Bio-ingenieus

MAGAZINE OF THE FACULTY OF BIOSCIENCE ENGINEERING

QUATERLY MAGAZINE JULY-AUGUST-SEPTEMBER • TWENTIETH YEAR • NUMBER 4

Bioscience Engineering goes international
Bio-ingénieus is the newsletter of the Faculty of Bioscience Engineering of KU Leuven and her graduates. With this newsletter the alumni, staff and students want to stay in touch.

**FREQUENCY**
Bio-ingénieus appears four times a year, every three months, in January, April, July and October.

**RESPONSIBLE PUBLISHER**
Christophe Courtin

**EDITORS**
Marleen Suckers, Linda Huysmans, Christophe Courtin

**EDITORIAL ADDRESS**
Bio-ingénieus
Faculty of Bioscience Engineering
Faculty Administration
Kasteelpark Arenberg 20, box 2300
3001 HEVERLEE
tel. + 32 16 32 16 29
fax + 32 16 32 19 99
nieuwsbrief.biw@kuleuven.be

**LAYOUT**
Altera www.altera.be

**PRINTING OFFICE**
Van der Poorten NV www.vanderpoorten.be
Editorial

Bio-ingenious? Bio-enginerious? I’m not really sure how we should translate the title of the magazine you now have before you. It is a magazine that is published four times a year by the Faculty of Bioscience Engineering (or FBSE in short) of KU Leuven in collaboration with its departments, students and alumni to keep alumni, employees and friends up to date on the Faculty at large.

This October 2017 issue is a special one. Its focus is international, both in content and audience. Indeed, with this issue we want to reach out to the international alumni of FBSE, a group that is becoming increasingly large. Next to the more established English language master programmes that have built up quite a reputation abroad over time, such as VLIR-UOS supported IUPFOOD, IUPWARE and IPMB programmes, newer master programmes on the block like Bioinformatics, Agro- and Ecosystems Engineering (ACE) and Human Health Engineering all add to that growth. We let you get (re)acquainted with these programmes here.

It is however not only these programmes that make FBSE one of the most internationally oriented faculties at KU Leuven. Students at FBSE are stimulated to take advantage of numerous possibilities to study abroad. There is the ERASMUS+ programme for semester exchange of students, mostly in Europe. There are the specialization semesters on horticulture and aquaculture in Stellenbosch, South Africa and on production forestry systems in Temuco, Chile. Add to this the own initiative exchanges with, for example, universities in Brazil or Japan, and VLIR-UOS supported internships and master theses in developing countries and the picture becomes quite global.

At the level of research, we put the spotlight in this issue on international university cooperations (IUC’s), long term collaborations of several university partners in the north with a partner university in the south supported (again) by VLIR-UOS. Several colleagues at FBSE coordinate such large scale projects and tell their tale. Looking east and west, two recently appointed colleagues talk about their collaboration with Kyoto University, Japan and NASA, USA.

With so many students, bachelor or master, moving around the globe, and so many foreign students choosing our Faculty for their studies, the bioscience engineering student organization, LBK, has taken up the charge to help Flemish students find their way abroad and increase the interaction between national and international students at home. Their efforts, together with those of international and internationally oriented organizations like IAAS, BEST, AFD and IROICA are crucial for successful integration and internationalisation.

Let it be clear: internationalisation at FBSE, whether abroad or at home, requires the continuous input, collaboration, support and zeal of many, many people and organizations. Some of them are put in the spotlight on the next pages, a lot of them are not. I would like to express my gratitude to all that make internationalisation happen every day.

Enjoy the read!

Prof. Christophe Courtin
vice dean

---

Content

International Education at our Faculty 4
Facts and Figures 8
Bioscience Engineering students discover the world 10
Institutional University Cooperation: North and South 12
Institutional Collaboration: East and West 17
An Michiels: Bioscience engineer at work 20
In Memoriam Professor Jules D’Hoore 22
Organisations supporting students going abroad 25
News from the Faculty of Bioscience Engineering 30
In spring 2016 the faculty elaborated a vision document and policy plan “Education and Students” at the request of the Vice Rector for Education. Among the ten major strengths of the faculty we proudly mentioned ‘International cooperation (in education)’, ‘International mobility (of students)’, and ‘International course programmes’.

As part of this international orientation, the faculty offers specialized course packages which are organized by and at the Universidad de la Frontera, Temuco, Chile (Production Forestry Systems) and Stellenbosch Universiteit, South Africa (Aquaculture and Horticulture). These packages can be taken by many master students as an integral part of their KU Leuven programme. Yearly some 10 to 20 students make use of this opportunity.

Relatively large numbers of bachelor (29%) and master (17%) students of our faculty participate in other types of outgoing international mobility programmes: ERASMUS+, specialized course packages, part of the master thesis, an integrated course project, an internship or own initiatives. More often than not, the students are financially supported in their international endeavours through scholarships that come from a variety of sources.

The faculty also coordinates two interuniversity master programmes oriented mainly towards students from the South: Water Resources Engineering (with VUB) and Food Technology (with UGent). We also coordinate the interfaculty Master programme of Bioinformatics (with faculties of Engineering Science, Medicine, Kinesiology and Rehabilitation Sciences) which recruits students worldwide.

But also within our regular programmes leading to the professional title of Bioscience Engineer (“bio-ingenieur”), we try to attract international students and implement internationalization at home for Flemish students. The Masters of Bioscience Engineering: Agro- and Ecosystems Engineering (ACE) and Human Health Engineering (HHE) are the first such programmes.

Prof. Jos Van Orshoven

The Master of Bioscience Engineering: Agro- and Ecosystems Engineering (ACE) is a programme which belongs to the family of nine programmes that entitle their graduates to the professional title ‘bioscience engineer’.

ACE responds to a need for experts worldwide to address the provision of sufficient quantities and quality of food, water and materials, energy, biodiversity and livelihoods by agro- and ecosystems. The education that ACE provides is based on research that is carried out mainly in the Earth and Environmental Sciences and Biosystems departments of KU Leuven.

More often than not, the students are financially supported in their international endeavours through scholarships that come from a variety of sources.

The faculty also coordinates two interuniversity master programmes oriented mainly towards students from the South: Water Resources Engineering (with VUB) and Food Technology (with UGent). We also coordinate the interfaculty Master programme of Bioinformatics (with faculties of Engineering Science, Medicine, Kinesiology and Rehabilitation Sciences) which recruits students worldwide.

But also within our regular programmes leading to the professional title of Bioscience Engineer (“bio-ingenieur”), we try to attract international students and implement internationalization at home for Flemish students. The Masters of Bioscience Engineering: Agro- and Ecosystems Engineering (ACE) and Human Health Engineering (HHE) are the first such programmes.

Prof. Jos Van Orshoven

The Master of Bioscience Engineering: Agro- and Ecosystems Engineering (ACE) is a programme which belongs to the family of nine programmes that entitle their graduates to the professional title ‘bioscience engineer’.

ACE responds to a need for experts worldwide to address the provision of sufficient quantities and quality of food, water and materials, energy, biodiversity and livelihoods by agro- and ecosystems. The education that ACE provides is based on research that is carried out mainly in the Earth and Environmental Sciences and Biosystems departments of KU Leuven.

More often than not, the students are financially supported in their international endeavours through scholarships that come from a variety of sources.

The faculty also coordinates two interuniversity master programmes oriented mainly towards students from the South: Water Resources Engineering (with VUB) and Food Technology (with UGent). We also coordinate the interfaculty Master programme of Bioinformatics (with faculties of Engineering Science, Medicine, Kinesiology and Rehabilitation Sciences) which recruits students worldwide.

But also within our regular programmes leading to the professional title of Bioscience Engineer (“bio-ingenieur”), we try to attract international students and implement internationalization at home for Flemish students. The Masters of Bioscience Engineering: Agro- and Ecosystems Engineering (ACE) and Human Health Engineering (HHE) are the first such programmes.

Prof. Jos Van Orshoven

The Master of Bioscience Engineering: Agro- and Ecosystems Engineering (ACE) is a programme which belongs to the family of nine programmes that entitle their graduates to the professional title ‘bioscience engineer’.

