



Douan Bleu Gondo

2021 One Planet Laureate Candidate

Position

Associate professor

Institution

Peleforo Gon Coulibaly,
University of Korhogo, Côte
d'Ivoire

Country

Côte d'Ivoire

Education

PhD, Agricultural Entomology,
University Nangui Abrogoua
(UNA), Côte d'Ivoire

Mentor

Prof. Koua Kouakou Hervé,
full professor of entomology,
associate professor at UFR
Biosciences of the Félix
Houphouët-Boigny University
of Abidjan, president of the
Entomological Society of Côte
d'Ivoire (SECI)

Research Area

Agricultural entomology.

Originally from western Côte d'Ivoire, Douan Bleu Gondo is the youngest of five boys. He completed his primary education in the village of Bantégouin. His childhood was scarred by the premature deaths of two of his brothers.

He would offer unpaid help to his parents during the school holidays who grew rice on the plantations.

During his childhood, he developed first curiosity then love for agriculture and curiously, along with a certain fascination for insects. "Insects are usually scary, but I like them. I can't explain it," he admits, amused.

His middle and secondary education was in Man, a large city in western Côte d'Ivoire. A brilliant student, after passing his junior secondary education certificate (BEPC) exam at the end of middle school, he was able to take advantage of the Ivorian state scholarship until the end of secondary school.

In 2000, he obtained his scientific series mathematics and natural sciences baccalaureate: option D. He then aimed to study natural sciences at UNA (formerly Abobo-Adjamé University) in Abidjan's economic capital.

Although a farmer at heart, Douan always wanted to be a scientist.

This is proven by the fact that, unlike his fellow students, he didn't seek to take any competitive exams because nothing interested him apart from research.

He remembers childhood friends whose farming parents did not have the means to send them to school. The tuition fees were ridiculous, he says. What he then considered an injustice pushed him to enroll in agriculture at university.

He successively obtained a diploma (foundation degree) in natural sciences in 2003, a bachelor's degree in plant and environmental protection in 2005, and a master's degree in plant and environmental protection in 2006.

He was selected after his master's year 1 for a master's year 2 in tropical ecology (animal option) at the UFR Biosciences of the University Félix Houphouët-Boigny (UFHB). He was naturally drawn toward the science of insects.

He was supervised in this second year by professor Mamadou Dagnogo, full professor of entomology at UNA, and by professor Philippe Kouassi, full professor of animal ecology at the UFR Biosciences of UFHB.

In 2009 Douan completed the second year of his master's degree, achieving merit.

This merit allowed him to enroll in a doctoral program at the UFR of Natural Sciences of UNA in 2010. He received a scholarship from the Guidance and Scholarship Board of Côte d'Ivoire.

As his master's 2 and then his thesis progressed, his interest in the climate grew, especially when the decline of animal species was demonstrated to be linked to climate change.

Douan was alarmed. He defended his PhD thesis in agricultural entomology on August 12, 2014, at UNA, achieving a distinction and congratulations from the examiners. Professor Dagnogo and Dr. Mamadou Doumbia, senior lecturer in entomology at UNA, co-directed the thesis.

At the same time, Douan discovered the benefits of raising certain types of insects that could be used for human and animal food. In 2016, during his research, he discovered the positive impact insects could have and the eco-responsible nature of mass production of edible insects.

According to the FAO, insects produce fewer greenhouse gases, require little space and water, and are rich in nutrients. Therefore, they could constitute the food of the future in light of population growth and the scarcity of resources.

In July 2015, Douan was recruited as an associate professor at the Peleforo Gon Coulibaly University of Korhogo in northern Côte d'Ivoire.

His research was focused on the benefits of edible insect farming for improving sustainable food security in Côte d'Ivoire. Among these insects was the domestic cricket (*Acheta domestica*). He also works on the biology and sustainable management of insect pests of crops.

Douan carried out biopesticide tests against insects such as the sweet potato weevil (*Cylas puncticollis*) during his research. Thanks to his collaboration with Professor Marek Wanat of the Museum of Natural History at the University of Wroclaw in Poland, he was able to identify.

The results of the various tests were interesting. They were the subject of a scientific article published in 2019 and a master's in applied entomology and sustainable development defended in 2021 at the UFR of Biological Sciences of the Peleforo Gon Coulibaly University of Korhogo.

