IPK Journal Digest

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FROM APPLES TO BARLEY

Hard to believe, but true: Ricardo Giehl's career path was decided almost 25 years ago in a newspaper editorial office in Santa Maria in southern Brazil. He is co-head of the "Molecular Plant Nutrition" working group today.

Since school, the current IPK scientist has been an enthusiastic illustrator, especially of cartoons. However, his school grades were not good enough for a degree in graphics and design. And so, the young agricultural science student wondered whether he should turn his hobby into a career after all - and offered his drawings to the local newspaper. "I wasn't accepted, but the rejection also clarified me. Being obliged to create new stories and figures day after day would not have been my cup of tea," says the co-head of the "Molecular Plant Nutrition" working group at the IPK.

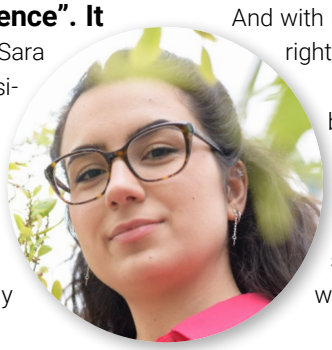
The decision to study was made, and Ricardo Giehl discovered his love for laboratory work. "I learnt a lot of things like statistical analysis there before I had it in lectures." His research then focused on fruit, particularly the conditions under which apples, peaches, persimmons and melons can be stored for a long time.

His love of the laboratory remains to this day. But of course, the responsibility has increased. As Co-Head, he has been responsible for the "Molecular Plant Nutrition" working group since October 2023. This involves coordinating the work of almost 40 employees. In 2007, Nicolaus von Wirén brought the young Brazilian agricultural scientist from Santa Maria to Germany to his former university in Hohenheim. Two years later, his boss was gone and he started again at the IPK. But Ricardo Giehl also came to Gatersleben in 2010. "He gave me a lot of freedom, and I was always able to try things I wasn't sure would work."

This is exactly where Ricardo Giehl finds himself - having new ideas and trying new ways. After several years of basic research with the model plant Arabidopsis, Ricardo Giehl is now turning his attention to cultivated plants. "In future, I would like to see which findings can be transferred and which need to be applied directly to cereals, i.e. I would like to orientate myself towards application." Ricardo Giehl is already leading projects with barley and rye and has submitted further applications.

"THE CHEMISTRY HAS TO BE RIGHT"

As a doctoral student, Sara Leite Dias recently had a publication in the renowned journal "Science". It was about the biosynthesis of gramine. Sara Leite Dias is relaxing with a cappuccino in the "Casino" on a sunny spring day and has just taken what is probably the most important step in her young scientific career. As one of the first authors, the 28-year-old played a key role in a study published in "Science". Scientists from the IPK Leibniz Institute and Leibniz Universität Hannover have successfully deciphered the biosynthesis pathway of gramine, a toxic alkaloid, in barley. "Of course, I'm a little proud, and I'm also pleased about the appreciation for the work," explains the 28-year-old, funded by the International Max Planck Research School (IMPRS). "I've always been interested in how individual chemical molecules function, communicate and interact," explains the young Swiss scientist. "It's like with humans: The chemistry has to be right." And with her current boss, John D'Auria, the chemistry was right from the start.



However, the Swiss scientist's interests go far beyond science. "As a child, I was only interested in Barbie dolls and painting, but later, I wanted to work as a fashion designer," says the young scientist. Sara Leite Dias still cultivates her artistic streak today. "I still love drawing, especially flowers, women and anything that comes to mind."

Photos: IPK Leibniz-Institut/ L. Tiller

Photo: IPK Leibniz-Institut/ A. Bähring

THE NETWORKER

As head of the managing office, Jens Freitag represents the IPK at numerous national and international conferences and workshops, as well as on Leibniz committees. In recent years, the managing office has developed into a central hub for the support and coordination of internal working groups and external commitments. It is divided into four areas: Science Communication, Event Management, Graphics and Design as well as Networking and Political Communication. "These areas are not only important internally but also significantly shape our external image and our ability to develop and implement strategic initiatives," explains Jens Freitag, head of the managing office. "I am responsible for networking and political communication, which includes coordination with political institutions and other research organisations."