ACE responds to a need for experts worldwide to address the provision of sufficient quantities and quality of food, water and materials, energy, biodiversity and livelihoods by agro- and ecosystems. The education that ACE provides is based on research that is carried out mainly in the Earth and Environmental Sciences and Biosystems departments of KU Leuven.
ACE is managed by a steering committee of which Prof. Miet Maertens is the coordinator and the liaison with the educational commission at faculty level. ACE has an explicit international orientation with currently a share of 25% international students on a population of 75. Like all master programmes organized by the faculty, ACE targets students who discovered their ‘disciplinary future self’ (DSF) in a relevant previous academic bachelor’s education and who wish to broaden and deepen their DSF. For students whose future focus lies on providing technical and scientific solutions for the sustainable management of agro- and/or ecosystems at the local or global level, ACE is the prime option!

Characteristic for ACE is that it builds upon engineering science and offers specializations in agricultural production, environmental engineering, agricultural and resources economics, and remote sensing and geographical information systems. ACE includes a compulsory field course in which theoretical knowledge from various course units is integrated and applied in a real world project, either in the tropics or in a temperate region and it offers numerous possibilities of carrying out internships and research for the master thesis abroad, in collaboration with different partner institutions and often in the framework of university development cooperation. It delivers graduates who are qualified to fill technical-, research- and/or policy/management-oriented positions in national and international public sector organizations, NGOs and private production and consultancy companies. Moreover, about 20% of the ACE-graduates undertake PhD research.

Master of Bioscience Engineering: Human Health Engineering (HHE)

This master aims at training the next generation of experts who develop novel creative technology to improve our quality of life. This master focuses on technology for healthy humans and offers a unique programme.

Thanks to the revolution in sensor technology and computing power, the domains in which the graduate in HHE can create added value are ever growing. The programme mainly focuses on the application domains quality of life, sports and active life, nutrition, intelligent environments and preventive health monitoring.

HHE is embedded in the research activities of and supported by four faculties of KU Leuven with a strong expertise in the different aspects of human health engineering, namely the faculties of Bioscience Engineering, Engineering Science, Medicine and Kinesiology and Rehabilitation Sciences. In addition to the close collaboration with experts from these faculties, the programme HHE also links up with IMEC, which performs world-leading research in nanoelectronics and sensor development.

The vision of the programme HHE is to train young people for developing new technology based on insight in the working of the healthy human physiological and psychological systems: from biology to technology! In this way, physiological and psychological needs will be taken into account from the beginning, allowing to meet the high expectations of the users. Graduates in HHE are integrators who understand and speak the language of the different disciplines that are integrated within the programme.

Together with the equivalent Dutch programme ‘major Human Health Engineering’ in the ‘Master in de bio-ingenieurs-wetenschappen: biosysteentechniek’ around 15 students (from Flanders, Europe and USA) start yearly in the master in HHE at KU Leuven.
Modern biology is characterized by the generation of large amounts of data; think of genomic sequencing of patients but also plants, bacteria and viruses. Moreover, the technologies to generate such data are continuously evolving. Bioinformaticians are distinguished by their ability to formulate biologically relevant questions, design and implement the appropriate solution by managing and analyzing high-throughput molecular biological and sequence data, and interpret the obtained results. Bioinformatics is thus essential to modern molecular biology and biotechnology.

The faculties of Bioscience Engineering, Engineering Science, Medicine and Science together organize the Master of Science in Bioinformatics. The program is aimed at students with a background in computer science or statistics who want to apply their knowledge to complex biological questions and at students in biochemistry or molecular biology who want to learn about mathematics and computer programming. We aim to recruit both excellent international students and local students. Typically, the program attracts 20 new students each year; about 65% of those are international students from Europe, Asia and the Americas and 40% are female.

Experts in machine learning, big data management and mathematical modelling from the engineering sciences train students in the quantitative methods, whereas biologists and biomedical scientists teach students state-of-the-art knowledge in the biological and biomedical field. Top-level bioinformatics scientists train the students in core bioinformatics methods, both through theoretical lectures and hands-on training at the computer.

The Master of Science in Bioinformatics prepares students to work in the expanding area of bioinformatics in biological and biomedical research.

From students who successfully completed the programme, about half continue to do a PhD in bioinformatics. From the other half, some students obtain jobs in genomics core facilities or small companies that provide genomics services. Other graduates continue into R&D jobs, such as in pharmaceutical or biotechnology companies or in public research institutes. The strong training in information technology and machine learning also provides enough skills to obtain a role as data scientist or data analyst. Big data is key to modern molecular biology, but also to many other areas.

Prof. Vera van Noort

The programme is based on integrating the best available expertise in Flanders in the field of food science, technology and engineering.

The overall objective of IUPFOOD is to provide academic, multi-disciplinary and specialized training in the field of food technology. IUPFOOD intends to equip its alumni with the scientific, technical and managerial knowledge, skills and attitudes which they require to contribute successfully to solving problems related to food security through the production of safe high quality foods.

Master of Science in Food Technology

The InterUniversity Programme in FOOD Technology (IUPFOOD), a Master of Science in Food Technology programme, is funded by VLIR-UOS and jointly organised by the faculties of Bioscience Engineering at KU Leuven and UGent. The programme coordinators are Prof. Marc Hendrickx (KU Leuven) and Prof. Koen Dewettinck (UGent).

IUPFOOD started in 1993 and the first MSc degrees were awarded in 1995. Prof. Em. Paul Tobbback (KU Leuven) and Prof. Em. André Huyghebaert (UGent) were the founders and programme coordinators in the initial phase.

Pipit: Visualizing functional impacts of structural variations. Each line represents one of the human chromosomes. Colored disks represent genes affected by structural variations such as deletions, inversions, copy number loss and copy number gain. The gene on chromosome 11 is selected and a close-up view is visible in the bottom panel. In the right panel, functions of affected genes are listed.
Two technological dimensions of crucial importance in food processing and preservation form the basis for the two IUPFOOD majors. The major ‘Postharvest and food preservation engineering’ (offered at KU Leuven), focuses on the role of postharvest and food preservation unit operations in delivering safe and nutritious foods, in particular plant based foods, to the end consumer. The major ‘Food science and technology’ (offered at UGent), focuses on the transformation of raw materials in products for human consumption or in intermediate ingredients for further use in the food industry. The programme puts emphasis on technological and engineering aspects in a food system context and therefore blends a problem solving and system oriented approach with a broad range of scientific disciplines and engineering attitude.

The IUPFOOD programme is oriented towards international students. In particular, it intends to recruit excellent international students (engineers and scientists) from the South with at least an academic Bachelor of Science degree. Overall, 55% of the students have a food-oriented bachelor degree, 35% have a non-food-oriented bachelor degree in sciences and 10% have a non-food engineering background. From a geographical point of view, over the past decade, students have come from Africa (40%), Asia (43%), Central and South America (10%) and Europe (7%). Specific scholarships are available for high quality students from developing countries.

IUPFOOD alumni are typically employed in academic institutes (37%) as teaching and/or research staff, private industry (20%) mainly in quality control related jobs, governmental institutes (7%), non-governmental institutes (2%) and research institutes (2%). About 27% undertake further PhD studies and this group of alumni mainly ends up in academic institutions. In the long term, a large part of the IUPFOOD alumni (75%) are involved in education, research and service in academic institutes, research institutes and governmental institutions creating a true nucleus for multiplier effects of their knowledge in particular in their home countries in the South.

For more detailed information see https://iupfood.be/

Prof. Marc Hendrickx
The international course programme in Master of Science in Water Resources Engineering started at our faculty as “Irrigation Engineering”. Professor Jan Feyen joined forces with professor Jean Berlamont to erect an interfaculty course based at our faculty.

The first students graduated in 1982. Originally scholarships to students from developing countries were granted by ABOS (Belgian Administration for Development Cooperation), who also supplied an operational budget. This allowed to attract many visiting professors, especially from the USA, who contributed not only by teaching specialist courses but also by scientific cooperation. The centre for irrigation engineering was therefore one of the cornerstones in the development and internationalisation of the Soil and Water Division.

In 1994 the VLIR-University development cooperation became responsible and the curriculum had to apply to get the International course programme (ICP). For that purpose “Irrigation Engineering” and “Hydrology” (based at the Vrije Universiteit Brussels) merged into the “Inter University Programme for WAter Resources Engineering” with acronym IUPWARE. This programme accomplished three successful accreditations and was always at the forefront of the new evolutions in water resources teaching and research. Our focus lays in the use of water resources models for integrated water management.

