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Student joins them on a tractor to The Hague | p.5 |

Nitrogen problem

'Concentrate on emissions due to dairy cows' | p.12 |

Majority voting

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RESOURCE [EN]

For everyone at Wageningen University & Research

no 3 – 3 October 2019 – 14th Volume

**INTERNATIONAL
EDITION**



**'Flying is
not an option'**


Students sail to climate summit in Chile | p.24

Sandra + DJI Matrice 100 drone

WUR staff work with all kinds of crazy apparatus. Like Sandra Munniks, a researcher in drone applications at Food Safety Research.



SNIFFER DRONE

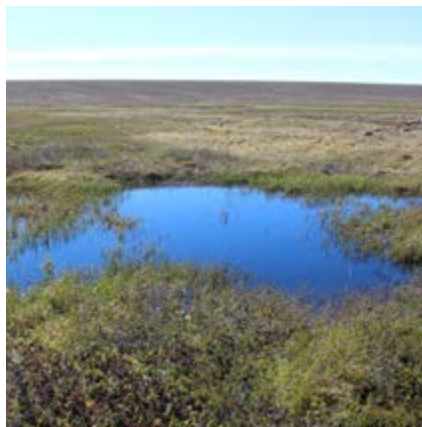
If you want to measure toxic substances, you'd rather do so from a safe distance. And with a drone, you can do just that. Sandra Munniks is doing research on this. As many as 14 electrochemical sensors are suspended from the machine, to detect gases such as methane, nitrogen oxides, ammonia and chlorine. Useful for locating fires based on the smoke. Or for measuring ammonia emissions from a field where muck has been spread.  RK, photo Sven Menschel

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THE DIVISION OF THE SPOILS

For the first time, WUR is allocating research funding on the basis of public votes. The funding in question is 600,000 euros for ideas for furthering the protein transition. Much can be said about this democratization of funding distribution (see p. 22). Like: science mustn't be driven by popularity polls. Or: what will happen to continuity if the people decide? And: what does a sociologist from the Leeuwenborch know about proteins? Sensible comments from sensible people. But is the way we are doing it at the moment so much better?

Volkskrant columnist and professor Marleen Kamperman (formerly at WUR, now at Groningen) recently wrote candidly about how the allocation of research funding works. She is on committees that divide the spoils. Her conclusion is: it is one big tombola. You might as well draw lots: that would at least give everyone an equal chance. Or put your faith in the wisdom of the crowd, like WUR has just done as an experiment. It would be marvellous of course if one of the selected projects turned out to be the goose that laid the golden egg.

Roelof Kleis, editor

AND MORE...

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STAFF SELECT FOUR PROTEIN PROJECTS

Around 700 WUR employees had a say in research funding for the first time. Four Wageningen research projects related to the protein transition were chosen, the Protein Transition Community Fund announced on Monday 30 September.

A seaweed project led by Adrie van der Werf got the most money: 164,000 euros. This project aims to use seaweed to make crops such as tomatoes and onions more resistant to salinization and drought. The project will investigate how much seaweed extract exactly is required in order to increase production in saline or dry soils, says Van der Werf, Biobased Economy coordinator at Wageningen Plant Research.

The second project to be selected is Jeroen Hugenholtz's Microbial Meat. It aims to develop meat substitutes by fermenting vegetable proteins. The Community Fund is investing 134,000 euros in the project. The West African protein crops project was also singled out, receiving 114,000 euros. This project, led by Gijs Kleter, aims to improve West African pulses for the local market and for export to Europe. The fourth project is called Tasty Proteins. These researchers want to find out why consumers do or don't like the taste and texture of meat substitutes. This project, headed by Guido Sala, will get 88,000 euros.

Protein transition is one of WUR's investment themes. Stacy Pyett and Emely de Vet, who are

coordinating this research theme, will be able to spend 1.25 million euros a year on it over the next four years. In addition to the 500,000 euros for the Protein Transition Community Fund, Pyett and De Vet are investing in seed projects for young researchers, directed calls for experienced researchers and outreach projects for communication with sector players and consumers. The amounts involved are not

huge. The grants will let Wageningen scientists try out a concept or application, after which they can apply for further funding from the Dutch Research Council or the EU. **AS**

See also pp 20-21: 'My fear is that it will turn into a popularity contest'



PHOTO: SHUTTERSTOCK

TROLLEYBUS MAY COME TO CAMPUS

The bus lane on campus may get overhead power lines suitable for trolleybuses. This would allow a trolleybus line between Arnhem and Ede via Wageningen.