One of the projects in which the IPK is involved is OSIRIS. The network of 17 partners is dedicated to digitising and connecting a wide variety of collections - from cultural-historical and natural science collections to living collections such as genebanks for microorganisms or plants, as at the IPK, to technical museums and archives. The idea behind this project is to break up isolated knowledge bases and link them in such a way that they can provide interdisciplinary answers to complex questions. "OSIRIS is an outstanding example of our strategic initiatives," says Jens Freitag.

The head of the IPK's managing office also travels internationally, including to the COP15 in Montreal in December 2022. "In principle, participation in international forums such as COP15 in Montreal is important to represent science in global negotiations. In this case, it was about making Digital Sequence Information (DSI) accessible in the future."

However, national networks and interaction within the scientific community also play a central role in many areas. "Research was, is and will remain cooperative. At the managing office, we actively support collaboration with other Leibniz Institutes in Leibniz Research Alliances, research networks and the newly established Leibniz Labs," emphasises Jens Freitag.

One example is the Leibniz Biodiversity Research Network, which has successfully developed the so-called "10 Must Knows" on biodiversity research. These documents, which were first published in 2022 and have now been reissued, emphasise the great importance of biodiversity and the role of research in its conservation and sustainable use. But that's not all: they also offer concrete recommendations for policy-makers to support needed transformative processes.

"I am firmly convinced that research will be conducted even more strongly via networks, with the excellence of individual researchers and research groups continuing to form the essential foundation," says Jens Freitag.

