OnePlanet FELLOWSHIP

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

Candidate Profile

Symphorien Agbahoungba

2021 One Planet Laureate Candidate

Position

Researcher – plant breeder and biotechnologist

Institution

Laboratory of Applied Ecology – Faculty of Agronomic Sciences-University of Abomey-Calavi (UAC)

Country

Benin

Education

PhD, Plant Genetic Improvement and Biotechnology, Makerere University, Uganda

Mentor

Dr. Joseph Benoit Batieno, Researcher, Institute of Environment and Agricultural Research of Burkina Faso

Research Area

Genetic selection and improvement of plants.

Symphorien Agbahoungba has been a plant breeder and biotechnologist at the Laboratory of Applied Ecology at UAC in Benin since 2017.

He is also an assistant master's lecturer in population genetics, forest genetics, molecular techniques, management of plant genetic resources, conservation of crops and stocks, plant resistance, and predators at UAC.

He recently joined the African Academy of Plant Breeding circle of US DAVIS (AfPBA).

In addition, he is an active member of the West African Cowpea Consortium (WACC) and is also a member of Gender-Responsive Researchers Equipped for Agricultural Transformation (GREAT).

After two postdoctoral training at UAC in 2018-2020 and then at the West African Centre of Excellence for Crop Genetic Improvement (WACCI), Ghana in 2021, this cowpea selection specialist is continuing to deepen his knowledge.

However, always dynamic and ambitious, Symphorien wants to evolve further.

His research focuses on interactions between plants and pathogens, genetics/genomics, breeding for pest resistance/tolerance, and diseases in cereals and leguminous plants.

As he explains with passion, he has coordinated research projects on the cowpea (Vigna unguiculata L. Walp), horse gram (Macrotyloma uniflorum L.), Kersting's groundnut (Macrotyloma geocarpum, Harms), with the support of UNESCO-TWAS, the Carnegie Cooperation of New York through RUFORUM, IFS, and the Kirkhouse Trust Foundation.

Symphorien is the author of more than 30 scientific articles published in high-impact international journals.

Symphorien was born in 1986 in Gnidjazoun (Bohicon), in central Benin. He grew up with three sisters and a brother. His father was a fashion designer, and his mother a shopkeeper. He continued his secondary education at the Collège d'Enseignement Général Deux (CEG 2) in Bohicon, in Zou, in the center of the country, about 9 km from Abomey.

In 2005, he obtained his scientific baccalaureate in natural sciences and mathematics with honors. His family is happy because this young man is the only one to have obtained this national diploma that students receive at the end of general secondary studies.

His three sisters abandoned their studies after the primary school certificate and his older brother after the (junior secondary education certificate).

As a plant breeder, Symphorien's research focuses on breeding cowpea to enhance Africa's food security and resilience in the face of climate change.

At the beginning of the school year in 2005, he enrolled in physics-chemistry at the Faculty of Science and Technology at UAC near Cotonou, south of the country. The following year, he passed the entrance exam to the Faculty of Agronomic Sciences and was admitted in 2006. At the end of five years of training in agronomy, he attained a degree in general agronomy in 2010 and a degree in agricultural engineering the following year.

He joined the Laboratory of Applied Ecology while undertaking his agronomy engineering thesis. He carried out his end-of-course engineering work on adapted plant communities and agronomic uses of bowé (lateritic curaceous soils emerging following soil erosion) as part of the UNDERSERT (understanding and combating desertification to mitigate its impact on ecosystem services) project.

Following a national test, he commenced a master's in Natural Resources Management and Biodiversity in 2012 at UAC, graduating in 2013.

Symphorien obtained a mobility grant from the European Union, Intra-ACP CSAA, for his thesis at Makerere University in Kampala, Uganda, in September 2014.

In 2018, he submitted his thesis in plant genetic improvement and biotechnology. His research focused on studying the genetic resistance of the cowpea against the flower thrips (Megalurothrips sjostedti, Trybom).