The days when trolley buses could only go along routes with overhead power lines are gone. Now the buses have batteries that are recharged as they go, which allows them to take routes without power lines. That offers opportunities for extending the trolleybus network. The Rhine Line from Arnhem to Ede via Wageningen and the campus is one possible route that is being examined.

To test the possibilities, the transport company Connexion recently drove a trolleybus along the route that had been specially imported from Switzerland with the latest batteries. 'Successfully,' says Hans Aldenkamp, manager of the Trolley 2.0 project, in which Connexion is one of the parties. Travelling to Wageningen and back is already

feasible. 'The range a bus like that can cover in the summer is 34 to 38 kilometres. We think we could manage 20 to 25 kilometres in the winter. But we'd need to do more to reach Ede.'

Aldenkamp says the Rhine Line is only feasible if they can recharge during the journey. 'For example at the final destination in Ede, or by doing a section of the route with overhead power lines.' The

campus bus lane is the first option for installing power lines. The bus travels slowly enough there to let the batteries recharge. Aldenkamp: 'If that section is too short, you could also use part of Mansholtlaan.'



PHOTO: SHUTTERSTOCK

▲ The trolleybus network in Arnhem and Oosterbeek could probably be extended to include Wageningen and Ede with the help of overhead power lines on campus.

A trolleybus would travel slowly enough along the bus lane to recharge the battery

Incidentally, the Arnhem-Ede line is not the only route being considered. Trial journeys have also been made to Nijmegen, Dieren and Zevenaar, for example. Bus transport in the Netherlands has to become completely electric in the next six years. Trolley 2.0 is the regional transport companies' answer. The project is getting funding from the EU, the province of Gelderland and Arnhem municipality. **RK**

IN BRIEF

>> FARMERS' PROTEST

MSc student takes tractor to The Hague

Last Tuesday, Pieter Rooijackers, Agrotechnology and Business Economics Master's student and the son of a dairy farmer, accompanied a former fellow student on a tractor to The Hague to join the protesting farmers. 'We soon came across a procession of tractors, which we joined. More and more tractors joined us as we made our way.

It was complete chaos on the A12 motorway to The Hague and no one could pass.

We brought half of Holland to a halt, but I didn't feel we were doing anything wrong. All the responses from other drivers and people on the roadside were positive.' Why did Rooijackers join the protest? 'Farmers are quite prepared to switch to circular agriculture but these are difficult times and they don't have the money for the transition. Farmers want to do it but they can't.' **AS**



>> INTERNATIONAL GRANTS

Three WUR scientists rewarded

WUR researchers Conny Almekinders, Peter Oosterveer and Elise Talsma have all received grants from the Dutch Research Council (NWO) for collaboration with CGIAR, a global research platform for food security. The grants are part of the Senior Expert programme. NWO will pay about half of the staff costs for the senior researchers for several years. It should be said that most grants in this research fund go to Wageningen researchers. This time, WUR secured three of the five grants that were handed out. **AS**

>> ACCESSIBILITY

Delays to study on ring road impact

The study assessing the environmental impact of a campus ring road has been delayed by six months because of errors made when inputting measurement data into a traffic model. The environmental impact assessment (EIA) looks at seven solutions for Wageningen's accessibility problems. Six involve a new road across or past the campus. The EIA will now be ready next spring. Gelderland province will announce short-term measures this autumn as a quick fix for the congestion. An access road on the west of the campus is now being considered. **RK**

>> START-UPS TO GET SUPPORT

Lots of robotics companies

StartLife Wageningen has selected eight promising new start-ups in the food and agriculture sectors that will get support in the autumn in further developing their business. They include a lot of robotics companies. These start-ups develop autonomous drones for greenhouses, for example, or sensors to improve climate management and disease control in greenhouses, robots for biological crop protection, and artificial intelligence to increase the flexibility of robots. StartLife will help the companies further develop and market their products. **AS**

>> MIR ART PROJECT

Tent erected in front of Forum

The MIR art project has come to the campus. A large tent has arisen just in front of the Forum in which artists will be working for four months. MIR stands for Mobile Interdisciplinary Room and is also a reference to the famous Russian space lab of that name. It is a travelling project, developed for creating installation art on site. Two artists will be working in the tent from October to January on the theme Time(less). The tent is open to the public during the artists' working hours. **RK**

COLUMN|VINCENT

Doping!?

I always thought the study drug — a pill that helps you concentrate — was a mythical product. A bit like the anti-hangover drip: a nice idea but too absurd to actually have been developed. Until someone was talking about the pill recently and I decided to google it.

