



สำนักงานที่ปรึกษาการเกษตรต่างประเทศ
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Office of Agricultural Affairs - Royal Thai Embassy - Washington DC

MOAC Advances Genome Technology to Strengthen Agriculture
and Establish Thailand as a Seed Hub



The Department of Agriculture (DOA) is advancing the development of plant varieties using genome editing technology to position Thailand as a regional seed hub, reduce reliance on agricultural chemicals and fertilizers, and enhance farmers' incomes. This initiative aligns with the government's policy to address global challenges, including climate change and emerging pests, while ensuring food security and sustainable agricultural development.

Mr. Rapibhat Chandarasrivongs, Director-General of the DOA, emphasized that Thailand, as a major agricultural producer and a key player in the global food industry, must adopt innovative strategies to enhance its agricultural sector. The DOA is spearheading efforts to integrate genome editing technology (GE_d) into plant breeding, with expectations that farmers' incomes could triple within four years.

Genome editing technology enables precise modifications to an organism's genetic code without introducing foreign genes, distinguishing it from Genetically Modified Organisms (GMOs). This method is highly efficient, cost-effective, and environmentally friendly. It aligns with the "no transgene = not GMOs" policy, which has been endorsed by the Food and Agriculture Organization of the United

Nations (FAO) and the Organization for Economic Co-operation and Development (OECD). Many countries, including the United States, Canada, Brazil, Japan, China, the United Kingdom, and Australia, have already embraced this technology for commercial and consumer applications.

Several genome-edited crops have been approved for use in addressing global food security challenges, such as tomatoes in Japan, soybeans in the United States, and bananas in the Philippines. Other crops, including disease-resistant potatoes in the U.S., high-protein soybeans, and drought-tolerant tomatoes in China, are currently undergoing research or awaiting commercial approval.

The benefits of genome editing technology extend beyond yield improvements. It enhances crop resilience to climate stressors and pests, reduces dependence on agricultural chemicals, and supports sustainable food production. To drive this innovation, the DOA has established a national genome editing network, fostering collaboration between universities and government agencies. Research efforts focus on developing genome-edited crops such as corn and soybeans to reduce imports, as well as energy crops like sugarcane and oil palm. Additionally, genome editing is being applied to vegetables and medicinal herbs to enhance their quality and productivity.

On an international scale, the DOA is strengthening partnerships with global institutions, including the United States, the European Union, China, and Japan, to advance research and knowledge exchange in genome editing. The DOA has also joined forces with the United States Department of Agriculture (USDA) to support research and regulatory development, ensuring the efficient application of GEd technology in agriculture.

To accelerate research in plant breeding using genome editing, the DOA is seeking funding from the Agricultural Research Development Agency (ARDA) and Thailand Science Research and Innovation (TSRI). These investments will support Thai researchers in gaining expertise from the United States and collaborating with private-sector leaders in technology development and field testing.

By 2025, the DOA aims to implement tangible regulatory and technological advancements, reinforcing Thailand's position as a global leader in agriculture and food production while ensuring food security amid climate change challenges.

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