

GM seeds likely to be in the hands of Ghanaian farmers by next year, scientists say

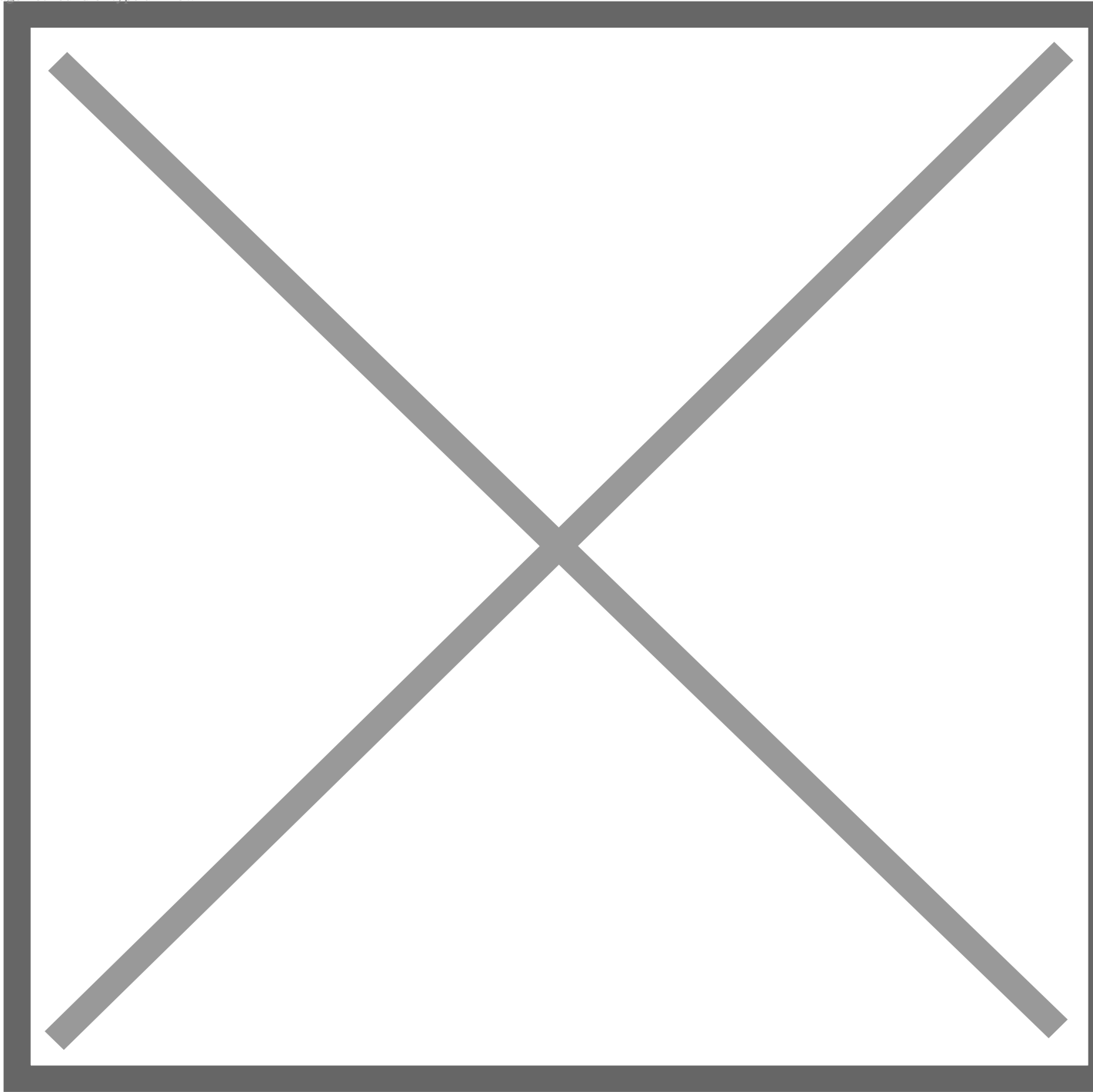


hanaian scientists say genetically modified seeds will most likely be in the hands of farmers by the start of the next planting season.