It turned out to be all over the internet.* In fact, some study drugs can be bought at high-street pharmacies and there are apparently even universities that have vending machines with the drug. The use of these pills has been growing for years among students.

I was rather shocked at first. It seems

'It seems studying these days is like professional cycling in the 1990s'

studying these days is like professional cycling in the 1990s — performance-enhancing drugs all round. And there I was, stupid enough to spend all that time cycling on nothing stronger than a peanut butter sandwich!

Fortunately a reassuring interview with Marcel Bouvy, professor of Pharmacy at Utrecht University, was published last month. He said what you might have expected: the study drug is a rip-off. There is no proof whatsoever that it helps you to concentrate.

Wasn't studying supposed to be about learning to think critically? How ironic that some people resort to quacks to help them do this. **B**

Vincent Oostvogels (24) is exploring the delicate interface between nature management and food production through his two Master's programmes, Forest and Nature Conservation and Animal Sciences



* That made me wonder how absurd the anti-hangover drip actually is. I did a search and found it does exist, although you have to go to the States for it.

Rector Mol explains collaboration with Utrecht and Eindhoven

UNIVERSITIES TO JOIN FORCES

WUR will be collaborating closely with Eindhoven University of Technology, Utrecht University and Utrecht University Medical Centre. The respective boards intend to sign a cooperation agreement around New Year. Rector Arthur Mol explains the plans.

What prompted the new collaboration with Utrecht and Eindhoven?

‘We know we can’t meet the global challenges alone, that we need to collaborate with other institutions and disciplines. That is why the WUR Executive Board has been conducting exploratory talks with Utrecht University for some years. There is a lot of common ground between Wageningen and Utrecht. Animal Sciences in Wageningen collaborates with the Veterinary Medicine faculty in Utrecht, plant researchers work together on phenotypes, and we work together on environmental issues in the SENSE research school. We drew up a report on those collaborative activities but at first it did not lead to any initiative to extend the cooperation.’

What changed?

‘By then, we were having the same talks with Eindhoven University of Technology and that went quickly. Wageningen and Eindhoven complement one another perfectly. They are interested in agrofood and sustainability, and want to work on that with us. We want to invest in data science and artificial intelligence, and we know that Eindhoven has a lot of fundamental knowledge in that area. We soon had a cooperation plan. Then it turned out that Utrecht and Eindhoven already worked together a lot and that they had formalized this collaboration. For example, they collaborate on high tech and healthcare. That is also why Utrecht University Medical Centre is involved in the partnership. The medical centre is interesting for WUR anyway as our nutrition groups would like to work with them. So the four institutions

got together last year and identified three areas where we want to experiment with intensive cooperation: molecular life sciences, artificial intelligence and education.’

What will collaboration look like in the life sciences?

‘In the molecular life sciences, I have high hopes of the collaboration between Utrecht and Wageningen, with Utrecht doing the human and medical life sciences and Wageningen the plant and animal life sciences. Four young scientists from Utrecht, Eindhoven and Wageningen, with Diana Machado de Sousa from WUR, are now getting together to come up with innovative research themes where we can collaborate. We want to know what new things you can do if you work together.’

What about artificial intelligence?

‘Eindhoven is the strongest partner when it comes to artificial intelligence. Earlier this year, they announced that they would be clustering their AI research in the Eindhoven Artificial Intelligence

‘We know we can’t meet the global challenges alone’

Systems Institute (EAISI), for which they have earmarked 100 million euros. Eindhoven will be recruiting about 50 new scientists in this area and acquiring appropriate research facilities. Eindhoven has a lot of fundamental knowledge about AI whereas we have expertise in its application in

agrofood and the environment, and Utrecht focuses on health and chemistry. We are also investing considerably in AI research and education.’

Will there be joint degree programmes?

‘As regards education, the four partners want to join forces in the field of data sciences. We also want to improve access to each other’s courses for students. It should become easier for Wageningen students to do a module or a minor in Utrecht or Eindhoven, and vice versa. I can also see us having duo jobs, with staff working three days in Wageningen and two in Utrecht for instance. Or an Eindhoven professor who spends one day a week in Wageningen.’

What next?

‘We asked the institutions’ Young Academies to think about collaboration in four broad interdisciplinary areas: food, energy, health and sustainability. The respective boards intend to sign a cooperation agreement around the new year. We are also pumping money into the partnership — each partner will invest 1.5 million euros per annum in the collaboration over the next four years. That means we will jointly be investing 24 million euros. In March 2020, we want to organize a meeting in which our scientists further explore the collaboration options in terms of the content.’ **AS**



PHOTO: GUY ACKERMANS

◀ Rector magnificus Arthur Mol: ‘Perhaps there will be duo jobs: three days in Wageningen and two in Utrecht for instance.’