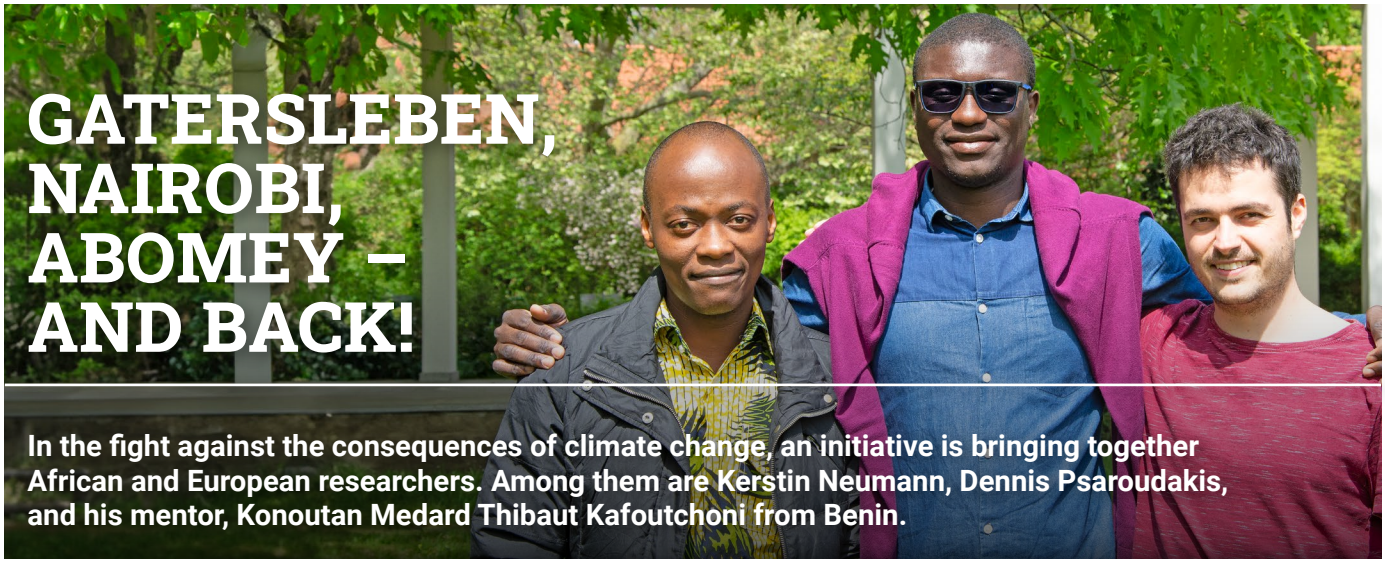
TEAM BUILDING ON THE COAST

Nils Stein has been heading the Genebank department since October 2023. He is confidently looking forward to the evaluation next year. Of course, says Nils Stein, an evaluation is never a surefire success. "In terms of scientific excellence, however, I believe we are very well placed and prepared for next year's evaluation," emphasises the new head of the Genebank department. "However, it's also about the prospects that we are showing for the IPK, so in a way, it's a bet on the future and the institute's development. That's why we should already be thinking about the evaluation after next." An important point is how the IPK can position itself successfully in times of increasingly scarce funding.

"I think the last few years have shown that the IPK is a very attractive place for young scientists. But here, too, we must work hard to maintain this good reputation."

At the beginning of April, Nils Stein and the heads of the research groups in his department visited the two sites of the Satellite Collections North in Malchow and Groß Lüsewitz, including a guided tour of Rostock. "For me, it was also a kind of team-building exercise," explains Nils Stein.

Photos: IPK Leibniz-Institut / J. Himpe



GATERSLEBEN, NAIROBI, ABOMEY – AND BACK!

In the fight against the consequences of climate change, an initiative is bringing together African and European researchers. Among them are Kerstin Neumann, Dennis Psaroudakis, and his mentor, Konoutan Medard Thibaut Kafoutchoni from Benin.

Photo: IPK Leibniz-Institut / L. Schlehuber

The "One Planet Fellowship Programme" aims to bring together European and African researchers at different career stages. There are two main groups: young researchers such as Dennis Psaroudakis from the IPK and experienced scientists such as Konoutan Medard Thibaut Kafoutchoni from the Université d'Abomey-Calavi in Benin, who act as mentors. Together, they will seek solutions to the many problems arising from climate change. The initiative is supported by the Bill & Melinda Gates Foundation and the European Union, among others.

"The consequences of climate change will hit the global South earlier and harder than us in Europe," explains Dennis Psaroudakis after returning from a meeting of the OPFP network in Kenya in April. The entirely different structure of agriculture in most African countries makes this even more difficult. "There are far fewer large-scale farms, but mostly families who live from small-scale farming. And these families are naturally more helpless and defenceless in the face of climate change than a large farm in Germany." But that's not all.

"The challenges for agriculture in my home country also include declining soil fertility, the lack of high-quality seeds for farmers and the effects of climate change with heat and drought due to insufficient rainfall and the lack of artificial irrigation," says Konoutan Medard Thibaut Kafoutchoni. In addition, there is only limited investment in research in infrastructure and equipment as well as the development of innovative technologies. "My goal is to develop a drought-tolerant variety of a forgotten legume from Benin, such as Kersting's peanut (Macrotyloma geocarpum), to improve food and nutrition security and the incomes of smallholder farmers," says Konoutan Medard Thibaut Kafoutchoni. He is convinced that modern technologies such as high- throughput phenotyping, which he has familiarised himself with intensively at the IPK in recent months, can play an essential role. In the "Automatic Plant Phenotyping" working group headed by Kerstin Neumann, who has already been to Benin herself, he received an intensive six-month training programme on the subject. In August, Dennis Psaroudakis will probably swap places and travel to Benin.

HOW DOES THE MONEY GET INTO THE PAY PACKET?