The prediction was made during a recent AfS Live webinar featuring four public sector scientists who are using cutting edge tools to improve food security and agricultural sustainability in Ghana.

The country's cowpea productivity has been generally very low, said Dr. John Eleblu, head of cowpea and soybean projects at the West African Center for Crop Improvement (WACCI). It has been stagnate for years, with diseases, pests and drought affecting the yield of small holder farmers. This has made farmers over-reliant on chemicals, which are expensive, bad for their health and labor intensive, he noted.

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Dr. John Eleblu (left) showing Technologist (Mr Reynolds Samuel, in the middle) and Research Assistant (Miss Grace Markin, on the right) plantlets developed in vitro at the WACCI Tissue Culture Lab Credit: University of Ghana

“My research focuses on developing cowpea varieties that can tolerate these environmental stresses, using a combination of tools such as conventional breeding, mutagenesis, tissue culture and genetic

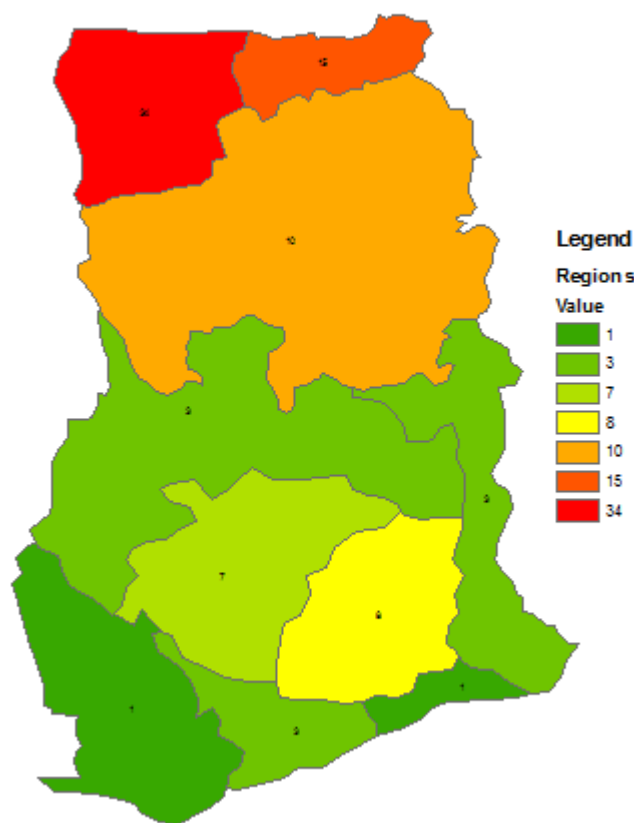
modification,” Eleblu continued. “This will ultimately contribute to yield improvement for smallholder farmers in Ghana.”

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Another boost to production is expected from the pod borer-resistant (PBR) cowpea, which is genetically modified to resist Maruca, an insect pest that causes over 80 percent yield loss. The insect-resistant cowpea will be the country’s first GM crop if the National Biosafety Authority green lights its environmental release, which means farmers can grow the seeds. “When the PBR cowpea is commercialized, farmers will have options for sustainable farming and environmental biodiversity because of less use of chemicals,” said Dr. Daniel Ofori, research scientist, Biotechnology and Nuclear Agriculture Research Institute (BNARI), Ghana. “Ultimately, this will give us new opportunities to transform our agriculture into more sustainable agriculture to ensure we have food, nutrition, and economic security.”

