



ADAMA and Zhixing nano science forge partnership on nano-pesticide technologies

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The strategic partnership will focus on nano-pesticide formulation, product stability, metabolite risk management and performance enhancement as China accelerates the transition towards more efficient and sustainable crop protection



ADAMA is stepping up its push into next-generation crop protection technologies through a strategic cooperation agreement with Nanjing Zhixing Nano Science Research Institute Co., Ltd., bringing together the global crop-protection company's formulation and manufacturing capabilities with a Chinese research institution specialising in nano-pesticide technologies. The agreement was signed on September 21 at ADAMA China's regional headquarters in Beijing. Cao Zheng, head of ADAMA's China region, and relevant company executives attended the ceremony alongside Zhang Ziyong, president of Zhixing Nano Science Research Institute.

The partnership comes as pesticide manufacturers face a more complex innovation challenge: improving the performance and efficiency of crop-protection products while addressing tighter expectations around environmental impact, product safety and resource use.

Putting nano technology into the formulation equation

ADAMA operates across more than 100 countries and has built its crop-protection business around a broad portfolio of technical materials, proprietary formulation technologies, global product registrations and manufacturing capabilities. Its portfolio spans solutions for weed, insect and disease management.

Zhixing Nano Science Research Institute, meanwhile, specialises in the research and industrialisation of nano-pesticide technologies. The institute has developed an industrialisation platform built around independently developed intellectual property, including a nano-pesticide pre-blending technology developed by Professor Zhang Ziyong.

The technology has been selected by China's Ministry of Agriculture and Rural Affairs as a key technology for promotion, positioning it within the country's broader drive to improve pesticide efficiency while reducing input intensity. The strategic significance of the collaboration lies in combining those two capabilities: scientific development in nano-pesticide technology and the industrial infrastructure required to translate formulation innovations into commercial crop-protection products.

From formulation performance to product stability

Under the agreement, the two companies will investigate the application of advanced nano crop-protection technologies and pursue iterative improvements to the formulation performance of existing pesticide products. The work will extend beyond simply developing new products. The partners intend to address technical challenges around pesticide stability and metabolite risk management, areas that can influence product performance, regulatory acceptance and the long-term viability of crop-protection solutions.

The partnership will also examine opportunities to improve the performance of existing products through nano-enabled formulation approaches.

That focus could prove important for an industry increasingly looking to extract greater value from established active ingredients. Improving formulation performance can potentially enhance how products are delivered and used, while allowing manufacturers to work within existing crop-protection portfolios rather than relying exclusively on entirely new active ingredients.

Bridging research and industrial scale

A central objective of the cooperation is to narrow the distance between laboratory innovation and commercial application.

Nano-pesticides have attracted growing research interest because manipulating materials at the nanoscale can potentially influence properties such as dispersion, delivery and formulation behaviour. The challenge, however, is translating scientific advances into products that are stable, manufacturable, registrable and economically viable at scale.

ADAMA's global industrial and registration platform gives the partnership a route towards that industrialisation challenge, while Zhixing Nano Science Research Institute contributes specialised research capabilities and intellectual property in nano-pesticide technology. The two organisations also plan to jointly develop interdisciplinary talent in nano-pesticides, signalling that the partnership is intended to build capabilities alongside products.

Partnership reflects a broader shift in crop protection—from simply developing products that control pests and diseases towards engineering how those products perform, persist and deliver value in the field.