All staff teaching within this interuniversity/ interfaculty programme have many projects in developing countries and in Europe. In 2016 the ICP status was reconfirmed after a strong competition between all Flemish universities entering existing and new master programmes. So we remain with 12 guaranteed scholarships every year for students from a list of developing countries. At the end of the academic year 2016-17 the total number of graduates starting with irrigation engineering and hydrology is almost 1000. In March 2017 an alumni event took place in Brussels and Leuven with attendance of about 100 graduates from different countries. This allowed consultation about priorities and suggestions for improvement and continuous rejuvenation of our longstanding master course keeping high standards with relevance to water resources engineering.

Prof. Guido Wyseure
FACTS AND FIGURES

73
# BSc students in 3rd bachelor on Erasmus
= 29%
of the total # students 3rd Bachelor

10
# MSc students going abroad on their own initiative

5
# MSc students following aquaculture or hortology in South Africa

6
MSc students in the programme production forestry systems in Chili

21
Total # MSc students following a semester abroad

Numbers for academic year 2016-2017
161
Incoming international MSc students
= 21% of the total # MSc students

35
MSc students conducting research for master's thesis abroad

31
# MSc students of ACE doing an integrated project in Kenya
= 42% of the total # MSc students in ACE

58
# Incoming Erasmus students

9
MSc students on an internship abroad
Bioscience Engineering Students discover the World

VANCOUVER, CANADA
Totally different way of teaching. Vancouver is the most beautiful city I’ve seen so far, really great!

(Vincent)

SAO PAULO, BRAZIL
The accommodation that was recommended for me is very good. For the rest I follow all my lessons, Portuguese lessons and I still have time to explore this beautiful country. Once again thank you very much for your help to make this possible!

(Paulien)
STELENBOSCH, SOUTH AFRICA
We have already had the first lessons of the semester! The university makes great efforts to organize activities at reasonable prices. The other students are also very open.

(Ruben)

LISSABON, PORTUGAL
There are also many students from Brazil and Africa. I was living with 3 Brazilians and 1 Ethiopian and I learned a lot about their cultures. Incredibly fun and interesting! You come back with contacts all over the world.

(Michiel)

PRAAG, CZECH REPUBLIC
My Erasmus experience was great in one word or as they would say in the Czech Republic: Velmi Výborný. All lessons are in English and almost all students at the university speak English well.

(Pieter)
Institutional University Cooperation (IUC) programmes are considered as flagship programmes in the VLIR-UOS operation, with good reason. They stand for a kind of cooperation for which foreign colleagues envy us (even those from Wageningen University & Research!). What makes these IUC’s so unique?

First of all it concerns real long term collaboration agreements – for more than ten years – based on mutual commitment and close cooperation in research. This encompasses the more common ‘consultancy’ type of work where rather short and specific study assignments are commissioned by the government, most frequently by the Department of Development Cooperation. Typical for these assignments is that once the bills have been paid and reports have been written, the assignment is considered to be wrapped up and “the gate” is then closed.

Secondly an IUC is about building durable relationships, tending to capacity development in the South and performing research together in a context of development. In these programmes the long term perspective is a crucial element, as all processes mentioned require patience and perseverance. Full involvement of the researchers from North and South who attach great importance to the results also are a guarantee for a successful cooperation. In addition, IUC’s are unique channels offering an opportunity for interdisciplinary collaboration with Flemish researchers, across the borders of the own institute. To conclude, when the IUC is completed the research partnerships developed will remain in place, with different funding, and the receiving institute continues to be a hub of our university, including countless alumni and preferred partnerships.

In 1998 the Flemish Interuniversity Council (VLIR), the consultative body between Flemish universities and the Belgian government, became responsible for management of federal funds for university development cooperation (UOS) of the Flemish universities. VLIR-UOS receives an annual budget of approximately € 35 million (in 2014) from the Belgian Department of Development Cooperation.

With a program for Institutional University Cooperation (IUC), VLIR-UOS enables 12-year partnerships between a university in the South and Flemish universities and colleges. The programme provides support to the university in the South for its triple function as provider of education, research and social services. The IUC Partner Programme consists of a coherent set of projects under an umbrella theme, including a number of identified key core areas that contribute to national priorities for development cooperation. The program also supports enhancement of institutional capabilities of partner universities in terms of university management and support services such as ICT, library management or financial management.

Prof. Roel Merckx
Forty springs, forty nations, finding common ground for sustainable development in the South Ethiopian Rift Valley is the title of an IUC programme launched in cooperation with Arba Minch University (AMU) in Ethiopia in 2017. The primary motive for this collaboration is the fact that the number of universities in Ethiopia is increasing rapidly – as is the case in the whole of Sub-Saharan Africa – and the number of well-educated lecturers does not keep up with this trend at all. Education based on research, at the service of local communities is an essential condition for development. Strengthening local capacity should allow AMU to take on an emancipating role in this context. Research on improving ecosystem services, in parallel with an increase of sustainable agriculture productivity is at the heart of this intervention and explains the multidisciplinary make-up of the team. Agriculture and livestock farming in the region are characterised by low efficiency and low productivity. This leads to rural poverty, food insecurity, bad health and extreme conditions of land degradation and loss of biodiversity.

The programme consists of six projects connected with key words such as ‘ICT’, ‘Livelihood’, ‘Health’, ‘Land degradation’, ‘Agriculture’ and ‘Biodiversity’. In addition to many colleagues from universities and colleges in Ghent, Brussels, Antwerp and Hasselt and other faculties at KU Leuven the following members of the Faculty of Bioscience Engineering take part in this programme: Prof. Seppe Deckers, Prof. Jan Diels, Prof. Peter Goos, Stefaan Dondeyne, Prof. Miet Maertens, Prof. Roel Merckx, Prof. Bart Muys, Prof. Rony Swennen, Goedele Van den Broeck and Prof. Liesbet Vranken.

In the first year of the collaboration, thirteen students started preparing a PhD. In the areas of nature protection, agriculture, soil science, sociology and anthropology the experimental work mainly takes place in Ethiopia which implies that the PhD students stay in Belgium only for a relatively short period of time. There is a financial but more importantly also a conceptual reason for this: the main ambition remains to empower students and researchers to perform research in their own environment, concentrating on local problems. Also important to mention is that we organise a “field course” in the context of this IUC together with AMU and ETH (Zürich) for students following the Master of Bioscience Engineering: Agro- and Ecosystems Engineering (ACE) organised by our faculty.
Cooperation between KU Leuven and Jomo Kenyatta University of Agriculture and Technology (JKUAT) in the field of food science and technology started in 2011 with a VLIR-UOS Team project entitled 'The hard-to-cook defect in common beans: towards food security and sustainability in sub-Saharan'. At JKUAT the project was led by Prof. Daniel Ndaka Sila, a KU Leuven alumnus (MSc in Food Technology, graduate of the VLIR-UOS supported IUPFOOD programme, followed by a KU Leuven IRO funded PhD and a postdoctoral period at KU Leuven). In September 2015, an IUC proposal, Legume Centre of Excellence for Food and Nutrition Security (LCEFoNS) was submitted to VLIR-UOS. It is a partnership between JKUAT, KU Leuven and Vrije Universiteit Brussel (VUB). The LCEFoNS programme was approved and, after a preparatory phase in 2016, effectively started in January 2017. The programme further builds on the outcomes of the Team project and spans the complete legume value chain.

JKUAT belongs to the top three ranked and top five largest universities in Kenya with a major campus in Juja, Thika (35km from Nairobi) and side campuses at different locations in the country. It seeks global excellence in academic training, research and innovation for development. JKUAT was initially meant to train graduates majorly in agricultural sciences. Although this is still a major focus today, the past decade it has embraced a large number of additional faculties. The university main campus has about 17,000 registered students drawn from all income classes and gender. The total population of the university and its campuses is approximately 42,000 students from undergraduate to postgraduate level.

The LCEFoNS programme consists of four strongly interlinked research projects integrating expertise from different departments at JKUAT including Horticulture, Food Science and Technology, Nutrition and Health, Public Health and Computing and Information Technology.

The projects focus on: Legume breeding for improved quality (project leaders Prof. G. Angenon (VUB) and Prof. S. Githiri (JKUAT)); Legume storage and processing for convenient products of high nutritional value (Prof. M. Hendrickx (KU Leuven) and Prof. Daniel Ndaka Sila (JKUAT)); Legumes in Nutrition and Health (Prof. C. Matthys (KU Leuven) and Dr. Florence Mumbi Kyallo (JKUAT)); ICT Support for Legume Research (Prof. W. De Meuter (VUB) and Prof. S. Kimani (JKUAT)).

