AGRONOMY SEMINAR SERIES

FALL 2025

MONDAY, SEPTEMBER 29, 2025

2:30 P.M. LILY 2-425

Attend virtually via Zoom

Seminar links will be posted at: purdue.ag/agryseminars

Maize Breeder/Geneticist (Presently Principal Scientist and Leader of the Maize Improvement Program) at the International Institute of Tropical Agriculture in Nigeria. Major research activities focus on development of productive open-pollinated varieties, inbred lines and hybrids adapted to the tropical and sub-tropical savannas and share them with scientist in the national programs and private seed companies to accelerate their efforts for making good quality seeds available to farmers. Research emphasis include breeding for high yielding potential and stable performance by incorporating genes for tolerance to drought, resistance to Striga hermonthica, major foliar diseases, good post-harvest quality and resistance to mycotoxin contamination, high micronutrient content as well as broadening and diversifying the genetic base of maize germplasm adapted to the tropical and sub-tropical savannas of Africa. Has established collaborative research with universities and advanced research institutions in the US, Ireland, UK, Australia, and Germany to exploit new techniques for trait screening and identification to develop pipeline products that offer enhanced nutritional quality and better resistance to biological and environmental stresses.

PURDUE UNIVERSITY

Agronomy

DR. ABEBE MENKIR

INTERNATIONAL INSTITUTE OF TROPICAL AGRICULTURE

HOSTS: DR. TORBERT ROCHEFORD & DR. GEBISA EJETA

Decades-Long Quest for Vitamin A Enriched Maize in Africa

Maize has emerged as a strategic food crop in sub-Saharan Africa, where vitamin A deficiency affects millions. As the region's most widely consumed staple, it has been prioritized for provitamin A enrichment through conventional breeding to address vitamin A deficiency in populations with limited access to diverse diets, supplements, or fortified foods. Its broad germplasm base, adaptability to diverse agroecological conditions, compatibility with traditional food preparations, and potential for continuous development and delivery of new maize varieties have positioned it as a prime target for conventional breeding. Significant investments have thus been made, yielding maize varieties and hybrids capable of supplying 50% of daily vitamin A requirements to vulnerable communities. A recent genetic study revealed annual gains of 2.05% in provitamin A, 3.54% in β-carotene, and 1.88% in grain yield, alongside a 1.09% reduction in β-cryptoxanthin. This presentation features the evolution of provitamin A-enriched maize development, highlighting breakthroughs in carotenoid profile modification, integration of nutritional traits with climate resilience and resistance to mycotoxin accumulations. Additionally, this presentation will further emphasize collaborative frameworks with national agricultural research systems, private seed companies, and community-based seed producers, focusing on delivery mechanisms to ensure provitamin A enriched maize varieties reach smallholder farming communities effectively.