



**Program for Emerging Agricultural Leaders (PEARL) Grant
Funded
by
The Bill and Melinda Gates Foundation**



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Title of Grant Awarded

Sustainable Cowpea production for rural smallholder farmers in West Africa through Integrated Pest Management approach

Background of the PEARL

Severe hunger and poverty affects nearly 1 billion people around the world and 2 billion people in the developing world are malnourished. Three-quarters of the

world's poorest people get their food and income from farming small plots of land. They deal with diverse and challenging farming systems, facing diseases, pests, and drought, as well as unproductive soil, with limited access to inputs. Their livestock are frequently weak or sick, resulting in reduced production of eggs and milk to eat or sell. Many of these farmers are women, who are key to breaking the vicious cycle of malnutrition in their families. Their success or failure determines whether they have enough to eat, are able to send their children to school, and can earn any money to save and lead healthy and productive lives. Helping farm families grow more, earn more income, and eat better food are powerful tools for fighting hunger and poverty. Program for Emerging Agricultural Research Leaders (PEARL) is an initiative of Bill & Melinda Gates Foundation which seeks to find solutions to the problem of hunger and sustainable productivity among small holder farmers in developing countries.

Summary of the Project

The title of the project is **"Sustainable Cowpea production for rural smallholder farmers in West Africa through Integrated Pest Management approach."** Cowpea is a major source of cheap vegetable proteins, silage, hay, manure and income for rural smallholder farmers in sub-Saharan Africa. Nigeria is the largest cowpea producer and 45% of the world's production comes from there. The legume is also an important subsistence crop for rural smallholder farmers. Thrips form the first major constraint to pod production. However, insecticide application is used to reduce insect infestations, but they have undesirable side effects. Therefore the project seeks to extract and identify behaviorally-active volatiles in thrips resistant and susceptible cowpea cultivars using dynamic headspace technique coupled with Gas chromatography-mass spectrometry (GC-MS). Responses of the volatiles to thrips (tiny sucking insects) will be conducted using olfactometers and electroantennogram. Integration of volatile embedded traps with monitored insecticide applications for the control of cowpea pests will be conducted in replicated field trials across four agroecological zones in Kano, Mokwa, Ibadan and Cotonou.

Project Outcomes

- Determination and synthesis of chemical structures of behavior active compounds that attracts and repel the flower bud thrips

- Development of location-specific integrated pest management strategy (trap lures and monitored insecticide applications) for sustainable cowpea production
- Development of location-specific Integrated Pest Management packages
- Increase in cowpea grain yields in sub-Saharan Africa and productivity of rural smallholder farmers
- Development of an affordable the package which is also it is an environment friendly initiative.
- Job creation by local manufacturers who will be involved in production of traps and packaging of synthesized volatile blends in the traps.

Collaborating Institutions

1. University of Ibadan
2. Wageningen University, the Netherlands
3. International Institute of Tropical Agriculture, Ibadan

Postgraduate Student Capacity Building

During the execution of the project three graduate students will be trained.

My feeling about the PEARL award:

I am extremely glad to be among the twenty PEARL awardees drawn from a total of 753 pre-proposals submitted to the Bill and Melinda Gates Foundation in September 2013. My greatest joy is that I now have an opportunity to contribute to alleviate the problem of hunger and poverty in the developing world. The whole process had been rigorous, but all thanks and glory be to God that my proposal was considered to be fundable. I want to acknowledge that the trainings (Women Leadership training, Proposal writing and Science writing courses) I received as an African Women in Agricultural Research and Development (AWARD) fellow (2008) and mentor (2013) really helped me to develop the successful grant proposal.