The research receives administrative support from the Programme Support Unit (programme managers Mr. T. Calfat (KU Leuven) and Dr. P. Kahenya (JKUAT)).

The LCEFoNS programme focuses on human and infra-structural capacity building at JKUAT. A substantial investment in analytical equipment and computer infrastructure is foreseen. During the first five years, a minimum output of 7 staff members obtaining a PhD, 2 staff members obtaining an international MSC and involvement of 17 local MSc students is anticipated. At least an equal output in the second phase is anticipated although the focus will shift towards valorization of research outputs from the first phase.

For more detailed information see www.jkuat.ac.ke/centres/lcefons/
The VLIR-IUC-programme with Universidad Nacional Agraria la Molina (UNALM, Lima, Peru) was launched in 2008 for a term of 12 years and is coordinated by Prof. Eddie Schrevens. The programme aims to contribute to sustainable development and poverty reduction in Peru based on scientific research and academic capacity. The strategic goal is to develop a generic methodology for the bio-physical and socio-economic description and modeling of agro-ecosystems for optimizing input-output relationships. The programme emphasizes a holistic approach combining participatory methods and collaborative processes with a ‘hard’ scientific approach.

The IUC-programme consists of two research projects, two projects on capacity building and a transversal logistic support project: farming systems (coordination: Prof. Eddie Schrevens, BIW-KUL); development of value chains for rural development and conservation of biodiversity (Prof. Miet Maertens, BIW-KUL); institutional change in research and innovation management (Prof. Ignace Lemahieu, UGent and Prof. Ann Peters, UHasselt); education innovation in bachelor and master with the emphasis on sustainable management of agro-ecosystems and rural development (Prof. Jan Elen, PPW, KUL); logistic, institutional support (Stephan Sas, BIW-KUL).

In addition, the IUC-programme contributes to infrastructure development and capacity building within UNALM. At institutional level, various services and advisory councils were established: an Accreditation Office, a Research Coordination Department, a Center for Education Innovation, ICT and a Library councils. The ICT and library infrastructure was renewed. The Education Innovation Center started with educational training for starting professors, seminars concerning education innovation and the organization of educational days. Moreover the Center is supporting educational projects, submitted by individual professors or initiated by UNALM authorities. An ‘Open Learning Center’ was established in the renewed library. Within this center, various initiatives were taken in the field of technological innovation: biohackatons, technology days, mechatronics workshops, 3D printing courses, ... Various research units were provided with the necessary instrumentation, including an accredited lab for fiber quality of wool (sheep and camellia), a soil science lab, a horticultural lab, a germplasm bank for Quinoa and Kiwicha, an agroforestry research unit ...

In the Regional Development Centers of UNALM in coast, Andes and Amazon, significant investments were made in local laboratories. The local infrastructure for field experimentation and knowledge transfer to rural communities were improved. In the UNALM regional development centers of Yanamuclo (Central Andes) and Cañete (coastal plains), two large-scale, fully automated irrigation facilities were built for research, education and extension; 20 and 10 ha respectively. In Cañete, a research facility for optimization of irrigation systems was established. Various secondary projects were developed: a drone unit, statistical research planning, a conference on sustainable rural development. Courses in different topics are organized on a regular basis on UNALM: applications of DRONE-technology in agricultural research, Life Cycle Analysis, Scientific Writing and Project Development, Experimental Design, System Analysis for Soil Plant Interactions, Multivariate Statistics.

In the last five years, in collaboration with VLIR-UOS and Close-the-Gap, 632 portable computers were distributed over 46 schools spread across extremely poor communities in 9 departments of Peru. The computers were equipped with basic didactic software and education support was organized for the teaching staff of primary and secondary schools and adult education.

This brief overview indicates that VLIR-UOS’s IUC-programmes make a significant contribution to institutional capacity building in research, education and outreach for the local institution.

For more than 10 years in the village Aramachay (Central Andes at 3500m above sea level), there are pilot fields for collaborative research together with local farmers.

Universidad Nacional Agraria la Molina, Lima, Peru

The VLIR-IUC-programme with Universidad Nacional Agraria la Molina (UNALM, Lima, Peru) was launched in 2008 for a term of 12 years and is coordinated by Prof. Eddie Schrevens. The programme aims to contribute to sustainable development and poverty reduction in Peru based on scientific research and academic capacity. The strategic goal is to develop a generic methodology for the bio-physical and socio-economic description and modeling of agro-ecosystems for optimizing input-output relationships. The programme emphasizes a holistic approach combining participatory methods and collaborative processes with a ‘hard’ scientific approach.

The IUC-programme consists of two research projects, two projects on capacity building and a transversal logistic support project: farming systems (coordination: Prof. Eddie Schrevens, BIW-KUL); development of value chains for rural development and conservation of biodiversity (Prof. Miet Maertens, BIW-KUL); institutional change in research and innovation management (Prof. Ignace Lemahieu, UGent and Prof. Ann Peters, UHasselt); education innovation in bachelor and master with the emphasis on sustainable management of agro-ecosystems and rural development (Prof. Jan Elen, PPW, KUL); logistic, institutional support (Stephan Sas, BIW-KUL).

In addition, the IUC-programme contributes to infrastructure development and capacity building within UNALM. At institutional level, various services and advisory councils were established: an Accreditation Office, a Research Coordination Department, a Center for Education Innovation, ICT and a Library councils. The ICT and library infrastructure was renewed. The Education Innovation Center started with educational training for starting professors, seminars concerning education innovation and the organization of educational days. Moreover the Center is supporting educational projects, submitted by individual professors or initiated by UNALM authorities. An ‘Open Learning Center’ was established in the renewed library. Within this center, various initiatives were taken in the field of technological innovation: biohackatons, technology days, mechatronics workshops, 3D printing courses, ... Various research units were provided with the necessary instrumentation, including an accredited lab for fiber quality of wool (sheep and camellia), a soil science lab, a horticultural lab, a germplasm bank for Quinoa and Kiwicha, an agroforestry research unit ...

In the Regional Development Centers of UNALM in coast, Andes and Amazon, significant investments were made in local laboratories. The local infrastructure for field experimentation and knowledge transfer to rural communities were improved. In the UNALM regional development centers of Yanamuclo (Central Andes) and Cañete (coastal plains), two large-scale, fully automated irrigation facilities were built for research, education and extension; 20 and 10 ha respectively. In Cañete, a research facility for optimization of irrigation systems was established. Various secondary projects were developed: a drone unit, statistical research planning, a conference on sustainable rural development. Courses in different topics are organized on a regular basis on UNALM: applications of DRONE-technology in agricultural research, Life Cycle Analysis, Scientific Writing and Project Development, Experimental Design, System Analysis for Soil Plant Interactions, Multivariate Statistics.

In the last five years, in collaboration with VLIR-UOS and Close-the-Gap, 632 portable computers were distributed over 46 schools spread across extremely poor communities in 9 departments of Peru. The computers were equipped with basic didactic software and education support was organized for the teaching staff of primary and secondary schools and adult education.

This brief overview indicates that VLIR-UOS’s IUC-programmes make a significant contribution to institutional capacity building in research, education and outreach for the local institution.

For more than 10 years in the village Aramachay (Central Andes at 3500m above sea level), there are pilot fields for collaborative research together with local farmers.
In 1534, Joos de Rijcke de Marselaer from Mechelen, a Franciscan missionary known in Ecuador as “Jodoco Ricke”, founded the first monastery, “San Francisco Monastery”, in Quito. The reputation is that he introduced draught animals, plowing, wheat, barley and almost certainly brewing beer. Pieter Gossael (known as “Pedro Pintor”) from Leuven was co-founder and is at the base of the Quito school for painting inspired by the Flemish paintings. Cooperation between Ecuador and Flanders therefore fits in a very long historical tradition.

In 1992, VVOB co-operators (Vlaamse Vereniging voor Ontwikkelingssamenwerking en Technische Bijstand) working at the engineering faculty of the Universidad de Cuenca reached out to the KU Leuven. The official structural collaboration between our faculty and UCuenca dates back to 1996. A VLIR own-initiative project on soil and water management by Prof. Em. Jan Feyen and Dr. Felipe Cisneros was the first in a long series. Colleagues from soil and water, nature, forest and landscape, geography and hydraulics have collaborated to develop expertise around local issues in soil and water management.

