

EXECUTIVE SUMMARY

Demand for Compost in Chile

Analysis of Results · May 2026

Prepared by CooValue Circular Solutions for the Global Methane Hub

About This Document

This executive summary synthesizes the key findings of a comprehensive study on compost demand in Chile, commissioned by the Global Methane Hub and executed by CooValue Circular Solutions. It is intended to provide decision-makers in government, agriculture, conservation, and urban management with a clear, actionable understanding of the market opportunity, the structural barriers preventing its realization, and the concrete policy and infrastructure interventions required to unlock it.

1. CONTEXT & STRATEGIC URGENCY

Chile stands at a decisive turning point. Organic waste represents 58% of the national municipal solid waste fraction, making it the primary source of methane emissions within the waste sector. Methane is a greenhouse gas with roughly 80 times the short-term warming power of CO₂, and waste is one of the most addressable emission sources.

The National Organic Waste Strategy (ENRO) mandates binding valorization targets: 30% by 2030 and 66% by 2040. Meeting these targets is not only an environmental obligation: it is a market viability question. The financial sustainability of composting infrastructure depends critically on the existence of demand capable of absorbing its outputs at scale and in geographically distributed form.

This urgency converges with Chile's water crisis. The National Landscape Restoration Plan aims to restore 1 million hectares by 2030, identifying soil degradation as one of the greatest risks to food security and biodiversity. Compost is the indispensable bridge between urban organic waste and ecosystem regeneration, providing the organic matter required to combat desertification, improve moisture retention, and rebuild soil structure.

58%

of municipal solid waste is organic
— the primary methane source

30%

ENRO valorization target by 2030
(66% by 2040)

1M ha

restoration goal by 2030
— National Landscape Plan

2. METHODOLOGY

A mixed-method approach combining secondary research, primary stakeholder engagement, and dynamic geospatial modeling, triangulating quantitative willingness-to-pay data with the structural barriers identified through qualitative analysis.

01 • SECONDARY SOURCES Systematic review of ENRO framework, Chilean Standard NCh 2880, the Roadmap for a Circular Chile 2040, agro-industry reports, and international application-rate guidelines.	02 • PRIMARY RESEARCH 30 structured technical surveys and 60 in-depth interviews (≈45 hours of recorded data) across agriculture, municipalities, NGOs, academia, and waste managers.	03 • STRATEGIC MODELING Dynamic demand model integrating GIS databases (MINVU, INE, CONAF, SENAPRED). Three intensity scenarios projected across 22M hectares nationwide.
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3. KEY FINDING — NATIONAL DEMAND POTENTIAL

Dynamic modeling reveals a national compost demand of **42 million tonnes** under a medium-intensity scenario, distributed across an effective land area of **22 million hectares**.

The spatial model produces parametric scenarios based on application intensity rates derived from the filtered bibliographic review. These are not fixed forecasts but dynamic simulations that can be updated as land use, policy conditions, and operational practices evolve — making the model a planning instrument, not a static projection.

20M t Low scenario • conservative adoption (7 / 150 / 30 t/ha)	42M t Medium scenario • baseline reference (15 / 300 / 50 t/ha)	64M t High scenario • full-alignment adoption (23 / 450 / 70 t/ha)
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Application rates by sector (tonnes per hectare):

SECTOR	LOW	MEDIUM	HIGH
Agriculture & Livestock	7 t/ha	15 t/ha	23 t/ha
Public Parks, Plazas & Gardens	150 t/ha	300 t/ha	450 t/ha
Restoration & Conservation	30 t/ha	50 t/ha	70 t/ha

Interpretive note: Agriculture displays the largest aggregate demand volume despite the lowest per-hectare rate, because cropland encompasses tens of millions of hectares whereas restoration targets a comparatively small degraded area. This makes agriculture the strategically dominant sector for market development, even though it is the structurally hardest to penetrate.

4. MARKET REALITY – THREE SECTORS, ASYMMETRIC DYNAMICS

Current demand is fragmented and highly asymmetric across the three main consumption pillars. Each operates under a different cost structure, regulatory regime, and adoption trigger.