Photo: IPK Leibniz-Institut / L. Tiller

For more than ten years, Stephanie Fritsche has ensured that all IPK employees receive their monthly salaries on time. Stephanie Fritsche formulates her expectations of her work in one concise question: "Do all employees get their money on time at the end of the month?" And the payroll administrator puts a lot of effort into this. "Three times a month, I do test payroll runs to check whether everything is being paid correctly." The results of the test runs are error lists, which she then works through point by point.

Stephanie Fritsche started at the IPK in May 2013 - on a temporary and part-time basis so that she could look after her young child at the time. But just a few months later, she already had full responsibility for payroll accounting because her colleague was absent due to illness. So it was like jumping in at the deep end. However, the Konrad Zuse building is always a contact point for questions and problems. These include retirement age, time off to care for family members, and the VBL supplementary pension taxation. "And it's really nice when word gets around that I'm happy to help," explains the 45-year-old business graduate. Treating each other with respect and appreciation is one of the things that is close to her heart anyway. "This should also always apply to the people who pull the strings in the background of an institute, such as gardeners or lab assistants."

“WE WORK LIKE A GOOD CATALYSER“

Students from the Burg Giebichenstein University of Art and Design Halle visited the IPK in April. Mareike Gast, Professor of Industrial Design/Material- and Technology-based Product Development, explains what the visit will lead to.

Photos: Matthias Ritzmann

As part of “The Plant Project - Resilience Part 2”, the students work with plants - as material suppliers, producers and recyclers. “First of all, we give the students a lot of input through excursions, lectures and workshops, so we open up the field through visits like the recent one to the IPK. And from this, the students from the higher semesters then develop their own questions and ultimately their coherent concept for – in this case, an alternative approach to and for plants,” explains the professor.

“We function like a good catalyser, bringing together needs and potentials from different perspectives and generating added value. “The project results will be on display from November in the exhibition “ZUKÜNFTE. Material and Design of Tomorrow” at the Grassi Museum in Leipzig.

WHAT DO ACTUALLY ...?

As mayor, she heads a town council with 350 employees and describes herself as spontaneous, creative and lively. At KWS SAAT SE & Co. KGaA, one of Europe’s leading plant breeding and seed companies, he heads the “High throughput Services” division, which includes groups from various specialist departments ranging from chemistry to cell biology. He sees himself as pragmatic, analytical and rational. What Sabine and Wolfgang Michalek have in common is that they have not only found their professional happiness in Einbeck but also spent a formative time at the IPK in Gatersleben at the end of the 1990s.

“We both studied at the Technical University of Munich, Sabine horticultural sciences and I agricultural sciences and plant breeding and then came to the IPK in 1997 and 1998, respectively,” recalls Wolfgang Michalek. “The institute was being reorganised, there was a great spirit of optimism, there was enormous pragmatism and, for this reason, a great deal of creative freedom,” says the 61-year-old, who started at the IPK in the summer of 1997. His wife came to the institute a year later as a visiting scientist and worked in Bernhard Grimm’s research group for six months in 1998.

The reason for his departure from the IPK was a group leader position in the “Molecular Markers” department, which Wolfgang Michalek had been offered by KWS in 2001. Sabine Michalek ran for mayor of Einbeck in 2013, won the election and was confirmed in office in 2020.

COLOSSUS PAVES THE WAY FOR IPK

What a colossus! The old road roller weighs 3.5 tonnes and is closely associated with the history of the IPK and the village of Gatersleben.“Gerhard Steinborn, a scientist at the IPK for many years, rediscovered the roller around six years ago in a wooded area directly behind the test fields,” explains local historian Andreas Czihal. “It had been standing there completely abandoned and was completely overgrown.”

The tool, which probably dates back to around 1900, has already made its first comeback: The roller is being used again - whether for levelling water-bound field paths in spring or consolidating paths after repair work. There are initial plans to make the roller permanently visible to everyone again.

Hans Stubbe, founding director of today’s IPK, probably discovered the roller in the inventory of the Domäne. The roller, was used after the end of the Second World War to consolidate the subsoil and construct paths on the current institute site.

IPK LEIBNIZ INSTITUTE

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