

# **Turning the Covid-19 adversity into an opportunity for innovation in plant breeding for food and nutrition security in West Africa**

by

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## **Summary**

On June 10, 2020, I delivered a talk at a Webinar organized by the Institute of Agricultural Research Faculty of Agriculture, Ahmadu Bello University, Nigeria on “How plant breeding can be deployed to mitigate the impacts of Covid-19 on food and nutrition security across the African continent”.

Speaking on the topic “Turning the Covid-19 adversity into an opportunity for innovation in plant breeding for food and nutrition security in West Africa (WA)”, I submitted that even before the Covid-19 pandemic, the food system in WA was challenged by several factors and complicated by changing weather patterns and security crises, among others. Over 15 million people were food insecure in 2019 in the sub-region which comprises 16 nations out of which 13 are among the Least Developed Nations in the world. Sadly, only two countries, Mali and Ghana were on track in meeting the Malabo Commitments of the Comprehensive Africa Agriculture Development Programme (CAADP) in 2019. Key among the commitments is 10% of national budgetary resources to agriculture and rural development. It is troubling that commitment to the sector by governments has been waning, even as countries face some of the greatest threats in history including population growth, urbanization and changing dietary patterns, and the Covid-19 pandemic which has disrupted food supply chains at an unprecedented scale. Obviously a business as usual approach will worsen the already troubling food and nutrition security situation. Whether the food system especially in WA emerges stronger or more fragile will depend on what is urgently done to create self-reliant food systems.

Plant breeding, simply defined as man directed evolution of crop plants, has been a historical game-changer in agricultural development globally. Investments in plant breeding driven by good science, technology and innovation have impacted the economies of many nations. In the 20<sup>th</sup> Century, the USA transformed its agriculture by increasing maize yields from below 2 t/ha to 9 t/ha in farmers’ fields, between 1935 and 2000, following investments in hybrid maize development. This was facilitated by the Morrill Acts of 1862 and 1890 which led to the establishment of the land grant universities that have significantly impacted agriculture in the USA to date. The success of the Green Revolution in South East Asia in the 1960s hinged on improved varieties. In Brazil, it took only a decade (1996 and 2006) for the transformation of its cerrados into breadbaskets following investments in education and use of modern technology to transform their crop plants. In more recent times, 2000 - 2015, the European Union (EU) through sustained smart investments in plant breeding reaped an additional 47 million tons of grain and 7 million tons of oil seeds, provided food for over 200 million additional people, added Euro 14 billion to EU’s GDP and created 70,000 jobs in the arable sector.

Agriculture is WA’s shortest route to lift millions out of poverty, hunger and malnutrition. The world has entered a new era of crop improvement allowing agronomic traits to be discovered and combined using modern platforms (genomics, phenomics and breeding informatics) to create improved varieties faster and more effectively than ever before. These technological advances are catalyzing the development of new tools around market analysis. Quality education and research in plant breeding and related fields in Centres like WACCI would have to be strengthened and expanded to drive the change that is urgently needed in WA. The National Agriculture Research Systems including the private sector must access these technologies, tools and methods to efficiently and effectively churn out innovations to transform agriculture. This will require political will for commitments to the CAADP agenda to create the conducive environment needed for the private sector to enter the markets as key actors to drive the transformation process. A new institution comprising the Finance, Education, Environment, Science, Technology & Innovation Ministries in the various countries would be urgently needed to drive the transformation of agriculture in WA for socio-economic development.