Agriculture & Livestock · HIGHEST POTENTIAL

WTP: CLP \$10,000–\$18,000/m³ (standard) · up to \$90,000/m³ (premium biological niche)

Holds the greatest theoretical volumetric absorption potential in the country, driven by the recurrent annual nature of agricultural applications over vast surface areas, yet large-scale adoption remains stalled. Large producers evaluate compost as a short-term operating expense (OpEx) relative to synthetic fertilizers, which offer immediate and predictable results. Active use is confined to organic farming niches, export fruit growers, and small-scale producers under state advisory programs. The primary driver of stagnation is logistical: freight costs can exceed the commercial value of the product by up to seven times when transported to distant demand zones. This cost gap is narrowing as urea CIF prices in Chile have risen 16.3% year-on-year, with further increases of 15–20% projected for the first half of 2026 – opening a near-term window for compost market penetration.

Public Parks, Plazas & Gardens · NATURAL ADOPTION

WTP: \$0 (self-production, municipal) to CLP \$4,500/bag (private landscaping)

This segment leads in practical, daily, and continuous adoption. Momentum is sustained by municipal circular economy models where compost is produced and consumed within the same urban circuit, effectively neutralizing the logistical barrier that paralyzes other sectors. Compost here substitutes illegally-sourced forest topsoil (tierra de hoja) while improving water retention in green areas. One important obstacle to scaling: public procurement tenders are awarded almost exclusively on lowest-price criteria, making certified compost commercially uncompetitive against unregulated substitutes.

Restoration & Conservation · CRITICAL NEED

WTP: >CLP \$28,000/m³ (premium) · \$40,000–\$45,000/m³ (bulk) · highest WTP in the entire study

This segment presents the country's most urgent biological need, focusing on the recovery of degraded soils, post-wildfire ecological restoration, and mine tailing phytoremediation. It registers the highest willingness to pay (WTP) in the entire study, reflecting the high technical value assigned to compost at the onset of reforestation as a critical, one-time intervention to ensure tree survival during droughts. In this context, maintaining optimal moisture content is a non-negotiable technical factor to achieve plant establishment on slopes and impoverished soils. Despite this technical recognition, large-scale execution remains inactive due to a structural financing gap: restoration initiatives lack dedicated funding mechanisms, and in the current economic model, ecosystem services carry no financial valuation, being perceived exclusively as a sunk cost. This commercial inertia is severely aggravated on the ground by extreme topographical logistics.

5. CRITICAL BARRIERS ACROSS THE MARKET

Four structural bottlenecks cut across all sectors and must be addressed systemically.

1 • Logistics | The Challenge of Moving Air and Water

Compost is a bulky, water-heavy product. Transporting it from centralized processing plants (concentrated in the Metropolitan Region) to distant demand zones generates freight costs that can exceed the commercial value of the product by up to seven times. The scarcity of regional processing infrastructure is not an incidental gap, it is the primary financial viability barrier for any composting project. In the Northern zone, freight requirements hinder the economic viability of the product for traditional agriculture.

2 • Economic Distortion | Unfair Competition From Landfills

In Chile, it is legally and economically cheaper to dispose of organic waste in sanitary landfills than to valorize it. Without taxes or regulations penalizing methane emissions from landfills, composting plants cannot compete on gate fees alone. Over 85% of composting plants lack financial viability if dependent solely on waste-reception fees, the business model of organic valorization depends on demand-side revenue that the market currently fails to generate at sufficient scale.

3 • Regulatory Rigidity

Industrial composting plants are evaluated by health and environmental authorities (SEIA, Ministry of Health) under the same regulatory framework as sanitary landfills or hazardous waste facilities, requiring structures such as concrete slabs and specific geomembranes. The application of this risk standard affects investment and limits the creation of smaller-scale, decentralized infrastructure within demand zones. Additionally, community opposition (NIMBY syndrome), linked to local perceptions of composting facilities, complicates land identification and the permitting process.

