertiliser N₂O, can be verified and held today, and carry the near-term case. Removals stored in soil and trees are slower, weaker and reversible. C3 counts and retires the two on **separate books**, and never allows a removal to substitute for a cut the brand still owes. The frontier is funded on its own terms, not folded into this year's claim.

Sources: West et al., Science 2023 (REDD+ additionality 6–25%); CarbonPlan, California forest offsets over-crediting ~29 Mt; soil-carbon sampling USD 30–50/ha and MAC +USD 20–80/t (Project Drawdown 2025 / McKinsey Ag & Climate 2024).

TODAY → 2030 → 2050

The path to 2050.

Agrifood emitted 16.5 Gt CO₂e in 2023, while a 1.5°C path requires **6 to 8 Gt of net reductions a year by 2050** against a 2020 baseline. That gap defines the market to be built. The Climate Policy Initiative puts the annual investment need near USD 400 billion by 2030, more than twenty times current flows to farming. Every tonne within that bridge must be financed. C3 converts each into a cut verified by a third party, allocated across the brands that source from the same farms, then counted once.

METRIC	TODAY (2025–26)	2030 (1.5°C PATH)	2050 ENDGAME
Net agrifood reductions vs 2020 Gt CO ₂ e/yr	0 (16.5 gross)	peak & decline	–6 to –8
Methane per litre of milk kg CO ₂ e/kg milk	2.5–3.2 avg	toward 1.3	<1.3
Rice methane cut, paddy drained % vs flooding	30–70%	scaled across Asia	default practice
Deforestation-free sourcing % of volume	partial (EUDR onset)	majority	100%
Cost to prove a cut USD	15k–30k / farm	<5 / farmer/yr	near-zero
Manure methane capture on large dairies	early	scaling under LCFS	standard

Numeric anchors: FAOSTAT 2025 (16.5 Gt); IPCC AR6 (–6 to –8 Gt/yr by 2050); CPI 2022 (finance need); FAO GLEAM 3.0 (enteric intensity, 1.3 EU/NZ frontier); IRRI 2024 (AWD 30–70%); Spacenus/ESA 2025 (MRV cost). Directional 2030 and 2050 cells are 1.5°C-aligned targets, not forecasts.



TODAY TO 2050 / AGRICULTURE 2026

THE DISCIPLINE

What could *break the thesis*.

Naming the failure modes is what makes the rest credible. Insetting, cutting carbon inside a brand's own value chain, must answer four questions to warrant a place on a buyer's balance sheet. Each risk is real, and each has a structural defence rather than a promise. C3 makes the discipline mechanical: third-party baselines, removals accounted separately, each tonne retired once, and deals built to survive a low carbon price.

01 · ADDITIONALITY

A cut that would have occurred regardless cannot be sold: the reduction must be real and additional. Independent review found only 6 to 25 percent of REDD+ credits met that test, the failure buyers fear most. The defence is structural: independent verifiers set the baseline, never C3 and never the farmer who is paid.

02 · DURABILITY & PERMANENCE

Carbon in soil and trees can reverse, and verifying those changes remains difficult, so C3 accounts for them separately. Cuts to methane from cattle and rice, plus manure and fertiliser gases, can be verified and are durable today. Soil and tree removals are counted and retired on their own, never conflated and never banked early on a promise.

03 · DOUBLE-COUNTING

Under the main climate-target scheme for farming (FLAG) and the new land-carbon rulebook (LSRS), the same farm tonne can be claimed simultaneously by the country, the supplier, and the brand as Scope 3. A tonne claimed three times destroys trust. C3's defence: one verified cut is allocated by how much each buyer sources, and each unit is retired once.

04 · POLICY & PRICE SOFTNESS

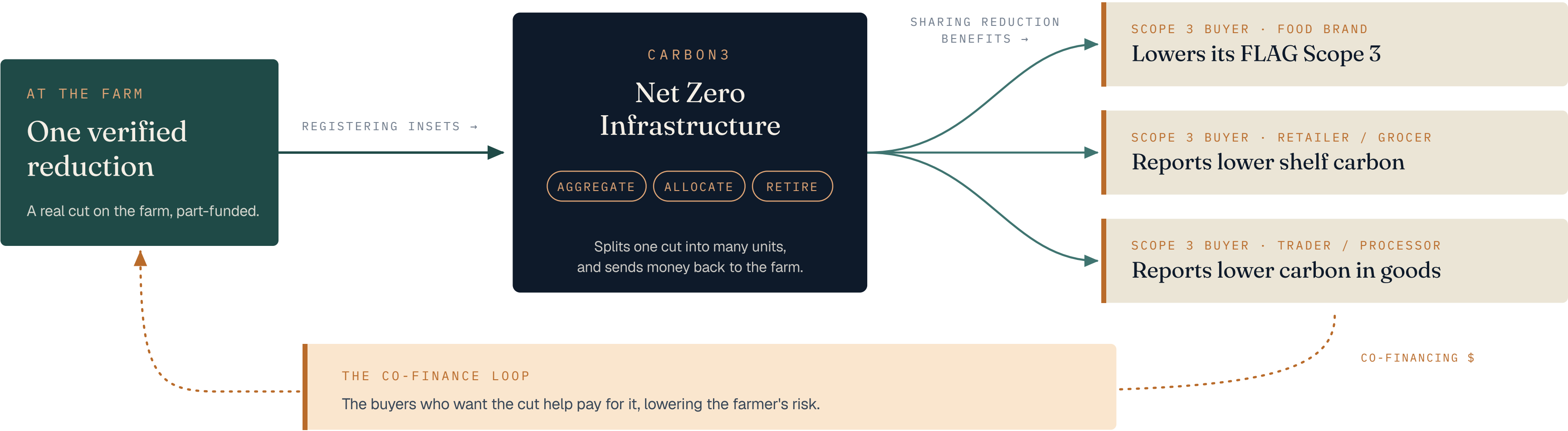
Regulation can weaken. The EU deforestation rule (EUDR) has already slipped to end-2026, Denmark's farm tax does not take effect until 2030, and California clean-fuel credits (LCFS) fell to USD 40 to 50 in mid-2025 before recovering. Revenue that depends on a high price is fragile. Accordingly, C3 backs deals that pay off regardless, through water savings, yield and feed, even at a low price.