% of people that are food insecure



1:3,299,465

Food security in Ghana. Credit: Ministry of Food and Agriculture

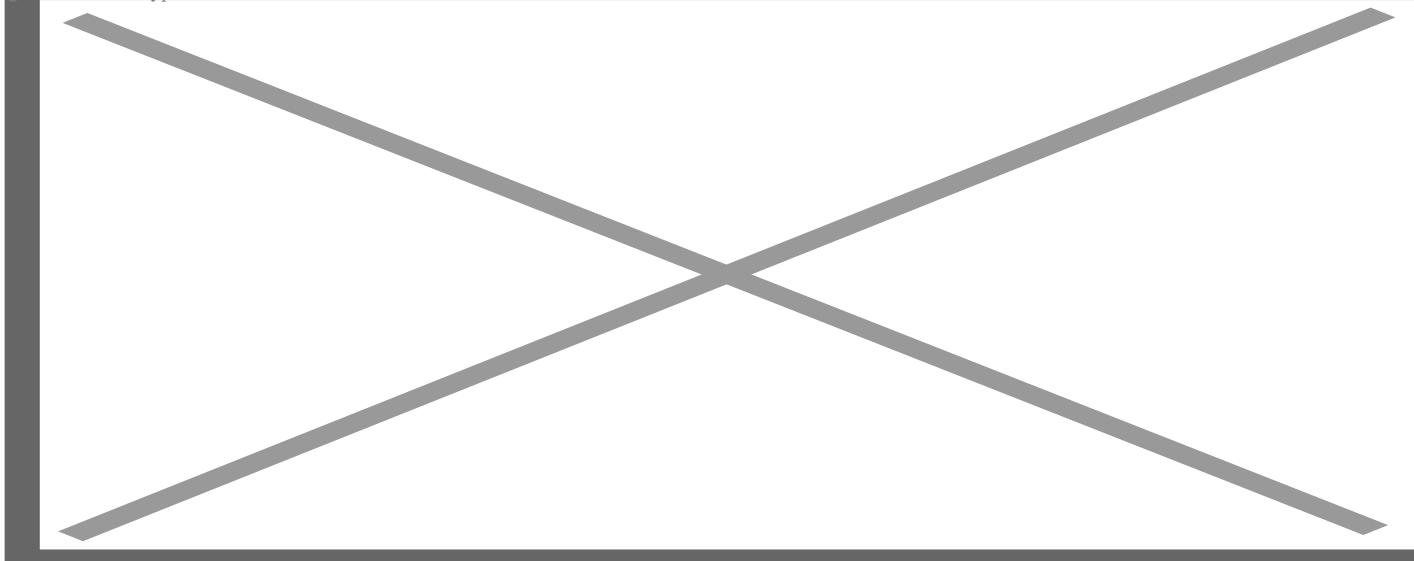
In addressing the issue of nutrition insecurity, Dr. Agyemang Danquah, head of the tomato genetics program at WACCI, spoke about his efforts to improve access to healthy and nutritious vegetables using

innovative tools.

“Tomatoes are one of the widely consumed vegetables in Ghana, especially among smallholder families,” he said. “However, its production faces many challenges like bacterial wilt disease, which has caused a lot of farming families in the north to stop tomato cultivation. Similarly, there’s the issue of drought and extreme heat in these northern climates.” Due to these challenges, Ghana has relied heavily on importation from neighboring countries, leading to a 10-fold increase in costs, Agyemang said.

“We are developing varieties that can adapt to these challenges, using a traditional breeding approach which involves screening several germ plasms for specific traits and then making new crosses to generate new varieties,” he explained. “But this takes a lot of years to develop, which is why tools like gene editing will help us address these issues within a shorter time frame. We need new and improved tomato varieties to not only improve the income of small holder farmers, but also improve nutrition among consumers.”

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Food production in Ghana has been steadily rising. Credit: Global Economy

Ofosu noted that while improved technology is good, the adoption of new crop varieties also requires a favorable policy environment. “Ghana has recognized the potentials of biotechnology and new plant breeding methods techniques to improve food and nutrition security in the country,” he said. “So, what we’ve been doing is to build a system where a state institution can understand the technology better to enable them implement policies that would facilitate technology uptake.”

“The future of Ghana depends on these policies, especially the biosafety law,” said Dr. Mavis Owusuaa, molecular biotechnologist at the University of Energy and Natural Resources (UENR). “Once the door is open to GM crops, food insecurity will be a thing of the past. We will be able to feed the population and export more food, which will go a long way in improving the economic lives of Ghanaians.”

Owusuaa also noted that given the number of projects ongoing in Ghana, “it is obvious that we are ready to embrace the gene revolution.” Scientists are also ready to support it, she said, and “the farmers are

welcoming. All they want is a good product, and the scientists are ready to work. We only need the government's support in terms of funding and policy to make Ghana a better place for everyone," she concluded.

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