4 • Sociocultural Gap | Mistrust and Short-Termism

Source contamination (including plastics, PLU stickers, and non-compostable packaging, with up to 300,000 microplastics per kilogram documented in supermarket organic streams) reduces final product quality and increases plant operating costs. End-users, particularly within the agricultural sector, present mistrust regarding the consistency and traceability of commercially available compost, perceiving its benefits as a medium-term agronomic investment within a sector characterized by tight short-term cash flows. Addressing this gap requires both quality standardization and targeted technical education.

6. A STRUCTURAL PATTERN – CRISIS AS THE PRIMARY ADOPTION DRIVER

A defining finding of this study is that compost adoption in Chile has historically been triggered by crisis events rather than stable market development. This reactive dynamic makes demand activation episodic and fragile rather than structural and continuous.

Qualitative analysis identifies four specific catalysts:

Municipal fiscal crisis • La Pintana (2005): Residential separation originated as a cost-reduction measure due to lost municipal revenues, consolidating a long-term segregation habit.

Sanitary crisis • Ancud, Chiloé: The closure of the local landfill forced household-level waste management, serving as an example where adoption was driven by waste-volume reduction rather than soil application.

Wildfire events • Jardín Botánico de Viña del Mar and Santa Juana: Critical post-fire soil degradation triggered emergency applications and motivated the design of selective collection systems for urban reforestation.

Synthetic-fertilizer price shock (2022): The Russia-Ukraine conflict prompted the state-level "Siembra por Chile" program to purchase organic amendments, a demand that certified domestic supply could not satisfy due to volume and geographic gaps.

Each crisis demonstrated that measurable behavioral changes can occur without pre-existing market infrastructure. The levers proposed in this report are designed to replicate that activation effect institutionally under baseline conditions, without depending on emergency circumstances to function.

7. STRATEGIC RECOMMENDATIONS

Six overarching, cross-cutting levers form the policy and market architecture required to unlock Chile's compost demand at scale.

LEVER 01 Reformulate INDAP Subsidies (SIRSD-S / SIGES)

Redirect public instruments from synthetic fertilizers toward certified organic amendments

- 1 Update official cost tables.** Current tables are outdated relative to real market prices and freight costs. They must reflect actual delivered prices by geographic zone.
- 2 Cover the full logistics chain.** The subsidy must explicitly include purchase price, transport to the farm, and application machinery rental, not the product cost alone.

- 3 Require SAG certification as eligibility condition.** This establishes a quality baseline and incentivizes the development of certified regional supply (currently absent in La Araucanía and other priority zones).
- 4 Link to agricultural insurance coverage.** The technical data sheet governs insurance eligibility; reformulating this regulatory instrument unlocks insurance access for organic input use.

LEVER 02 Technical Liaison with Agricultural Consultants

Shift from individual farm persuasion to targeting the market's primary nodes of influence.

- 1 Execute practical education modules.** Develop targeted training programs for agronomic advisors, focusing strictly on the biological and financial benefits of integrating organic amendments into commercial management.
- 2 Conduct on-site demonstration days.** Organize specialized field visits and direct technical transfer days to showcase the real-world agronomic performance of compost in active commercial crops.
- 3 Provide data-driven transition metrics.** Deliver field-proven data and verified metrics on water retention gains and the technical feasibility of displacing synthetic fertilizers with certified organic inputs.
- 4 Align with the "Ecoalimentary Power" vision.** Position organic amendments as a strategic compliance tool to meet the rigorous sustainability standards required by premium international export markets.

LEVER 03 Transform Public Procurement Frameworks

Establish the State as a stable anchor market for certified compost

- 1 Standardize municipal bidding terms (via AChM).** Incorporate a mandatory minimum percentage of certified compost within all public green-space concession and maintenance contracts nationwide.
- 2 Modify "lowest-price" procurement criteria.** Integrate environmental quality and circularity metrics into technical scoring alongside cost. Survey data indicate that 60% of municipal officials view this adjustment as operationally viable within existing budgets.
- 3 Establish predictable institutional demand.** Mandated compost utilization renders the localized processing of pruning waste and organic residues economically viable within the same municipal territory.
- 4 Scale existing municipal models (La Pintana, Peñalolén, and Santa Juana)** These jurisdictions demonstrate that localized compost production and consumption within the same urban circuit is operationally and financially viable at scale.