Surf your Stress aims to start dialogue

WUR LAUNCHES MAJOR ANTI-STRESS PROJECT

Teaching students how to cope when you have too much on your plate – that is the aim of the new WUR project Surf your Stress. It will start on 8 October with a play about stress and burnout among young adults.

Surf your Stress was set up by staff and students. The idea is that the programme will start a dialogue about stress at the university and give students pointers on how to avoid stress symptoms.

The first event is the play *Time Out*, at 20:00 on Tuesday 8 October in Orion. ‘This play will be performed by professional actors, who will actively involve the audience and get them to talk about this topic and their own experiences,’ explains Surf your Stress project manager Esther Ruijters. Afterwards, there will be a ‘Time Out café’ in The Spot. ‘People will be able to chat to the actors, as well as to

psychologists, student counsellors and one another. They can also take part in fun activities. Drinks are free.’ The performance will be in English. Students can register free of charge at wur.eu/surfyourstress. In a month’s time there will also be the Surf your Stress week. The Surf your Stress project group, Vital@Work, De Bongerd sports centre and Thymos will be organizing a whole range of activities from 11 to 15 November aimed at giving students and staff more tools, explains Ruijters. ‘There will be talks on what stress is, on social media and stress, and on time management. We will also have a workshop on how to fail, a workshop on selection stress,

various sporting activities, relaxation massages and a stress ball pit.’ The activities will be on campus, and take place during the day and in the evening. **LZ**



Theatre Play Time out!

October 8th | Orion

8 PM: Theatre Play

9 PM: Time Out! Café

Sign up here →



Free admission
& drinks after
English spoken

Do you suffer from stress? Want to improve your balance in study, social and work life? Sign up for Time Out! a theatre play that entertains, inspires and teaches you about the obstacles of student life. Sign up at www.wur.eu/surfyourstress.

The play (English spoken) will include many recognizable moments from the busy student life in Wageningen! Join us for a free drink and a chat after the theatre at The Spot. Theatre room (Waaierzaal) opens at 7:30 PM, the play will start at 8 PM and will be introduced by Rector Magnificus Arthur Mol.



TIME OUT --
Time Out Tournee

THE PERMAFROST IS THAWING. BUT HOW FAST?

The permafrost is thawing, but the implications are unclear, says the IPCC report that came out last week. The thawing process is complex, as ecologist Monique Heijmans knows.

No ecosystem stands to suffer more from the warming of the earth than tundra and taiga regions with permafrost. This is clear from the latest report of the Intergovernmental Panel on Climate Change (IPCC). Even if the warming remains below two degrees, by the end of the century one quarter of the permafrost's top layer (up to four metres deep) will have thawed. It melts and rots away, with huge emissions of greenhouse gases as a consequence.

But there is plenty of uncertainty in the climate models. That is because numerous factors influence the thawing process, says Heijmans. She has been doing research in Yakutsk in the far northeast of Russia since 2007. She was there again this summer to help her PhD student Rúna

Magnússon. Magnússon is doing research in the delta of the River Chokurdah on the link between the vegetation, climate change and the state of the permafrost. 'The ground is thawing because of the warming,' explains Monique Heijmans is 'That is the direct impact of climate change. Precipitation plays an important role in the thawing process too. The first evidence of that was provided by the wet summer of 2011.

'Besides warming, precipitation plays an important role in the thawing process'

In that year, the thaw was more severe than usual: 30 centimetres as opposed to the normal 20-25 centimetres. So last year we started a trial in which we water the permafrost to imitate a wet summer.' The additional water caused additional thawing now too. Not only last year when the permafrost was

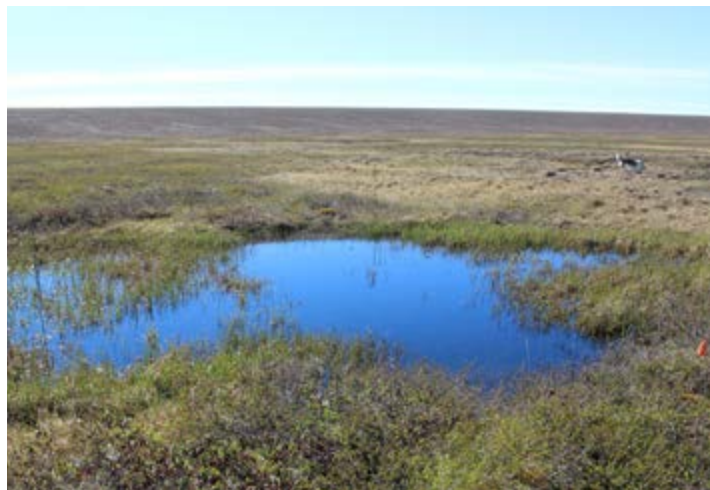


PHOTO: RONNY ROTBARTH

▲ In the tundra region in Yakutsk, Russia, WUR ecologist is doing research on the thawing of the permafrost.