He returned to Benin between 2017 and 2018, intent on continuing his research.

In 2018, he started a postdoctorate with RUFORUM at UAC, finishing in 2020. During this period, he supervised students on several levels, namely four master's, three bachelor's, and two doctoral students as they prepared to submit their theses.

In February 2021, he left for WACCI at the University of Ghana Legon as part of his second postdoc.

Back in Benin, since August 2021, Symphorien has continued his research and teaching work in plant breeding, as the majority of teachers in this field have retired. There are few Beninese researchers interested in improving food-crop productivity, even though it is through this that farmers and populations can feed themselves. Because of the challenges in terms of food security, he decided to focus on cowpea.

The researcher chose to study this legume for several reasons. Firstly, he acquired a good knowledge because he cultivated it in his childhood. Also, it is an easy plant to grow—,more manageable than other legumes. Cowpea is rich in protein and is a cheaper source of protein for the poor. It is also rich in antioxidants and iron and contains vitamins A and C.

Symphorien hopes to become an internationally recognized scientist. Part of this dream involves emulating his role model, Professor Brice Sinsin (full professor of Applied Ecology, the former rector of UAC, director of the Laboratory of Applied Ecology at UAC). He readily admits wanting to imitate him in his research work to contribute to the resilience of small-scale producers, not just in Africa but around the world.

For Symphorien, his sources of motivation are his colleagues at the Laboratory of Applied Ecology, who recognize his work and encourage him to be even more rigorous. Similarly, inspired by his teachers, he opted without hesitation to become even more specialized in this field and progress.

Between 2017 and 2021, he was involved in the participatory selection of certain cowpea varieties against Striga gesnerioides and Aphis craccivora in collaboration with producers in four communes, Benin. The impact of his research has been positive. Symphorien maintains permanent contact with producers. As soon as they raise a problem, he considers it a research subject. Symphorien believes he must be more productive to solve their problems.

Moreover, Symphorien already produces the basic seeds of six cowpea varieties resistant to aphid and striga. He is currently training to produce essential and certified seeds for rural communities.

Symphorien wants to be employed at a public university in Benin or elsewhere in Africa or work at a research center in Africa where he can share his knowledge. Thus, he hopes to become one of the best scientists in plant breeding and biotechnology to contribute to food security and increase resilience against the harmful effects of climate change in Africa.

His main objective is to develop and adopt varieties of cowpea resistant/tolerant to biotic and abiotic factors to enable small-scale producers in Benin to cope with the adverse effects of climate change. His skills in genetic plant improvements in collaboration with national and international research centers will assist this.

He believes that the Fellowship will help him strengthen his leadership skills, learn to manage colleagues and his research team, and develop skills to mobilize resources for research. He also hopes to integrate the gender approach into his various studies and improve his scientific skills (genetic improvement, bioinformatics, genetics, marker-assisted selection).

In addition, he intends to implement management training within his research team quickly.

As AWARD collaborates with networks of funders, he plans to activate new funding searches in consultation with his mentor. Once his scientific, leadership, and managerial skills improve, he believes he will positively impact producers, specifically improving productivity and family incomes ensuring food security.

Building on the lessons learned from the Fellowship, Symphorien hopes to consider the gender approach in his research better. He also hopes to train more young students at the university.

One of Symphorien's challenges is administrative. Since he is not yet officially engaged as a teacher, he cannot make certain decisions, which directly slow down his activities.

The other major challenge is funding for the research projects. The Beninese government does not fund research; hence, researchers must seek foreign funding. As a result, on average, only one project would be funded out of three projects submitted by a researcher per year. Eager to continue research, often, Symphorien pre-finances urgent work from personal resources while waiting for funding responses. He admits he can receive unpleasant surprises sometimes when some funding requests do not succeed. However, he plans for this by consistently applying to several calls for projects.

Symphorien Agbahoungba 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.