In October 2005, a proposal was submitted to IUC and launched after a preparatory programme in July 2007. Meanwhile, 25 professors at UCuenca have a doctoral degree from Belgium, mainly from the KU Leuven. Also the current rector Pablo Vanegas is an alumnus of the KU Leuven Engineering Faculty. Many Flemish students have done their research in cooperation with UCuenca, either for their MSc or PhD thesis. The closing event of this successful IUC will take place in October 2017.

Universidad de Cuenca is a full university and although the IUC further builds on existing collaboration, there are 7 projects with a wide range of human, biomedical and science and technology specialties: water quality management, city preservation, nutrition and health, migration and development, sexual education for adolescents, medicinal plants and institutional development. Each of the projects results in 10 years of research / education team with critical mass.

In the long tradition, the IUC is a milestone but certainly not the end of our cooperation, in which our faculty and more specifically soil and water management is a major player. Looking back over the many years the most important conclusion is that development requires a long term and sustained effort based on good research activities along with mutual respect and friendship.
Institutional Collaboration

All Eyes on our Earth’s Land Surface

A new research group. A new satellite mission? A new project: most of our work focuses on water in soils and plants, but this time, we will look at water in snow. Snow fills the biggest gap in our knowledge of the global surface water budget, for lack of accurate observations and model simulations. Yet, more than a sixth of the world’s population relies on fresh water from seasonal snow. To gather design recommendations for a future space borne snow mission, NASA has launched a multi-year airborne campaign, SnowEx.

The first campaign of SnowEx was held in February 2017 in Grand Mesa, Colorado (USA). A multitude of airborne and terrestrial remote sensing data were collected using a range of instruments, including lidar, microwave, and multi/hyper-spectral visible/infrared imagers. At the same time, scientists from all over the world intensively sampled snow on the ground, and satellite missions looked at Grand Mesa from space. Prof. Gabriëlle De Lannoy at KU Leuven joined forces with lead NASA SnowEx scientists dr. Ludovic Brucker and dr. Edward Kim to exploit the synergy in the various SnowEx remote sensing data and land surface simulations via Bayesian merging. The analysis will result in optimal snow estimates in space and time, along with uncertainty estimates, and unprecedented guidelines for the development of a new satellite mission for snow estimation.

The snow project is icing on a cake of a longstanding collaboration between Prof. De Lannoy, her new research group at KU Leuven and NASA.
Joint research is also ongoing to estimate other land surface variables, e.g. soil moisture, ground water, soil temperature, vegetation, precipitation and runoff, using modeling and observing systems developed by NASA and ESA. Together, we aim at improving our understanding of our Earth’s complex land surface.

We greatly acknowledge the Belgian Science Policy (Belspo) STEREOIII programme for supporting the upcoming SNOPOST project, which will bring together KU Leuven, NASA and many other US and EU research institutes to study snow remote sensing and data assimilation.

The research group “Land Surface Observations, Modeling and Data Assimilation” is led by Prof. De Lannoy within the Division of Soil and Water Management, Department: Earth and Environmental Sciences. Prof. De Lannoy collaborated with scientists at NASA and USDA for her PhD research, worked at NASA Goddard Space Flight Center’s Global Modeling and Data Assimilation Office as a senior research scientist, and now fosters a strong collaboration with NASA while at KU Leuven.
Over the last two years, students and researchers have been exchanged between the Centre for Surface Chemistry and Catalysis of KU Leuven and the Institute for Integrated Cell-Material Sciences of Kyoto University, Japan. Group leader and project supervisor at KU Leuven, Prof. Rob Ameloot, is very enthusiastic about this experience: “I got to know Shuhei Furukawa when he was a postdoctoral researcher at KU Leuven. We kept in touch when he received a professor position in Kyoto and we decided to set up this fruitful research collaboration with support from both Belgian and Japanese funding agencies, i.e. the Research Foundation Flanders (FWO) and the Japan Society for the Promotion of Science (JSPS). The main objective was to allow facile exchange of people, knowledge and know-how. In our case, we both work on the synthesis and characterization of functional porous materials but with a different approach: they focus on structures at the micrometer scale while we target the nanometer scale.”

Besides an outstanding research experience, these exchanges also serve educational purposes. Last summer, two Master’s students started their master thesis in Japan. Two PhD students from prof. Ameloot’s group traveled with them for the first month. PhD student Timothée Stassin testifies: “Starting a master’s thesis abroad is challenging, but very enriching. I was very happy when the Faculty started to promote such research stays abroad at master’s level a few years ago. I could benefit from it and started my own thesis in Munich. Every year since, motivated master’s students have benefited from such international collaborations. The key to success is excellent communication between the home and the guest supervisor, and highly motivated students who can deal with the higher workload going hand in hand with such an international experience. Of course, in the end, it is also a lot of fun meeting new people, cultures and places.”
An Michiels: Bioscience engineer at work

At the graduation ceremony of the faculty on July 7, 2017 in Leuven we invited Dr. Ir. An Michiels to address the new graduates in Bioscience Engineering. An chose to offer some wise advice straight from the heart.

Dear promovendi, parents and friends

My sincere congratulations on your graduation today! When Professor Buys and Professor Courtin asked me a couple of months ago if I was willing to give a speech on your graduation ceremony I didn’t hesitate for a minute. Of course I was willing to do this! Making up my mind on the specific topic I wanted to cover in my speech, however, took me a couple of weeks …

When thinking back of my own graduation at the Faculty of Applied Biological Sciences, twenty one years ago, the following questions came to mind. Which advice would I have liked to hear at my own graduation? Which wisdom would probably have helped me in the different steps in my life after graduating?

This wisdom can be summarised very briefly: CHOOSE consciously

Dear graduates, do not just follow the path followed by everyone else, the path you are expected to follow. Talk to friends and acquaintances and ask them to share their personal experiences in their careers. Go see your family, an ex-student from your faculty, a neighbour across the corner in your street, and listen to their stories. What is their passion? Where did they live and work? How did they make their choices?

When I graduated here twenty one years ago I chose very consciously, at least I thought I did, to go for a teaching career. I came from a small village in “de stille Kempen” with a diploma bio-engineer and a teaching diploma in the pocket. Only a week passed by after my graduation and I was already on my way to a first job interview, by bike. My former high school had opened a vacancy for a Master In Science in Mathematics and I had it all worked out: this was the job for me.

The school director knew me quite well and remembered that I was a young entrepreneurial and enthusiastic student at the time. Therefore, he was all the more surprised to learn about my motivation for pursuing the position. “I was good at mathematics and would enjoy to be at home during all school holidays”

Not really an appropriate motivation to present in a job interview, if I may offer you some advice. The director shook his head. “An, is this really your choice? Did you come up with this yourself” “You used to love science and biology, right? Did you consider to go for a PhD degree? Did you talk to researchers? Have you considered a job in a company? Or abroad?”

This time I shook my head and I soon realised that this first job interview was not at all going in the right direction.

“Ok,” he said “I suggest that you first talk to some more people and if you are still interested in a teaching position after that you can call me and I will free up some time to talk to you again”.

The bike ride home took only half the time. I was angry. Who did this guy think he was?

Looking back now at this first interview I must admit that my former school director had a major impact on the course of my life. Don’t get me wrong, a career in education is extremely valuable, at the condition that you choose yourself to go for a teaching job, consciously and based on an appropriate motivation.

Following this particular interview I went to talk to several researchers and I choose, consciously, to take up a position as a doctoral assistant at this university. I was also charmed by foreign countries and wanted to, consciously, discover the world, to live and work somewhere else, far away from home. Thanks to an FWO scholarship I stayed in the US for six months. I really got the taste for it then and after my PhD I applied for a postdoc position at the University of Maryland. In 2000 I left for Washington DC carrying only one suitcase and a backpack, to return in 2013 with a fully packed container, a husband and two kids, and enriched with a bunch of experience and wisdom.
In the US I learned to go my own way, I grew in what they tend to call “the competencies”. I learned to plan and organise, to calculate budgets, to give presentations. When I was twenty nine I was offered the opportunity to start up a small company in Maryland for a Dutch technology company, Keygene, as CEO. I learned how to develop a business plan, run a payroll, negotiate contracts, recruit co-workers and lead teams. Also this step was a really conscious move in my career and I had a wonderful time.