His work on domestic crickets was based on studying morphological changes in eggs from oviposition to hatching. The studies produced interesting results published in October 2020 in the *International Journal of Tropical Insect Science*, published by Springer.

Douan is passionate about improving the livelihoods of smallholder farmers, which is evident in his research focused on bioecology and pest management. He is studying the benefits of raising edible insects to contribute to sustainable food security in Côte d'Ivoire.

Douan increased his work on insects: mass breeding of the caterpillar (*Cirina butyrospermi*), consumed in Côte d'Ivoire, and other insects such as the provençal cricket (*Gryllus bimaculatus*) and study of insects of the genus *Tenebrio* to better control their behavior during mass breeding.

For Douan, research is a no-brainer. "The love of research, to have an impact in society, and to lead projects," he explains.

To further his ideas and research and move away from the beaten track, he began experimentally breeding crickets in Korhogo in 2016. This breeding continues today.

He confirms that during the presentation of his research work at the African Association of Insects Scientists (AAIS) conference in Abidjan in 2019, his subject caused a lot of interest. Following this, he published an article that increased his visibility.

He has always been interested in improving the living conditions of farmers. He wants to go as far as possible, have more impact in his city and his society, and make a modest contribution to improving the population's living conditions, he adds.

Currently Douan is a Conseil Africain et Malgache pour l'enseignement supérieur (CAMES) (African and Malagasy Council for Higher Education) university assistant professor. He plans to be a full professor by the end of his career, and director of an entomology laboratory that will mentor young people, all while working on major projects related to the sustainable management of crop pests and the mass production of local edible insects and their integration into human food and animal feed.

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His many research projects fascinate him, such as the mass production of insects for livestock feed or human food to add value to insect species that are often neglected.

His two major objectives are to be a good communicator to popularize his research results to all segments of the population—the idea is to change mentalities about the beneficial effects of certain insects around us. Also, he wants to raise awareness among the populations in his community and beyond that, in his country, on the interest in mass breeding of insects. In the near future, he plans to meet with rural and peri-urban communities to explain the merits of his research.

Douan hopes to set up large-scale entomological farms in rural and suburban areas to provide income-generating activities for women and young people and make a sustainable contribution to the fight against food insecurity and poverty.

The dean of the UFR of Biological Sciences of the University Peleforo Gon Coulibaly, Professor Nafan Diarrassouba, sent him the information about the One Planet Fellowship. He had never heard of the program before this information was shared with him.

Douan is grateful to his mentors, who gave their utmost to equip him with the scientific knowledge necessary to be able to apply and be among the One Planet Fellowship successful candidates. Douan has not yet had the opportunity to conduct scientific research in well-equipped laboratories outside his native Côte d'Ivoire during his research career.

As One Planet is an international program, it is a chance for him to access all of the world's opportunities. He is proud and happy to have been selected because he will be able to rub shoulders with international researchers through this fellowship. This program will contribute to deepening his scientific knowledge in several fields. For Douan, there is much to learn about new tools for

insect identification, the development of an android application to identify and fight against insects adapted to Ivorian and then West African agriculture, DNA sequencing techniques (insect genome) in the best possible conditions. Additionally, research and implementation of new agroecological technologies that can be transferred and capable of ensuring the protection of insect biodiversity, the implementation of an edible insect breeding package adapted to Côte d'Ivoire, and more.

Douan hopes that the skills acquired during the training will help with optimal collaboration with his colleagues within his institution and enable him to supervise the students better. He wants to obtain funded projects and collaborations that will improve his institution.

In addition, this excellent training will, among other things, allow him to prove and reveal aspects of his character. He will gain a deeper understanding of his temperament, develop leadership skills, and improve his listening and communication skills to enhance interpersonal relationships.

The enthusiasm generated by the fellowship further motivates him to make himself available to his community with more energy and self-confidence.

In a few years, he intends to develop a sustainable mass-breeding sector of local edible insects for food and feed in northern Côte d'Ivoire and create new income-generating activities. Douan recognizes that the challenges for a researcher on the continent are many.

Of course, equipment is often obsolete, but fortunately, the positive aspect of entomology research is that you do not necessarily need cutting-edge technology to get those first results. For insect sampling, for example, fairly rudimentary equipment is sufficient in most cases. In addition to technical and material difficulties, there are also financial challenges.

Douan Bleu Gondo 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.

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