→ These four rules are not fine print on the thesis; they are the thesis. A market that keeps every cut additional, accounts for removals separately and retires each verified tonne once is the only one buyers and regulators will stand behind.

HOW CARBON3 WORKS

Carbon3, *end to end.*

One verified cut on one farm, allocated by Carbon3 into units and shared across the food brand, retailer and processor who all carry that farm's carbon on their Scope 3 books. The value runs both ways: those buyers commit to purchase ahead, and that steady demand lowers the farmer's risk, so cuts that are viable on paper but never funded finally get built. Third parties verify the cut; Carbon3 allocates it; each unit is retired once.



INSETS FUND REAL CUTS INSIDE THE SUPPLY CHAIN · NOT OFFSETS, NOT ETS OR CBAM PERMITS, NO CARBON-NEUTRAL CLAIM

THE POSITION

Food decarbonizes *on the farms it depends on*.
Carbon3 provides the market infrastructure.

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*"Verified by third parties. Allocated by C3.
Retired once. The cleaner tonne, made
bankable for the farmer who delivers it."*

– CARBON3, 2026 AGRICULTURE & FOOD OUTLOOK

STAY IN TOUCH

carbon3.net

linkedin.com/company/c3org

WHAT THIS BRIEF IS BUILT ON

Sources and *standards*.

Every number on a slide derives from a public 2024–2026 source, cited alongside it. The two deals are modelled and labelled as such. The right-hand column lists the standards applied throughout.

REPORTS & DATA CITED

FAO / FAOSTAT — Emissions Totals, Oct 2025 release (2023 data); GLEAM 3.0; Enteric Methane programme.

[FAO.ORG/FAOSTAT](#)

IPCC — AR6 WGIII, Ch.7 (Agriculture, Forestry & Other Land Use), 2022.

[IPCC.CH](#)

IEA — Global Methane Tracker 2026.

[IEA.ORG](#)

Project Drawdown 2025; McKinsey Ag & Climate 2024; CPI 2022 — MAC curve; AFOLU finance need.

[DRAWDOWN.ORG](#)

IRRI & ClimateTRACE — AWD rice 2024; rice-methane inventory 2026; World Bank P175055 (Vietnam).

[IRRI.ORG](#)

Corporate roadmaps — Nestlé, PepsiCo, Unilever, Danone, Mars, McDonald's CTAPs, 2024–25.

[SBTI TARGET DASHBOARD 2026](#)

Company & market — dsm-firmenich (Bovaer); Aemetis (LCFS / D3 RIN); Spacenus / ESA (SatMRV); Trase.

[TRASE.EARTH](#)

Methodology · Every number traces to the public source cited on its slide. Policy status is as of July 2026. The two deals are illustrative, not actual Carbon3 transactions. Cuts are verified by accredited third parties, not by Carbon3. Carbon removal (Part III) is a separate product, counted and retired apart from the reduction insets.

STANDARDS, REGISTRIES & SUPPORTING DATA

Verification (third party) — ISCC; RSB; ISO 14064-2 / 14064-3; SustainCERT; Verra VCS AFOLU; Gold Standard; Plan Vivo; RSPO.

Allocation & reporting — GHG Protocol Corporate Value Chain (Scope 3) and LSRS (eff. 2027); SBTi FLAG v1.2 and Net-Zero v2.0; Verra Scope 3 Standard; AIM Platform QAR.

Regulators referenced — EUDR (Reg. (EU) 2023/1115, amended 2024/3234 & 2025/2650); Denmark Green Tripartite tax; California SB 1383 + LCFS; Australia Safeguard + ACCU; Indonesia ISPO; Malaysia MSPO 2.0.

Market & cost data — CARB LCFS Q1–Q2 2026; OPIS; Global Methane Hub; CPI smallholder finance; MethaneSAT 2026.

Integrity literature — West et al., *Science* 2023 (REDD+ additionality); CarbonPlan 2023 (California forest offsets); Poore & Nemecek, *Science* 2018.