K E Y N O T E   A D D R E S S

Sustainable Fertilizers

Feeding the World in an Age of Disruption

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9.7

billion people by 2050

The World at a Crossroads

We must produce more food, with fewer emissions, in a world more geopolitically fractured than at any time in decades.

~50% of global food production depends on fertilizers

The Rules Have Changed

A New Geopolitical Map for Fertilizers

The Geopolitical Shakeup

Energy Disruption

Natural gas — 70–80% of ammonia costs — is no longer priced on a single benchmark. Regional gas markets have decoupled, creating structural winners and losers.

Trade Fragmentation

Export bans, tariff barriers, strategic stockpiling. Countries’ periodic urea export bans have become a recurring feature, cascading volatility globally.

Regionalization

Investment flowing toward domestic production in Sub-Saharan Africa, Central Asia, and the Middle East — driven by strategic, not just economic, rationale.

Resilience is the new efficiency.

II

The Invisible Backbone

Food Security Under Pressure

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The Affordability Crisis

2022–2023 price spikes pushed millions of smallholder farmers out of the market. Aftershocks in soil depletion and declining yields persist today.

Climate Compounds the Challenge

Changing rainfall, extreme weather, rising temperatures — crops need more precise nutrition management, not less. The 4R's are a survival strategy.

No Credible Alternative

There is no scenario in which 9.7 billion people are fed without a thriving fertilizer industry. This is not optional — it is existential.

We cannot solve the food crisis without fertilizers —
but we cannot continue making and using them the way we always have.

III

The Carbon Question

The Industry's Defining Challenge

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Three Pathways to Lower-Carbon Fertilizers

~2% of global GHG from fertilizer production (incl. N_2O)

~1.8% of global CO_2 from ammonia production alone

~273x N_2O potency vs CO_2 from field application

Green Ammonia

The long-term prize

Electrolysis + renewables. Demonstrated at early commercial scale, but much costlier than grey ammonia. Requires innovation, policy support, and patient capital.

Blue Ammonia

The credible bridge

Conventional production + CCS. Demonstrated at scale, with several large projects advancing. Delivers meaningful near-term reductions.

ULE & Process Innovation

Available now

Ultra-Low Emission technology, better heat integration, lower energy per ton. Fastest, most cost-effective path to near-term carbon reduction.

Decarbonization is not a threat — it is the pathway to long-term relevance and competitiveness.

The Policy Landscape

EU Carbon Border Adjustment Mechanism

CBAM is no longer a proposal — it is law. But will political will hold?

This creates pressure — and opportunity.

Scope 3 Thinking

Beyond the factory fence: feedstock sourcing, logistics, field-level N_2O emissions. Precision agriculture and enhanced-efficiency fertilizers can reduce lifecycle impact.

First-Mover Advantage

Producers who invest early in low-carbon capacity might have stronger access to the customers and procurement programs that are emerging.

The producers who move first will be the leaders of the next era.

IV

The Tools Are Here

Innovation and Technology

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Unfold the Future

Digital Twins and Monitoring

Real-time digital replicas of production processes. Simulate changes, monitor emissions continuously. Sustainability becomes an operating principle.

Enhanced Fertilizers

Coated urea, urease inhibitors, controlled-release products. More nutrition per kg, fewer environmental side effects. Volume to value.

System Integration

Convergence of ammonia, urea, and energy systems. Flexible, modular configurations adaptable to different feedstocks and market conditions.

Partnerships at Scale

No single company or country can navigate this alone. Technology providers, producers, governments, and developing economies must collaborate.

The technology exists. What we need is the courage to deploy it and the partnerships to scale it.

From Knowledge to Commitment

To Producers

Invest when ROI stacks up. The window to be a first mover is narrowing.

To Policymakers

Advocate for stable, predictable frameworks. Reward transition.

To This Room

Make these four days count. The knowledge is here. The question is whether we will act on it fast enough.

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Helping to feed the world sustainably

Let us unfold the future together

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