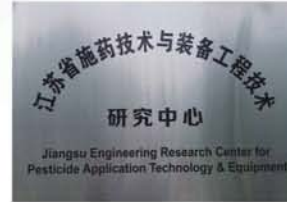


Crop Protection and Environmental Engineering Technology Research Center of Nanjing Research Institute for Agricultural Mechanization, Ministry of Agriculture and Rural Affairs, P.R.China

Introduction of the Center

The Crop Protection and Environmental Engineering Technology Research Center (CPEETRC) of the Nanjing Research Institute for Agricultural Mechanization (NRIAM), Ministry of Agriculture and Rural Affairs, P.R.China has over 80 years research foundation in crop protection engineering, and is the earliest institute engaged in crop protection machinery and engineering technology research in China. It is mainly concentrated on the research of pesticide atomization mechanism, precision pesticide application technology, development of new intelligent crop protection machinery equipment, evaluation of pesticide application quality, formulation of relevant application technology standards, irrigation mechanism, key components and equipment of water-saving irrigation, water, pesticide and fertilizer integration precision control technology and information system development based on internet of things etc., to promote the application reduction and increase the efficiency of pesticides and fertilizers for the green development of modern agriculture. There are 21 researchers in the center and more than 80% of them have attained master/doctor degrees, 1 researcher is selected into the leading talent program of the Chinese Academy of Agricultural Sciences, 3 researchers are selected into the 333 talent project of Jiangsu Province.



The center has established Sino-US Joint Pesticide Application Technology Laboratory, International Research Center of Precision Agricultural Aviation Application Technology, NRIAM Branch, Jiangsu Province Pesticide Application Technology and Equipment Engineering Research Center and other national/provincial research platforms. The center has developed a number of international level experimental and test platforms including the wind tunnel for crop protection, the six freedom-degree motion test platform, the nozzle precision spray test bench, the UAV rotor wind field test bench and the rotor wind field simulation test bench. The center is equipped with high-precision data collection & processing instruments including LAI-2200C canopy analyzer, PSR1100F ground spectrometer, MotionPro X3 high speed camera, DSA100 contact angle measuring instrument, Water1525 liquid chromatograph, V-5100 visible spectrophotometer, DP-02 laser particle size analyzer and the ADCLite multispectral camera system, etc.



Wind Tunnel for Crop Protection



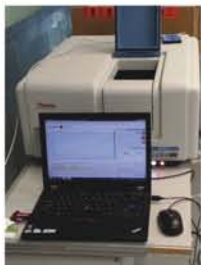
Precision Test Bench for Nozzles Spray Distribution



6-DOF Motion Simulation Platform



Suspension Active Controller of Spray Boom



V-5100 Visible Spectrophotometer



Water1525 Liquid Chromatograph



DSA100 Contact Angle Measuring Meter



Vertical Spray Distribution Test Bench



Spraying Quality on-line Monitoring System



UAV Wind Field Simulation Platform



UAV rotor wind field test platform



High Speed Dynamic Analyzer



Cloud Monitoring Platform for Crop Protection UAV



Crop Protection and Environmental Engineering Technology Research Center of Nanjing Research Institute for Agricultural Mechanization, Ministry of Agriculture and Rural Affairs, P.R.China



Dr. Xue Xinyu

Director of the Center

Dr. Xue Xinyu is the research fellow and Doctoral Supervisor of Nanjing Research Institute for Agricultural Mechanization, Ministry of Agriculture and Rural Affairs (NRIAM), the Visiting Professor of the US Department of Agriculture, Agricultural Research Service, and Texas A&M University, the Director of the Plant Protection and Environmental Engineering Technology Research Center of the NRIAM, the Chief Scientist of the Plant Protection Machinery Innovation Team of the Chinese Academy of Agricultural Sciences, the Post Scientist of China modern rape agriculture research system, the Chief Scientist of the National Key Technology R&D Program, and the winner of the May 1st Labor Medal of Jiangsu Province

Dr. Xue has presided over more than 10 major scientific and technological projects including the National Key Technology R&D Program and the National High Technology Research and Development Program of China ("863" program) etc. She has won 16 provincial and ministerial-level science and technology awards including the China Agricultural Science and Technology Award, the Science and Technology Award of Jiangsu Province etc. She has published 2 monographs and more than 100 academic papers. Dr. Xue has obtained 32 authorized national invention patents, among which two patents titled "Automatic Control System and Method for UAV Application Based on GPS Navigation" and "Model-Based Helicopter Airborne Drift Prediction Method" won the National Patent Excellence Award. She has formulated the first agricultural standard of China

for crop protection UAS.

Dr. Xue is also the director of Sino-USA Pesticide Application Technology Cooperative Laboratory, the Vice Chairman of the Precision Agriculture Aviation Branch of CIGR, the Secretary-General of Agricultural Aviation Branch of Chinese Society of Agricultural Engineering, the Secretary-General of Plant Protection and Cleaning Machinery Branch of China Agricultural Machinery Industry Association, the deputy head of the field management mechanization group of the National Agricultural Machinery Technology Innovation expert group, and the vice chairman of the National Aviation Plant Protection Science and Technology Innovation Alliance.



In recent years, the center has presided over more than 10 national projects/programs such as the National Key R&D Projects, the National High Technology Research and Development Program of China ("863" program), and the National Natural Science Fund projects, and over 30 provincial projects/programs such as the Agricultural Public Welfare Industry Research Program, the Ministry of Agriculture and Rural Affairs of China, the Agricultural International Cooperation Project, etc. Sponsored by those projects/programs, a large number of advanced pesticide application equipment were developed with independent intellectual property rights, such as China's first crop protection unmanned aircraft, dual-winding electrostatic sprayers, high-efficiency wide-range long-range mobile spray equipment series, etc. The center won 18 national/provincial science and technology awards such as the National Science and Technology Progress Award, the National New Product Award, the Chinese Agricultural Science and Technology Award of the Ministry of Agriculture and Rural Affairs, the China Patent Excellence Award, the Jiangsu Science and Technology Award, etc. Also the center has published more than 300 academic papers and obtained more than 100 authorized national patents. The center maintains long-term and close cooperative relationships with many universities and institutes from the US, Australia, Japan, Korea, Turkey, etc. and has organized and hosted 10 International Academic Conferences on Precision Agriculture and Aerial Pesticide Application in China.



Contact: Dr. Xue Xinyu, Nanjing Research Institute for Agricultural Mechanization, Ministry of Agriculture and Rural Affairs, P.R.China.

Address: No.100, Liuying, Xuanwu District, Nanjing 21004, Jiangsu Province, P.R.China.

Email: Xuexynj@qq.com, Tel: +86-25-84346243.



International Journal of Agricultural and Biological Engineering (IJABE, JIF 1.349)

ISSN 1934-6344, eISSN 1934-6352

Website: <https://www.ijabe.org>