IMPROVING FOOD SECURITY IN WEST AFRICA: THE CASE OF AN INSECT-RESISTANT COWPEA IN NIGERIA AND GHANA

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Cowpeas (*Vigna unguiculata*) are an essential crop in West Africa, providing vital protein for over 200 million people. However, their production faces severe yield losses due to insect pests, particularly the destructive pod-borer *Maruca vitrata*. Traditional breeding methods have been ineffective in developing resistant varieties due to the lack of natural resistance, so farmers have relied on chemical insecticides, posing health and environmental risks. To address this problem, we developed a Bt pod-borer resistant (PBR) cowpea variety, the world's first genetically modified cowpea, which provides full protection against Maruca. It was released in Nigeria in 2020, providing farmers with an affordable, safe, and accessible solution, which is projected to yield over USD$336 million in benefits over the next 25 years. This project has triggered a transformative effect on seed systems in the region, with the establishment of national seed companies aiming to reach 25% of farmers within five years. The impact of this breakthrough extends beyond Nigeria, as the PBR cowpea was recently approved in Ghana in 2022, and it is expected in Burkina Faso soon. The release of a GM food crop in Africa is a significant achievement and it highlights the pivotal role of biotechnology in addressing global food security challenges. Moreover, the project is a great example of Australian science contributing to the UN Sustainable Development Goals. Our team is now focused on developing a second-generation PBR cowpea, incorporating two different Bt genes to prevent insect resistance and an additional gene to combat a grain storage pest.