LEVER 04 ESG Financing & Infrastructure Decentralization

Connect methane-mitigation efforts to international climate capital and establish regional decentralized processing networks

- 1 Develop methane mitigation bonds and water-footprint certificates.** Link regional landfill diversion volumes to tradable ESG instruments. This mechanism directly addresses the baseline finding that over 85% of composting facilities lack financial viability when reliant solely on waste-reception fees.
- 2 Transition from centralized to decentralized infrastructure.** Promote a capillary network of local, municipal, or on-farm processing nodes. Processing and applying organic waste within a localized radius neutralizes the structural logistical cost barrier.
- 3 Facilitate industrial symbiosis.** Implement targeted incentives for projects where agro-industrial residues supply adjacent ecological restoration initiatives, establishing "zero-kilometer" circular circuits.
- 4 Optimize existing territorial logistics.** Coordinate active private waste managers and grassroots recycling cooperatives within municipalities, mitigating the need to capital-intensively procure new collection fleets from scratch.

LEVER 05 Integrated Governance & Regulatory Modernization

Unify dispersed regulatory authorities and establish binding market drivers

- 1 Establish a centralized waste authority.** Consolidate policy efforts currently dispersed across the Ministries of Environment, Health, Agriculture, Education, and Public Works to unify criteria and streamline regulatory decision-making.
- 2 Harmonize sectoral legislation (ENRO, REP, PUSU, and Soil Law).** Establish institutional alignment and regulatory synergy between frameworks that currently operate in isolation.
- 3 Streamline sanitary permitting based on proportionate biological risk.** Calibrate regulatory requirements to the actual risk profile of organic composting, maintaining public health safeguards while reducing administrative barriers to investment.
- 4 Implement a progressive "Zero Organic Waste to Landfills" mandate.** Establish a legally binding trajectory to phase out organic waste disposal, driving private capital mobilization and decentralized infrastructure development beyond voluntary targets.

LEVER 06 Experiential Positioning & In-Situ Valorization at Events

Transform mass public events into living circular economy showcases to overcome sociocultural mistrust.

- 1 **Implement operational management and on-site education.** Design and scale real-time waste processing layouts during high-impact mass events, utilizing the operation as an active educational platform.
- 2 **Conduct sensory and operational live demonstrations.** Utilize live processing infrastructure to prove empirically that professional organic waste management is clean, odorless, and completely vector-free.
- 3 **Establish a marketplace for circular service providers.** Leverage the active event operation to showcase specialized processing technologies, directly connecting circular vendors with corporate clients seeking in-situ management solutions.
- 4 **Integrate expert panels and myth-busting sessions.** Anchor live operational demonstrations with high-level technical panels to validate the long-term economic and environmental metrics of regional circularity.

8. STRATEGIC PILOT – DECENTRALIZATION & LOCAL ORGANIC VALORIZATION

A demonstrative model designed to validate operational and financial viability before national scaling – transforming theoretical projections into in-situ performance data.

STRATEGIC PILOT

Decentralization & Local Organic Valorization

A demonstrative model designed to validate operational and financial viability prior to national scaling, translating theoretical projections into empirical, in-situ performance data.

- 1 **Pre-processing via automated dehydration systems.** Reduce the moisture content of household food waste within a 24-hour window. This mitigates odor generation and vector attraction—the primary drivers of local community opposition, prior to any transport.
- 2 **Co-composting integration with open-air markets and municipal pruning.** Combine pre-processed residential streams with organic discards from open-air markets (*ferias libres*) and chipped green waste, establishing a nutrient-balanced substrate with high agronomic value.
- 3 **In-situ compost maturation.** Complete the final curing stage on municipal land, preventing the long-distance transport of high-tonnage, high-moisture organic loads and minimizing the logistical carbon footprint.

- 4 Direct municipal end-use.** Allocate the high-quality compost for hillside reforestation and public park maintenance within the generating jurisdiction, closing the local organic loop and establishing eligibility for carbon credit schemes.

Funding model: Redirect existing municipal landfill-disposal budgets, toward decentralized operations, supplemented by potential carbon-offset revenues and cost savings from avoided external soil amendment purchases. The pilot is structured to be self-financing by diverting and capturing the financial capital currently allocated to landfill gate fees.