Dear promovendi, if you are interested in a career abroad, if you are attracted to other environments and cultures, dare to go for it. Ask around for good advice, you are not the first one in Flanders to leave for a foreign country for a period of time, and you will certainly not be the last …

In 2008 our daughter was born. A point in your live when the world appears to stop turning. At least it appears so. And now what? Back to Belgium? Do I stay at home? Is my husband going to stay at home? Do I go looking for another job or do I continue as a CEO of a small start-up company?

In the US business world one tends to say: “Never lunch alone” and these lunches with friends-colleagues inspired us to make the following choice: combine a family life with kids with a pleasant and challenging job for both of us.

Even today as Head of R&D at Hazera-Limagrain, I see co-workers struggling with this combination. Our conservative colleagues usually refer to them, with a wink, as the “they-want-it-all generation”. They want to both follow their passion and develop their career, often building in a short break, and combining this with a family life. Good corporate governance entails that we support our employees in this and offer them the possible flexibility to make this work. This not only leads to a healthy life-work balance, it also leads to more diversity in the work environment: more international employees, a better balance between men and women in the organisation, and this not only on the work floor but also in more technical and managerial positions. More diversity leads to a better work culture, better decision taking and better results. To all young ladies in the room, to all international students, to all other students who in one way or another contribute to more diversity, be it because of background, religion, way of thinking or handling, if you have the talent, the competencies and the drive to grow, get promoted and be part of a leadership team in an organisation, then go for it.

We have a long way to go here in Flanders. The number of women and international members in higher management positions or in boards of trustees and the number of female and international professors is saddeningly small, despite the equal opportunity policy being followed. When one of you will be invited, in twenty one years, to give a speech at the graduation ceremony of this faculty, I sincerely hope that diversity is no longer an action item on the agenda in Flemish companies, universities or organisations.

One last golden tip, especially for the more “ambitious promovendi” amongst you. In your search, do not focus on a position which will offer you a high salary, a company car with the associated status and an impressive title on your business card. First find out where your interests and passion lie, then find a job in a good working environment, with fine colleagues and a committed manager who supports and helps you and facilitates your further development. Do this at least for your first, second, and maybe even your third and fourth job. A nice title on your business card and an alright salary will follow …

To conclude, ladies and gentleman, enjoy this graduation day and after that:

**CHOOSE, CHOOSE CONSCIOUSLY and FOLLOW YOUR HEART!**

Dr. ir. An Michiels
An Michiels (Promotion 1996) is Head Research and Development at Hazera-Limagrain and member of the FWO Board of Trustees.
In Memoriam Professor Jules D’Hoore (1917-2017)

Jules D’Hoore was born in Sluis (the Netherlands) on 7th May 1917, while his family was on exile as Belgian refugees during World War I. After the war his family returned to Bruges where he followed the Greek-Latin option at St. Lodewijkscollege. During World War II Jules’s university studies were disturbed by the war mobilization and he was war prisoner for a short period. Eventually he obtained his diploma of Engineering in Chemistry and Agricultural Industries from the State Higher Agronomic Institute in Ghent 1943. He stayed on as assistant at the Faculty of Sciences of the State University of Ghent, in the Laboratory of Analytical Chemistry (Professor J. Gillis).

In 1946, Jules undertook his first mission to Congo as assistant researcher in the Department of Agrology, Institut National pour l’Etude Agronomique du Congo belge, Yangambi. While serving as visiting Researcher of Wisconsin, USA in 1949 he made visits to soil laboratories of the Universities of Ames, Cornell, and Pennsylvania State and to the US Soil Conservation Service, Washington, DC. In 1951 Jules participated to an OECE mission (3 months) in western Africa in company of L.T. Alexander (USA), R. Maingien and G. Aubert (France), and C. Bloomfield (UK): field study of laterisation phenomena.

In 1950 Jules D’Hoore started his doctoral project under supervision of L. De Leenheer at the then State Higher Agronomic Institute in Ghent (which later became the Faculty of Agricultural Sciences of the University of Ghent). On 10th September 1953 he defended summa cum laude his thesis with title ‘The Accumulation of free Sesquioxides in Tropical Soils’. He was the first to obtain his PhD at this Institute/Faculty, not his last pioneer achievement. With this thesis he became a world authority on the processes which lead to laterite soils (present-day Plinthosols).

In 1953 he was detached to the Commission for Technical Cooperation in Africa (CCTA) as Director of the Service Pédologique Africain / Interafriacan Pedological Service (SPI). In 1954 Jules was involved in the preparation of the “IIe Conférence Interafriacaine des Sol” (2nd Inter-African Soil Conference) and the International Soil Congress of Leopoldville, Congo. In this period he started assembling the soil map of Africa at 1/5,000,000 scale. For that purpose he made several visits to the major soil centres of Africa and Madagascar along with field work during numerous soil correlation meetings with regional soil scientists active in Africa.

During his fourth mission to Congo in 1956 he designed a first approximation map of the soil distribution and of its provisional legend. This map was verified during numerous regional workshops all over Africa. The third approximation of the Soil Resources Map of African was presented in 1960 during the 7th International Soil Congress at Madison, USA. At that time, the baseline documentation of that map, stored in Yangambi, becomes inaccessible because of the evacuation of this research centre. Jules had no other option than reconstituting this documentation by personal mailing to correspondents. He was temporary hosted by the “Service Pédologique Interafriacain” (Inter African Soil Service) in Ghent, thanks to the hospitality of Professor De Leenheer and Professor Tavernier.
In 1962 he is assigned as member of the “Advisory Committee Project World Soil Map”, FAO-Unesco. In 1962 Jules joins the Centre for Tropical Soil Studies at KU Leuven. He drafts the fifth Approximation of the Soil Resources Map of Africa and edits a provisional explanatory notice which is eventually published in 1963 in French and in English along with its legend and an elaborate explanatory text.

In 1970 Jules makes a study visit to the Goddard Space Flight Center, Maryland, USA and studies remote sensing techniques and their usability for soil observation and broad scale soil mapping. As of then he is prominently present in international fora on remote sensing (ESRO) as delegate from Belgium, among many others the new department of Remote Sensing of the Joint Research Centre, EURATOM, Ispra, Italy. He also was the inspirator of a state funded programme on remote sensing studies in Belgium. In 1976 he becomes the permanent Belgian member at the Remote Sensing Advisory Group at ESA (European Space Agency), charged by the Science Policy Office, Brussels.
Also in that year he is elected President of the Soil Science Society of Belgium. As of 1977 Jules is member of the “Klasse voor Natuur- en Geneeskundige Wetenschappen van de Koninklijke Academie voor Overzeese Wetenschappen” (Class for Nature and Medical Sciences of the Royal Academy of Oversea Sciences). He also gets actively involved in the first versions of Belgium-supported Inter-University Development Cooperation with missions to Zambia, Malaysia, Thailand and Congo. In 1983 Jules is Entitled Member of the Class for Nature and Medical Sciences, Royal Academy of Oversea Sciences. During his professional career, Jules D’Hoore was honoured several times with awards such as the price “Wetteren”, Royal Academy of Sciences, Belgium (together with J. Fripiat), the “Medal Order of the Lion” and "Great Officer in the Leopold Order”.

With his lectures edging at the frontline of scientific development, Jules D’Hoore was an excellent professor, giving his students a world view on soil genesis and soil geography, and a strong feel for interdisciplinarity, as he had worked with agronomists, geologists, ecologists and others during his career. With his soil map of Africa he made school internationally and this valuable document still remains till today an important reference milestone from where new tropical natural resources work is starting. Jules D’Hoore’s soil map of Africa was recently the centrepiece of the ‘Africa in Profile exhibition’ which was organized at KU Leuven to mark the International year of the Soil in 2016. For the occasion, Jules kindly allowed recording an elaborate interview in which he reflects on his Soil Map of Africa: http://www.bbv-sbss.be/

Jules D’Hoore had a somewhat rigid appearance, but in fact he was a sensitive person, with discrete empathy for those in need. He was famous for his erudition, fluency in languages and his interest in art, culture and history, which he liked to share. Jules had a sarcastic sense of humour and a capacity for making verbal caricatures. His speech at the day of the celebration of the end of his career will be remembered for two very ‘Julian’ expressions: he compared the soil to a ‘palimpsest’ - a reused manuscript bearing traces of older writings, and he likened his career as a ‘time of great delight’. During his long retirement period, he kept delight in remembering his achievements and sharing it with visitors.

