



**Above:** He Zuhua shows a number tag to mark rice seedlings.

**Left:** Braving summer's scorching heat, He Zuhua and other researchers work in the paddy field at the Songjiang Experimental Farm in Shanghai. — Photos by Jiang Xiaowei

# One man's obsession with fighting rice diseases and ensuring healthy crops

Li Qian and Zhou Anna

**H**e Zuhua is a man obsessed. The agricultural scientist is never happy working from his office; instead, he toils in the fields every rice-planting season.

The wrath of summer's heat enveloped the fields as the mercury hit nearly 40 degrees Celsius at noon. But the 60-year-old, in a straw hat and long sleeves, led his students out to the paddy field to teach them the art of transplanting rice seedlings.

Everyone was boiling hot, but he was underrated.

"I would be anxious without looking at the fields," he said when Shanghai Daily visited him at the Songjiang Experimental Farm in suburban Songjiang District.

He compared the seeds to his children and said: "They promise the future of food safety in China."

It has been his life for the last 40 years, devoting himself completely to research, especially against rice diseases. His efforts led to the discovery of a new rice disease immunity protein

that helps breed disease-resistant rice for improved yields.

Rice is one of the most important food crops, but it is vulnerable to a variety of pathogens.

Rice blast, a severe fungal disease commonly known as the cancer of rice, threatens global food security. It leads to a loss of up to 10 percent of the world's rice yield. Every year, China loses 3 billion kilograms of rice to this fungus.

His research also led to the development of new types of rice that are resistant to rice blast and are now grown over 20,000 square kilometers.

For his contributions, he was among the 10 people to be awarded this year's "most beautiful scientific and technological workers" in Shanghai.

As a country boy, he understood how dangerous rice diseases can be. He was researching rice blast even during his university years.

When he received his master's degree in 1983, he followed his supervisor to the mountainous area of Tonglu County in east China's Zhejiang Province, where he was astounded to see widespread

crop failure caused by a rice blast.

At that time, there was a gap between China and developed countries in crop genetics research. So he traveled to the United States in 1997 to pursue postdoctoral research on the subject.

He returned in 2000 with advanced ideas and established his own lab with a single-minded determination to solve China's rice production challenges.

"It's necessary," he said.

He spared no effort in his research, traveling distances all year from sowing seeds in east China's Hangzhou City in April, cultivating rice in southeast China's Xiamen City in July, and down to the southernmost island province of Hainan in winter.

Twenty years ago, coaches, ferries and "green-skinned trains" (old-fashioned passenger trains) were the popular means of transport. That meant He would end up spending more than 30 hours on a hard-seat carriage and another 30 hours on a ferry to Haikou, the capital city of Hainan.

He now leads a research team at the Center for Excellence in Molecular Plant Sciences at the Chinese Academy of

Sciences. He finds more kindred spirits to travel with him to and fro to the country's rice-producing areas to look for the most effective disease-resistant genes.

Years of strenuous efforts have paid off. Breakthroughs in the battle against rice blast were published in the world's top scientific journals like *Cell*, *Nature* and *Science*.

The team is now focusing on rice false smut, another destructive rice fungal disease, which not only causes yield loss of rice but also affects the reproductive system of animals.

"I hope to overcome it in five years," he said.

"A good paper can only be written on the paddy field."

Like him, his students have formed the habit of working in the fields during the rice-planting season.

Jiao Fangyuan, 24, had never seen rice transplanting before she joined He's team.

"Though it is scorching hot, we are happy to work in the fields. I feel like I am doing my bit for the benefit of farmers," she said.