9. PRIORITY MACRO-ZONES FOR ADOPTION

Beyond structural reforms, Chile's territory is divided into five priority macro-zones, each presenting a distinct adoption profile shaped by localized productive structures, agronomic soil vulnerabilities, and regional market readiness.

MACRO-ZONE	PRIMARY PRODUCTIVE SECTORS	POTENTIAL	STRATEGIC CONSIDERATION
La Araucanía	Dryland cereals (wheat, oats); beef cattle (25.5% of national transactions); dairy	Very High	Highest fertilizer-consumption region in Chile. Volcanic-ash soils with progressive acidification — directly addressed by compost. Critical supply gap: no SAG-certified compost produced regionally.
Maule & O'Higgins	Cherries (50% of national area in O'Higgins); wine grapes; walnuts; apples	High	Export-oriented producers face growing GlobalG.A.P. and EU traceability requirements that favor documented use of certified organic amendments.
Los Lagos	Dairy cattle; beef; improved pastures; potatoes	High (livestock)	Regenerative-management transition documents net income increase of ~USD 278/ha (avg. USD 54/ha investment). Puerto Varas and Río Bueno pre-identified as pilot zones.
Atacama & Coquimbo	Table grapes; avocados; olives; vegetables	Moderate (conditional)	Application must be conditioned on low electrical-conductivity verification (Class A) to avoid salinization. Water-retention attribute (20× weight in water) is the primary adoption argument.
Metropolitan Region	Vegetables (national leader); minor fruits; legumes	Moderate	Locally-validated evidence: 35 t/ha applications raised soil organic matter from <1% to 10% over 20 years. Strategic priority: consolidation of in-situ municipal circular models.

11. CONCLUSIONS

Chile's compost market is not a supply problem — it is a policy, logistics, and cultural problem. The evidence base now exists to act. The potential is unambiguous: 42 million tonnes of compost demand under a medium scenario, distributed across 22 million effective hectares. The primary barrier is not the absence of market appetite, but rather the absence of the cohesive policy and regulatory architecture required to activate and sustain it at scale.

The evidence further confirms that adoption in Chile has historically been triggered by crisis — fiscal in La Pintana, sanitary in Ancud, climatic in Viña del Mar and Santa Juana, and agronomic in the 2022 fertilizer shock. Each event proved that measurable behavioral changes can occur rapidly without pre-existing market infrastructure, but this reactive dynamic remains episodic and fragile. The strategic challenge is to transition away from emergency-dependent adoption by institutionalizing these activation drivers into permanent regulatory frameworks, financial instruments, and decentralized infrastructure models.

SIX STRATEGIC ACTIONS REQUIRED TO UNLOCK THIS MARKET

Redirect public subsidies: Shift state instruments (such as INDAP's SIRSD-S) from synthetic fertilizers toward certified organic amendments, neutralizing the structural rise of chemical input costs and updating regionalized freight tables.

Target primary nodes of agronomic influence: Deploy technical liaison frameworks aimed at independent agricultural consultants, utilizing data-driven transition metrics to scale volumetric demand through key market gatekeepers.

Mandate compost in public procurement: Standardize municipal bidding terms to transform the State into a stable anchor buyer, eliminating artificial price distortions in green-space maintenance tenders.

Decentralize infrastructure via international climate capital: Transition toward a capillary network of regional processing nodes financed by methane-mitigation bonds, eliminating the geographical cost barrier of long-distance transport.

Unify governance and modernize regulations: Establish a centralized waste authority and streamline sanitary permitting proportional to actual biological risk profiles, removing administrative barriers to private investment.

Overcome cultural barriers through experiential positioning: Transform mass public events into live, operational circular economy showcases to directly dissolve public mistrust through clean, odorless, and vector-free proof of concept.

This study provides the quantitative foundation, qualitative depth, and strategic roadmap to move from aspiration to implementation. This massive latent demand does not represent only a market, it represents a structural transformation of how Chile manages its organic resources, sequesters carbon, restores its degraded landscapes, and positions its agricultural matrix for a water-constrained future.