Jules D’Hoore passed away in his home on 19th September 2017, a few months after he celebrated his 100th anniversary with family and friends. He was a great man, a polymath whose stories will continue living on among the large community who had the chance of knowing him.

We end this in Memoriam with two quotes from Jules which we found in his Memoires (Family Archive, 2004):

“… during our long travel through West-Africa for studying laterites in the Sahel, we often slept the night on a roof terrace. Safe of the odd cycads it was dead-silent, the stars hanging high in the sky like balls on a Christmas tree in the firmament. Sleeping in I was thinking of the immemorial Chaldese astrologists, or better the proto-theologists, who could read God’s will from the run of the stars. They stood round me in a big group and I could recognize Copernicus, Galilei and Kepler. In that excellent company I fell asleep till the morning chill woke us up to see the first stripe of yet another sunny day … “

“During my career I was able to travel a lot by sea, by land and though the sky … I could reflect and dream away above mountain chains, tropical rain forest, steppes and deserts, icy plains of Greenland, a snow-covered Canada, great water falls … Victoria. Niagara… safe dreaming is never to be taken for granted, also not when watching mother earth from the window of an air plane …”.

By Prof. Hubert Gulinck and Prof. Seppe Deckers

The Soil Atlas of Africa is available for download from this site esdac.jrc.ec.europa.eu/content/soil-map-soil-atlas-africa

Physical copies of the book are available through the EU Publications Office. You can order the Soil Atlas from the EU Bookshop of the Publication Office in Luxembourg at the price of 25 EUR.
LBK International

LBK International is a working group within the student association of the bioscience engineers of Leuven (LBK). The International working group was established in the academic year 2008-2009. Before that, there was a daily management function within LBK called ‘Erasmus’, which was responsible for integrating the incoming Erasmus students and guiding the outgoing Erasmus students. In September 2008 this function was extended to all international students enrolled in the Faculty of Bioscience Engineering, which means students following an English taught master as well as Erasmus students.

We consist of a team of nine motivated bioscience engineer students with one person in charge, who takes up the daily management function within LBK. Our goal is to make the international students feel at home in Leuven and to make their international experience unforgettable. In addition we stimulate Belgian bioscience engineer students to do an international exchange project.

How do we do that?

First of all, we organize the Orientation Days in September and February. At this event international students get all vital information on life in Leuven. Furthermore, they get the opportunity to meet other incoming international students at fun activities. Secondly, there is the International Week organised in the last week of November. In this week we not only give information to Belgian students about Erasmus and other international opportunities but we also motivate them to go for an international adventure. After the International Week we arrange information sessions about ‘going on Erasmus’. Lastly, we plan activities throughout the academic year.

Examples are a trip to Brussels, a beer tasting evening, a pub crawl, a real Belgian cantus, etc.

In Leuven many initiatives and activities already exist for international students, but few of them are also draw Belgian students. At LBK events, however, international students meet Belgian students. The integration of international students in LBK is, according to us, the most valuable asset of LBK International.

LBK International 2017-2018
Brecht, Charlotte, Hanne, Joachim, Johanna, Jolan, Kelly and Simon

www.landbouwkring.be/nl/page/internationaal/
www.facebook.com/LBKinternational 2017-2018/
IAAS: International Association of Students in Agricultural and Related Sciences

The International Association of Students in Agricultural and Related Sciences (IAAS), founded in Tunisia in 1957 with only 8 member countries, has been growing for 60 years. Today, with over 10,000 members from over 50 countries, IAAS is the oldest and largest agricultural related student association in the world. IAAS World changes student perspectives on agriculture and international relations.

Through our global network, IAAS provides links between students and professionals. We offer our members international experiences and give them the opportunity to exchange knowledge during our events and in worldwide projects. We also offer practical experience in internships via our Exchange Program and give members the chance to improve their ‘soft skills’ in trainings, given by our own IAAS Training Committee. In all of our projects, we want to promote the importance of sustainable agriculture and food production.

For the 60th year in a row, we plan to help members fall in love (again) with agriculture, international relations, and IAAS. With IAAS-organised activities, you have the opportunity to improve your agricultural knowledge, swap ideas and have a memorable time with students from abroad. Feel free to join our family for the experience of a career and lifetime!

IAAS World has its international headquarters in the lovely ‘Boshut’ at the Faculty of Bioscience Engineering from KU Leuven. In the same building, the local committee of IAAS Leuven organizes its weekly meetings. A team of motivated students from KU Leuven comes together and prepares many interesting activities for local and international students. Follow IAAS Leuven on Facebook for upcoming activities.

See you somewhere around the World of IAAS!

Ruth Vandeputte
IAAS World President 2016/17

For more detailed information about the kind of activities IAAS organises or on how to become a member, visit www.iaasworld.org, www.facebook.com/IAASWorld or contact info@iaasworld.org.
The goal of Academics for Development is to offer students the possibility to have a social impact in a durable and meaningful way. We do this by offering them the opportunity to contribute to real life issues in developing and developed countries, based on the belief that students have valuable skills, time and knowledge to achieve this goal. AFD aims to demonstrate to students that they can make a real difference in people’s lives regardless of their (academic) background by giving them the opportunity to gain practical and international experience. In addition, AFD’s activities familiarize students with topics related to development cooperation and social entrepreneurship.

Now what does this mean for bioscience engineer students?

First of all you may already be interested in the events we organize throughout the academic year in Leuven. You can expand your knowledge about issues in the developing world and social entrepreneurship by attending these lectures and interesting events.

On top of that, one of the most important parts of AFD are the student projects. AFD projects aim to offer students the opportunity to put the knowledge acquired during their academic studies into practice. For example, last year, one of our projects revolved around the Moringa tree in Tanzania. The AFD team assisted local NGO partners in their quest to introduce sustainable farming practices and allow for a sustainable yet profitable usage of the Moringa tree by local small-scale farmers.

Last summer students Jasper Hendrikx (catalytic technology) and Vicente Burchard-Levine (Water Resources Engineering) went to Bolivia. The AFD-CATALPA team worked on rain water harvesting systems for the neediest families in the dried out Lake Poopo region.

If you are interested in our organization and what we stand for, have a look at our website and Facebook page. That way you will stay up to date on our events and projects for which your help and knowledge will definitely be of use!

---

AFD: Academics for Development

Naamsestraat 61, box 4047
info@academicsfordevelopment.be
www.facebook.com/AFCLeuven

BEST: Teamwork Across Borders

Who or what is BEST?

BEST, short for Board of European Students of Technology, is an internationally minded organization by students for students all over Europe. We are active in 32 European countries with 95 Local BEST Groups. In total, our organization has over 3300 active members. There is of course a local group in our beloved city of Leuven. We have close ties to VTK and LBK, working together to unite internationally minded students!

Some of the events we organize are summer courses. For these, students get to travel all over Europe to follow a course (about e.g. engineering or biotechnology) at a guest university. Together with receiving new knowledge about interesting topics, students get to experience different student cultures. We also organize events like workshops, soft skill trainings and our engineering competition: EBEC.
One of our most important events is the yearly European BEST Engineering Competition or EBEC. There are two kinds of competitions: the Case Study and the Team Design, each with local rounds (e.g. in Leuven), regional rounds and the final round. Winning each round enables the team to move up the EBEC pyramid. Case Study involves creating an innovative solution to a problem that a company is struggling with and being able to pitch it to them. With Team Design you can get your hands dirty, building a construction for a certain objective with limited materials and time, competing with the other teams to do the best job!

This year we had the privilege to send one of our teams from Leuven to the EBEC Final in Brno, Czech Republic, to compete in the Case Study final. The team consisting of engineering and bioscience engineering students had the best solution for our local Case Study and also won the Benelux round. This enabled them to travel to Brno to compete for the title of ‘BEST Engineers of Europe’.
IROICA is a Standing Committee within the Association for European Life Science Universities (ICA). It has the status of a non-profit international association and has its seat in Kasteelpark Arenberg 20, 3001 Leuven. Matt Tips, policy advisor at our Faculty, is the current president of IROICA!

