AgroSpectrum ASIA
Envisaging Future | Updating Present

China's Yunnan Yuntianhua evaluates Limus-treated fertilizer to reduce CO2Â equivalent emissions

09 June 2025 | News

BASF and Yuntianhua successfully verify and register greenhouse gas emissions reductions from the use of stabilized urea fertilizerÂ



BASF and Yuntianhua successfully verify and register greenhouse gas emissions reductions from the use of stabilized urea fertilizerÂ

BASF and Yunnan Yuntianhua Co., Ltd., a China-based fertilizer manufacturer, launched a pilot project in China in 2023 to verify the reduction of CO_2Â equivalent emissions (CO_2e) from the use of Yuntianhuaâ??s stabilized urea fertilizer containing BASF's urease inhibitor Limus™. The pilot verified that Yuntianhua reduced roughly 46,584 tons of CO_2e emissions by using Limus-treated fertilizer versus untreated fertilizer. This estimate is based on Yuntianhuaâ??s sales of Limus-stabilized urea during the pilot. These results not only contribute to climate-smart agriculture initiatives in China., but they also demonstrate successful project implementation, enabling expansion opportunities globally.

Around 15 percent of nitrogen in urea fertilizer is lost to the atmosphere as ammonia[1], causing a deterioration in air quality and biodiversity. Additionally, applied nitrogen released as nitrous oxide can enter the atmosphere as greenhouse gas. Along with the detrimental environmental effects of nitrogen loss, farmers suffer economic and yield quality losses as less nitrogen is available to crops when they need it most. The successful project results reaffirm that applying Limus urease inhibitor on urea fertilizer stabilizes the urea, and this Limus-treated urea emits less ammonia and nitrous oxide than standard, non-treated fertilizers. As part of their climate-smart agriculture initiatives, Yuntianhua hosts field trial demonstrations for farmers, distributors, and retailers showcasing these benefits of stabilized urea.

The project has been verified by an independent auditor according to the international ISO 14064 standard. The project is listed in theÂ GHG CleanProjects$^{Â®}$Registry, a public database of projects that intend to reduce or remove greenhouse gases using the ISO 14064 standard for greenhouse gas inventory and reporting. BASF also collaborated with First Climate, a leading global provider of carbon management and sustainability solutions, to develop the pilot project in China and monitor the projectâ??s outcomes.

â??Together with Yuntianhua, we not only proved the feasibility of implementing this climate-smart agriculture initiative to verify emissions reductions but also its importance amidst global climate change, as agriculture is in a unique position to address it,â?• said Markus Schmid, Nitrogen Management business lead at BASF. â??Now the second monitoring cycle is underway and can help set the stage to expand to partners in the food value chain.â?•

â??Limus is a uniquely innovative product, proven to both reduce urea application rate, and improve efficiency and crop yield while significantly decreasing nitrogen loss to the environment,â?• said Mr. Chen Jin, General Manager of Yunnan Yuntianhua Agricultural Material Chain Co., Ltd. â??It is the triple win solution for the fertilizer industry, farmer, and society. By continuing this climate-smart agriculture initiative with BASF, we contribute to our strategic goals of modernizing agriculture and finding innovative solutions to address sustainable agriculture.â?•

Based on learnings from the pilot project, including the creation of a robust and scalable monitoring procedure, BASF is conducting a second monitoring cycle with Yuntianhua to once again verify the reduction of CO_2e of Limus-treated fertilizer from the 2024 calendar year. BASF is also exploring similar opportunities with fertilizer manufacturers in other countries globally. The aim is to enable upstream fertilizer producers in the agricultural value chain to participate in climate-smart agriculture initiatives, obtain verified emissions reductions from the use of stabilized nitrogen fertilizers, and reduce their carbon footprints.