Special Envoy Dr Fowler with Nigerian Vice President Kashim Shettima during the Borlaug International Dialogue. Photo Credit: State Department

US-backed effort taps traditional crops in Africa's hunger, climate fight

By Jack Otieno

THE vegetable okra has a rich culinary history, with its fame as a key ingredient in some of the world's popular dishes straddling continents and cultures.

Known for its edible seed pods, okra is native to the tropics and is believed to have been carried by the African slaves to America where it inspired the cooking technique behind Louisiana gumbo – well-seasoned fish and seafood, meat and vegetables encased in a thickened sauce served with rice.

In West African countries like Nigeria, Ghana and Benin, fufu, a sticky bread made from cassava, is used to scoop okra soup or broth from a bowl.

Nutritionists say okra is a good source of minerals such as magnesium, vitamins A and C, antioxidants and fibre.

For all its culinary and nutrition wonders, it is among thousands of traditional and indigenous crops in Africa that remain largely abandoned or underutilised despite their high potential to help solve the continent's growing hunger, nutrition and climate change crises.

"They are associated with all kinds of words. People call them neglected crops, forgotten crops, orphaned crops or underutilised crops. Yet they don't need to be any of these things. Their yields are low because the international community and the national governments haven't invested in them properly. They aren't inherently inferior. These crops are indigenous to Africa. Some have been cultivated for thousands of years and are part of the culture in Africa," says Dr Cary Fowler, the US Special Envoy for Global Food Security and the author of the bestselling book Seeds on Ice: Svalbard Global Seed Vault.

Dr Fowler, an agriculturalist who helped found the Svalbard Global Seed Vault to protect the world's future crop diversity, is spearheading the Vision for Adaptive Crops (VACS) – an effort launched by the United States, the African Union (AU), and the UN Food and Agriculture Organization (FAO) to support more resilient food systems by developing climate-resilient, nutritious crop varieties and building healthy, fertile soils.

VACS is initially focusing on Africa where about 280 million people or one in every five people faced hunger and one-third of the population was undernourished in 2020.

Climate change is expected to leave more than 38 million more people at risk of hunger in Africa by 2030 due to the vulnerability of the continent's food systems to the impact of climate-related shocks, including more frequent and severe droughts and floods and increased incidence of crop diseases and pests.

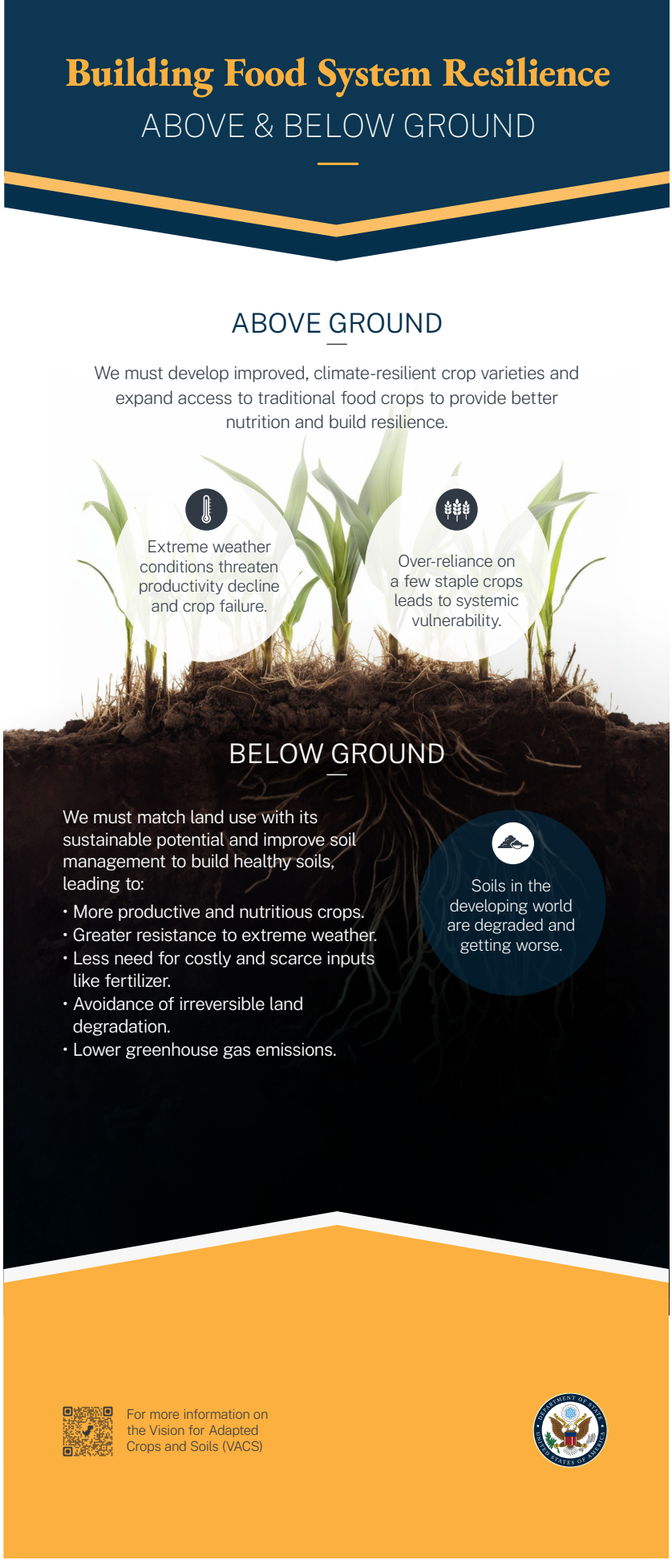
The AU Common Position on Food Systems developed in the run-up to the UN Food Systems Summit in September 2021 identified expanding Africa's food basket through investments in traditional and indigenous crops among the game-changing solutions to the food and nutrition security challenges.