Every year, one of the network’s members hosts the IROICA annual conference. This annual conference is the occasion for all IROICA members to meet and exchange on several topics: internationalization at our universities and campuses, international development strategies, European and international programmes and projects (e.g.: Erasmus + programmes) …

The conference is in general the occasion to debate on the role of IRO in our European institutions in supporting and enhancing the work of the international relations officers in the member institutions by:

- supporting the development of international cooperation by its member institutions
- promoting and supporting international activities for students, academic and administrative staff of their institutions
- providing a pool of information about important developments in the field of international higher education
- providing professional development for international relations officers in the field of academic international relations management
- providing guidance for newly established international offices in relation to their overall profile and their principle tasks
- disseminating outcomes from projects implemented by members
- promoting internal quality assurance of institutional internationalization strategies
- providing intercultural communication training for international relations officers and administrative staff

The 21st IROICA Conference was held at the University of Natural Resources and Life Sciences, Vienna, on 7 to 9 June 2017.

At all times IROICA promotes quality and high standing in its activities in a spirit of openness, human rights and democracy. In order to achieve these goals, the IROICA network acts as a forum for discussion.

Every year, the IROICA team is happy to welcome new members and colleagues, joining the Association. Their experience is a precious added value and enriches the community diversity and know-how in international development.

Iro. Matt Tips

Want to know more about IROICA?
www.ica-iroica.eu/index.php
www.facebook.com/IROICA-308747647547/iroica.vzw@gmail.com

IROICA last Newsletter:
ailchi.mp/d1b8b68d0c52/have-a-great-summer
Award winners

**PROF. TARA GRAUWET RECEIVED THE OCTAAF CALLEBAUT AWARD**

Prof. Tara Grauwet (promotion 2006) received the Octaaf Callebaut Award for her study entitled “From fingerprinting to kinetics in evaluating food quality changes” that has been published in Trends in Biotechnology in 2014. The Octaaf Callebaut award can be granted every two years by the ‘Royal Flemish Academy of Belgium for Sciences and the Arts’ for an important study on food quality. This opinion paper discusses the central research strategy she applied in the context of her post-doctoral fellowship financed by FWO Vlaanderen. Dr. ir. Liesbeth Vervoort (promotion 2007), Dr. ir. Ines Colle (promotion 2007), Prof. Ann Van Loey and Prof. Marc Hendrickx are co-authors of this work.

**TOM DENDOOVEN SELECTED FOR THE STOCKHOLM INTERNATIONAL YOUTH SCIENCE SEMINAR**

Ir. Tom Dendooven (promotion 2016) will travel to Sweden in December to present his research on hospital bacteria at the Stockholm International Youth Science Seminar (SIYSS). The seminar is part of the Nobel Prize festivities. Every year, some 25 of the world’s most promising scientists between the ages of 18 and 25 are invited to take part in SIYSS. Tom will represent the University of Cambridge – where he is currently working on his PhD – at the Nobel Prize ceremony and banquet. From all Cambridge’s eligible natural scientists that were invited to compete, Tom was ultimately selected as representative.

Tom will talk about the research done for his Master’s thesis at the Laboratory of Gene Technology. Promotor was Prof. Rob Lavigne. Tom researched how to stop the growth of hospital bacteria. Because of excessive use of antibiotics, bacteria become immune to them and can spread rapidly in hospital environments. People with a weakened immune system are especially vulnerable.

**EVELINE DRIESEN RECEIVED KOPPERT BIOLOGICAL SYSTEMS STUDENT AWARD**

PhD student ir. Eveline Driesen (promotion 2015, Division of Crop Biotechnics, Department Biosystems) received during the “International Organisation for Biological and Integrated Control” working group meeting on “Integrated control of Plant-Feeding Mites” in Chania (GR), the Koppert Student Award for her presentation “Update on the role of Phytoseiidae (Acari: Mesostigmata) for an integrated control of Panonychus ulmi (Acari: Tetranychidae) in Belgian apple orchards”. Promotor is Prof. Dany Bylemans.
GINO HEREMANS WINS POSTER AWARD
Ir. Gino Heremans (promotion 2016) has been awarded a Sustainable Energy & Fuels Poster Award at the 13th European conference on catalysis (EUROPACAT 2017) Florence, Italy. The poster was related to the work on “Earth abundant catalysts and anion exchange membrane for vapor based water splitting” of Gino Heremans, Dr. Christos Trompoukis, Dr. ir. Nick Daems, Dr. ir. Tom Bosserez, Prof. Ivo Vankelecom, Dr. ir. Jan Rongé (co-promotor) and Prof. Johan Martens (promotor).

SIEM JANSSEN WINS THE ISHS STUDENT AWARD
From the 18th to the 22nd of June, 2017, Prof. Bart Nicolaï and a delegation of the Postharvest Research Group (MeBioS division), accompanied by colleagues from the Flanders Centre of Postharvest Technology (VCBT), attended the 12th International Conference on Controlled and Modified Atmosphere Research (CAMA 2017) in Warsaw. This 4-yearly conference series focuses on optimization of current, and development of new storage techniques. The objective is to provide healthy, affordable and tasty fruit and vegetables to customers year-round.

One of the main topics of this conference was dynamic controlled atmosphere (DCA) storage, the latest development in postharvest techniques. The Leuven group had 4 contributions on this topic at the event, including those from KU Leuven PhD students ir. Niels Bessemans (promotion 2013) and ir. Siem Janssen (promotion 2015). Niels presented fruit quality results of a patented DCA technique. The student award for Best Oral Presentation was handed out to Siem, for an outstanding contribution regarding his PhD research “3D pore structure maps of whole apple using high resolution X-ray CT”. CAMA 2017 was held under auspices of the International Society for Horticultural Science (ISHS), who presented the award through postharvest commission chair Prof. Christopher Watkins.
GROEP AVEVE

UW STERKSTE PARTNER IN AGRARISCHE DESKUNDIGHEID

Groep AVEVE is marktleider in de toelevering aan de land- en tuinbouw in België en heeft de grootste winkelketen voor tuin, dier en bakplezier van het land.

Meerwaarde voor onze klanten
In onze meer dan 50 bedrijven staan meer dan 1.800 enthousiaste medewerkers iedere dag klaar voor de klant. Ongeacht die klant actief is in de professionele land- en tuinbouw of een liefhebber is van tuin, dier en thuisbakken. We leven ons in de activiteiten van onze klant in, we anticiperen op zijn noden en bieden op maat gemaakte, kwaliteitsvolle producten en diensten aan.

Grootste toeleverancier in land- en tuinbouw
Land- en tuinbouwers hebben meer dan ooit nood aan een betrouwbare partner. Die partner vinden ze bij Groep AVEVE met:
- een uitgebreid assortiment voeders voor de professionele veehouderij en voor hobbydieren
- zaaigranen, maiszaad en zaden van andere gewassen
- milieuvriendelijke behandeling van teelt, zoals plantenvoeding en plantenbescherming
- benodigdheden voor de groente- en fruitteelt, sierteelt en boomkwekerijen
- technische installaties voor het moderne tuinbouwbedrijf
- John Deere land- en tuinbouwmachines en onderhoudsmachines voor parken, tuinen en golfterreinen

Agrarische deskundigheid
Onze jarenlange agrarische deskundigheid zetten we in voor het ontwikkelen, produceren en verkopen van een breed assortiment kwalitatief hoogstaande producten en oplossingen ten behoeve van een duurzame land- en tuinbouw. Daarmee zijn wij toonaangevend in de agrarische sector.

Ook in de consumentenmarkt
Ook de particulier heeft evenzeer baat bij onze agrarische deskundigheid. Klanten met een passie voor tuin en dier en voor thuisbakken kunnen terecht in een van de 250 AVEVE-winkels. AVEVE streft naar de hoogste kwaliteit met betrouwbare producten en geeft deskundig advies.

Internationale dimensie
Groep AVEVE levert in België, maar ook in de aangrenzende regio’s, zoals het zuiden van Nederland, het noorden van Frankrijk en het zuidwesten van Duitsland. In bepaalde nichemarkten, zoals enzymes voor de veevoederindustrie en tuinbouwautomatisering, is de Groep AVEVE ook internationaal actief.

Medewerkers met werkplezier
Onze werknemers stoppen veel van hun energie in hun werk. Dat vinden ze pas de moeite waard als het bedrijf een waardevolle plek is. Essentieel is dat onze medewerkers zich goed in hun vel voelen in hun job bij AVEVE. We geven hen opleidingskansen, zorgen voor vlotte werkmethode, stimuleren goed leiderschap en respect voor elkaar. Zo wordt ‘werken een plezier’. Overtuig jezelf op www. werkplezier.be en solliciteer meteen!