Proba World BV
Laan van Kronenburg 14
1183 AS Amstelveen
The Netherlands

Q&A: International Fertilizer Association (IFA) and Proba project:

The International Fertilizer Association (IFA) has partnered with Proba to launch a global initiative aimed at reducing greenhouse gas (GHG) emissions in the fertilizer industry. By leveraging enhanced-efficiency fertilizers like nitrification and urease inhibitors, and using insetting strategies, this project seeks to cut emissions across the supply chain. Learn more about this initiative in the official press release before diving into the detailed Q&A below.

Q1: What is the objective of the IFA and Proba partnership?

A: To reduce greenhouse gas (GHG) emissions within the fertilizer industry by incentivizing the adoption of enhanced-efficiency fertilizers. This includes nitrification and urease inhibitors, which reduce nitrogen losses and GHG emissions such as nitrous oxide (N_2O). Through insetting strategies, the partnership aims to share the costs and reduce risks for stakeholders across the supply chain, facilitating wider adoption of these technologies.

Q2: What role does carbon finance play in this project?

A: Carbon finance is crucial for this initiative. The project operates within the voluntary carbon market to create economic incentives for adopting emission-reduction

technologies. By using insetting, emissions reductions are accounted for within the supply chain itself. This allows companies downstream, such as food manufacturers, to report reduced scope 3 emissions and offer more sustainable products.

Q3: What are nitrification and urease inhibitors, and why are they important?

A: These inhibitors are compounds added to fertilizers that slow the breakdown of nitrogen, preventing it from being lost to the atmosphere. When nitrogen is lost from soil, it not only reduces crop productivity but also leads to greenhouse gas emissions, particularly nitrous oxide (N_2O), which has a global warming potential 278 times greater than carbon dioxide (CO_2) over a 100-year period (IPCC, AR5). These inhibitors can reduce GHG emissions from fertilizers by up to 50%, depending on regional conditions such as soil and crop type.

Q4: Why is the fertilizer industry a significant focus for emissions reduction?

A: The production and use of synthetic nitrogen fertilizers play a considerable role in global greenhouse gas (GHG) emissions. According to an analysis published in Nature, synthetic nitrogen fertilizers contribute 6.8% of emissions from the agri-food system annually (equivalent to 1.13 $GtCO_2e$ per year), representing 10.6% of agricultural emissions and 2.1% of total global GHG emissions. Additionally, a Cambridge study estimates that synthetic fertilizers and manure together emit 2.6 gigatonnes of carbon per year. The Food and Agriculture Organization (FAO) reports that synthetic fertilizers contributed about 13% of emissions from agriculture in 2018, while the US Environmental Protection Agency (EPA) states that agriculture, forestry, and land use contributed 22% of global emissions in 2019. The focus of this initiative is to address these emissions by promoting the adoption of enhanced-efficiency technologies like nitrification and urease inhibitors, which can significantly reduce nitrous oxide (N_2O) emissions.

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Q5: What is insetting, and how does it differ from offsetting?

A: Insetting involves reducing GHG emissions within a company's own supply chain. In this case, Proba's insetting solution enables fertilizer manufacturers to adopt technologies, such as inhibitors, to reduce their emissions. Downstream partners, such as food companies, support these efforts by providing financial backing or incentives. These downstream partners can report the resulting emission reductions as improvements to their scope 3 emissions. Offsetting, on the other hand, involves investing in external projects to counterbalance emissions, often through reforestation or renewable energy initiatives. Many companies purchase carbon credits to offset emissions without taking significant steps to reduce their own emissions directly.

Q6: Who is funding the project, and how will it be developed?

A: The project is funded by 11 members of the International Fertilizer Association (IFA), who are also involved in its development. These members, who represent major players within the fertilizer industry, will contribute both financially and through active participation in the project's ongoing efforts to create a unified and scalable approach to decarbonization in the fertilizer sector.

Q7: How can downstream companies benefit from this project?

A: Companies further down the supply chain, such as food producers and retailers, can report reduced scope 3 emissions, which are typically the hardest to address. This gives them the opportunity to market products with reduced carbon footprints, while also

avoiding accusations of greenwashing, as the emissions reductions are verified within the supply chain itself.

Q8: Why is the project focused on a sectoral approach rather than product-specific protocols?

A: According to Achim Dobermann, Chief Scientist of IFA, a sectoral approach is more efficient and sustainable than a series of disconnected, product-specific protocols. By coordinating efforts at a larger scale, the project can drive systemic change across the global fertilizer industry, ensuring a consistent and scalable approach to reducing emissions.

Q9: What challenges does the project face in achieving its goals?

A: One of the key challenges is incentivizing the adoption of inhibitors and other enhanced-efficiency fertilizers at scale. While the technology exists and is proven to reduce emissions, the upfront costs and perceived risks can be barriers for farmers and other stakeholders in the supply chain. By leveraging carbon finance and insetting strategies, the project aims to de-risk this transition and create financial incentives for wider adoption.

Q10: Is the food industry willing to absorb the cost of implementing low emission agriculture practices (e.g., usage of inhibitors)?

A: The adoption of low-emission agricultural practices, such as using nitrification and urease inhibitors, comes with costs that may concern the food industry. However, this initiative is structured to address these challenges through insetting and carbon

finance. By embedding emissions reductions within the supply chain, the project provides the building blocks that can help offset costs for farmers and stakeholders.

Q11: Are inhibitors seen as more than just "another chemical" that can actually lead to a more sustainable crop production?

A: Yes, inhibitors are much more than "just another chemical." They represent a key solution in the transition towards sustainable agriculture. By slowing biological processes that lead to nitrogen losses, inhibitors can significantly reduce nitrous oxide emissions without compromising crop yields. This makes them an essential tool in sustainable farming, enhancing soil health and reducing environmental impact. Their proven effectiveness, when applied correctly, positions them as a really good technology in crop production.

Q12: Is this initiative in the overall interest of governments, food companies, and consumers?

A: Absolutely. Governments are setting more stringent climate targets, and the agricultural sector, as a major emitter of GHGs, is under increasing scrutiny. This initiative directly supports national and international climate goals by offering a scalable solution to reduce emissions. For food companies, the project allows them to report verifiable reductions in scope 3 emissions, ensuring their products meet growing consumer demand for sustainability. Consumers, in turn, benefit from knowing their food is produced in an environmentally responsible manner. This creates a win-win situation across the board, aligning the interests of all parties involved.

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Q13: What role does the Voluntary Carbon Market (VCM) play in this project, and how does it future-proof the industry?

A: The Voluntary Carbon Market (VCM) supports this project by funding verified emissions reductions that go beyond what would have occurred under normal circumstances—this is known as additionality. Rather than responding to current regulations, the project helps companies proactively adopt sustainable practices, such as the use of inhibitors, preparing them for future environmental standards and making them more resilient to potential regulations.

Q14: How do we ensure the impact of this initiative is real?

A: The project ensures real impact through the use of proven technologies, such as nitrification and urease inhibitors, which have been scientifically validated to reduce emissions. Additionally, the initiative is backed by the development of a new quantification and verification standard that will be used to measure and report emissions reductions within the supply chain. By working with the voluntary carbon market and adhering to rigorous monitoring and reporting processes, the project guarantees that all emissions reductions are accurately tracked and verified, ensuring the credibility and transparency of the results.