The crops are likely to continue being starved of resources, with nearly all the 54 AU member states falling short on their commitment to allocate 10 percent of national budgets to agriculture development.

But that might change if donors respond generously to Dr Fowler's fund-raising appeal for VACS.

"One of the things we have done is work with IFAD [International Fund for Agricultural Development], which has established a multi-donor funding platform. The idea behind this is that United States will be the founding donor but we will also be soliciting support from other governments, institutions and philanthropists," he says.

"We are trying to redress a historical inequity. Throughout history we the international community have not focused on the nutrition-rich and adaptive crops of Africa. There is a lot of hunger and malnutrition, including child stunting, in Africa. We need to have better nutrition for everyone by focusing on these crops by getting their yield levels up and improving the soils which are depleted and eroded."



Special Envoy Fowler visits a farm in Malawi.
Photo Credit: State Department

VACS seeks to create a solid foundation for crop productivity by mobilising investment in agricultural fundamentals above and below ground: above ground by developing stronger crop varieties and below ground by building healthier soils for those crops to grow in.

In May 2023, approximately 40 global stakeholders, more than half from Africa, convened in Rome at the FAO headquarters for the VACS Phase 1 Technical Workshop, with the goal of identifying an initial, indicative list of the most important traditional African crops for nutrition within the five AU economic sub-regions. The Phase 1 workshop featured presentations on nutrition composition data and the work of the African Orphan Crops Consortium and the African Plant Breeding Academy. The workshop included seminars on the use of artificial intelligence to evaluate crops by Havos AI founder Jaron Porciello and preliminary climate modeling by World Food Prize Laureate and founder of AgMIP Dr. Cynthia Rosenzweig. It was supported by The Rockefeller Foundation.

"The VACS initiative embodies a comprehensive strategy, encompassing the enhancement of soil health, nutritional advancements through agricultural development, and climate resilience. It serves as a noteworthy exemplar showcasing the seamless integration of 'traditional' knowledge, scientific expertise, and innovation. This unified approach, spanning diverse realms of action, is congruent with the FAO's global roadmap for attaining SDG 2 while staying within the 1.5°C threshold. It emphasizes the imperative to break down silos and establish connections among various facets through tailored solutions. Such an urgent endeavor is essential to ensure the provision of good food for all, today and tomorrow," said Maximo Torero, Chief Economist of the FAO.

Sixty crops – including grains, fruits, vegetables, nuts, oilseeds, and legumes grown in Africa's five regions – were evaluated for improvement and investment based on their potential to provide good nutrition, their regional relevance, their diversity across food groups, potential for marketing and consumer demand, and their contribution to soil health.
The list was whittled down from over 300 initially identified by a multidisciplinary team, including crop scientists from the African Orphan Crops Consortium, nutritionists, climate modelers, food system experts and economists.

"We have been going through a process of identifying the traditional and indigenous crops that have the greatest potential for supplying added nutrition for all, all year round. We have 60 in our portfolio and we will figure out which of those will do best in the future climates of Africa. Then we want to encourage plant breeding to get their yield levels up and the private sector to get involved in processing and marketing to get them into the food system. We are particularly concerned about nutrition for women and children," says Dr Fowler.

The soil component will involve mapping and analysing the soils to give governments the information they need to make better land use and planning decisions and farmers the tools they need for better farm management.

"Soils are the foundation of food security. The first step is to know what you have so that you can engage in proper management and planning," says Dr Fowler.

Last November, the list of 60 crops narrowed further after another round of assessment of their adaptability and performance under crop modeling based on climate change conditions for the year 2050.

Crops on the VACS indicative list include

cereals, legumes, roots and tubers, nuts and oilseeds, and fruits and vegetables. Crops like sorghum, pigeon pea, finger millets, teff, and bambara groundnut, which have shown resilience to the effects of climate change, have attracted low investments from national governments and the private sector.

The Intergovernmental Panel on Climate Change (IPCC) project that under the worst-case scenario, average yields of major cereal crops will reduce by 13 percent in West and Central Africa, 11 percent in North Africa, and 8.0 percent in East and Southern Africa by 2050.

Millet and sorghum have been found to be the most promising crops, with a yield loss by 2050 of just 5.0 percent and 8.0 percent, respectively, due to their greater resilience to heat-stress conditions. Rice, maize and wheat are expected to be the most affected crops with a yield loss by 2050 of 12 percent, 12 percent and 21 percent, respectively.

However, sorghum and millet crop productivity has not kept pace with increasing demand, due mainly to a lag in crop improvement efforts, relative to other cereals, and the extreme environmental conditions and resource-constrained, low-input farming systems where these crops are grown.

If VACS achieves its goals of increasing the productivity of these climate-resilient and nutrient-rich crops and making them a part of regular household diets, Africa may worry less about the future of its food and nutrition security.