OnePlanet FELLOWSHIP

Building a robust pipeline of scientists leading climate change research in Africa

Candidate Profile

Ahmadou Sow

2020 One Planet Laureate Candidate

Position

Researcher

Institution

The French Agricultural Research Centre for International Development (CIRAD)

Country

Senegal

Education

PhD, Population Genetics and Community Ecology, Cheikh Anta Diop University , Dakar, Senegal

Mentor

Dr. Diarriatou Sambakhé, Biostatistical Modeller, Regional Study Centre for the Improvement of Adaptation to Drought (CERAAS)

Research Area

Innovative approaches to sustainable pest management in the face of climate change

Ahmadou Sow is a researcher in entomology and ecology for the French Agricultural Research Centre for International Development (CIRAD) in Dakar, the capital of Senegal.

He is currently conducting post-doctoral research focused on climate change and, specifically, cropping systems co-design with farmers. His research focuses on developing innovative approaches to sustainable pest management in the face of climate change. He is part of the Fair-Sahel project (Fostering an Agroecological Intensification to Improve Farmers' Resilience). The project aims to design agroecological crop systems for Senegal's sustainable crop pest management, based on innovative farming practices that improve local and regional soil fertility and biological activity.

This work involves close collaboration with 120 maize producers located in four different regions of Senegal. By adopting this innovative and beneficial approach, Ahmadou can collect information from farmers and their views on the pest impacts.

Sow previously conducted extensive research on millet-based agricultural systems, which involved seven years of data collection (climate, rainfall, pests) and monitoring in his study area. He has been awarded five research grants, including a project funded by the International Foundation for Science (IFS). The project aimed to document the food web structure related to the Millet Head Miner (MHM), a millet pest in the Sahelian agroecosystems.

"The food cropping culture has not evolved in Africa," says Ahmadou. This lack of development is why he decided to focus his research on the activities of small-scale producers with limited resources. According to Ahmadou, finding alternative solutions to combat climate change is essential. He also wants to provide small-scale producers with solutions to the impacts of climate change (low rainfall, degraded soil, and increased presence of pests) since large producers have the resources at their disposal to take action.

The eldest of seven children, Ahmadou was born in Dakar in 1988. For a long time, his father worked as a technician and then as an engineer specializing in small rodents as vectors of disease at the French Research Institute for Development (IRD).

Top of the class throughout his primary education and passionate about biology in secondary school, Ahmadou decided to specialize in this subject after obtaining his high school diploma (Experimental Sciences stream) in 2008, confident that it was the right choice. He enrolled for a Life and Earth Sciences (LES) program in the Faculty of Science and Technology's animal biology department at

Ahmadou's research focuses on the development of innovative approaches for sustainable pest management in the context of in a context of climate change. He aims to design agro-ecological cropping systems for sustainable systems for the sustainable management of crop pests in Senegal.

the Cheikh Anta Diop University in Dakar (UCAD). After two years of core studies in biology, he obtained a Bachelor's degree with Upper Second Class Honours in Animal Biology in 2011 and then a Master's degree in Animal Biology in 2012. The following year, he enrolled on a Master's II degree in Animal Biology, specializing in agricultural entomology. Throughout his studies, he has focused on natural regulation systems. Sow is grateful for the opportunity to work with a dynamic team that guided him in his postgraduate research.

He received a Scholarship (Incentive Support, CIRAD) to study at the Centre for Biology and Management of Populations (CBGP) in Montpellier, France, for two months.

While studying for his Master's degree between 2013 and 2015, Sow worked on a research project (Exploring Biodiversity for Sustainable Management of the Millet Head Miner, Heliocheilus Albipunctella (Lepidoptera, Noctuidae), a Key Pest in Sahelian Agroecosystems). The main aim of this project was to document the food web structure related to the Millet Head Miner (MHM), H. Albipunctella, which is the primary millet pest in the Sahelian agroecosystems. Upon completion of the project, Ahmadou demonstrated that grain losses due to MEM can be mitigated through natural regulation in Senegal. These losses were between 2 and 20% but would have exceeded 90% in most fields without natural restriction. Natural law increased in areas with abundant trees and a wider diversity of the surrounding semi-natural vegetation.

Ahmadou enrolled for a Ph.D. in 2015 at the same university and defended his thesis on population genetics (molecular biology and ecology) in 2019, entitled "A Molecular and Ecological Approach to Evaluation of the Natural Regulation Processes of the Millet Head Miner, Heliocheilus Albipunctella De Joannis, in the Senegal Groundnut Basin." This thesis was primarily focused on the entomology and ecology (environment) of millet pests and their natural predators.

He aims to pursue a scientific career in ecology, specializing in community ecology, and address climate change, biodiversity loss, and food insecurity in poor and developing countries

In line with his background, he would like to develop several specific skills, including modeling and biostatistics (data sciences), while involved in the One Planet program. These new skills will facilitate decision-making on the quality of data collected. Sow believes that working with databases and analyzing them will provide a solid foundation for future projects.

Passionate, dynamic, and determined, Ahmadou strives to meet the technical and logistical challenges he faces daily, especially in his fieldwork, where research time is limited and the work is highly demanding. He quickly recognized that there are disparities between theory and practice. He has rapidly learned to adapt, anticipate, organize himself differently, and demonstrate creativity in the field based on observations made over time.

Ahmadou Sow is one of the growing number of candidates selected to participate in the One Planet Fellowship. The One Planet Fellowship is a career development initiative that is building a robust pipeline of highly connected, inter-generational scientists equipped to use a gender lens to help Africa's smallholder farmers cope with climate change. The One Planet Fellowship is funded by the Bill &Melinda Gates Foundation, the BNP Paribas Foundation, the European Union and Canada's International Development Research Centre (IDRC). African Women in Agricultural Research and Development (AWARD) and Agropolis Fondation are jointly implementing the Fellowship.