watered, but this year as well. 'The thaw lingers on,' concludes Heijmans. 'It's possible that the additional thawing causes the ground to subside, because the ice layers in the permafrost melt away. Satellite photos confirm this idea: we are seeing more water in our research area.' Due to the thaw, the vegetation that used to grow there drowns in the pools that form. This finding contradicts the idea

that the warming of Arctic regions will increase vegetation. Although that could still be true, Heijmans thinks. In the pools that form, the normal succession of species gets under way, from water plants through peat moss to shrub vegetation. 'So recovery seems possible. The only question is which process goes faster: the thaw caused by warming or the growth of vegetation in the pools.' **RK**

16 MILLION EUROS FOR ROBOTICS INNOVATION NETWORK

WUR has secured a major European project worth 16 million euros in the field of robotics, called agROBOfood. In that project, WUR's Agrofood Robotics team will be working with European partners to set up a knowledge and innovation network.

The EU wants to digitize the agro-food sector. Precision farming could reduce the use of fertilizer and pesticides while robots could solve the problem of labour shortages in agriculture and horticulture. The agROBOfood programme will help achieve this by linking up science institutes and innovation hubs, says project manager Janneke de Kramer. As she has found a

new job, her WUR colleague Kees Lokhorst will be taking over coordination of the European project from her this month.

De Kramer stresses that AgROBOfood is not a research project. The aim is to organize a network of sci-

'How do we make the picking robot commercially attractive?'

ence institutions and companies that will help one another speed up the application of robots in agriculture and horticulture. Take the cucumber picking robot. There is a prototype, but now the question is

which European regions will introduce this robot? How do you finance the production facility and how do you market the robot?

'We need to take things one step further to make the picking robot a commercially attractive prospect,' says Lokhorst. The same applies to milking robots and robots that take care of pot plants. The people developing robots for agriculture will learn from their colleagues who work on robots in sectors such as healthcare and infrastructure. In addition to Wageningen, Eindhoven and Delft universities are also involved in the project. **AS**

The pepper picking robot Sweeper. ►



PHOTO: WUR

SLAVES' RICE VARIETIES FOUND

Researchers from WUR and natural history museum Naturalis have found 15 hitherto undocumented traditional rice varieties in Surinam. They form both a food source and part of the cultural heritage of the Marrons, descendants of Africans brought to Surinam by slave traders.

The study was led by Tinde van Anandel, professor of Ethnobiology at WUR and a researcher at Naturalis. Her team collected rice varieties among the Ndyuka Marrons, who settled on the banks of rivers including the Marowijne on the border of Surinam and French Guyana after escaping or being freed from slavery. The researchers found 50 varieties of both Asian and African rice in the Marron villages on the river, 15 of which were hitherto undocumented, they reported last week in *Frontiers in Plant Science*.

These traditional rice varieties are a key source of genetic diversity, says Van Anandel, but 300 years ago they made a crucial contribution to the survival of slaves who fled into the Surinamese jungle. The names of two traditional varieties, Milly and Sapali, are those of women who plaited rice grains into

their hair to take with them when they escaped from slavery, says Van Anandel. Her research team could determine the genetic origins of the 15 rice varieties using modern DNA sequencing techniques. These revealed that the Marrons have exchanged rice seed over the past centuries, in spite of the fact that their villages are far apart and inaccessible. Even though the Marrons gained access to improved American rice varieties after World War II, they still grow the traditional varieties. They eat these for their flavour and nutritional value, but they also play a key role in the spiritual lives of the Marrons. Through their rituals, Van Anandel concluded, the Marrons maintain the genetic diversity of rice.

Van Anandel did this research with colleagues from Naturalis, her Wageningen colleague Harro Maat and a researcher from the Anne van Dijk Research Centre in Surinam. This research centre was named after rice pioneer Anne van Dijk (1911-1990), from the period when Surinam was still a Dutch colony. Van Anandel proved earlier that the black rice grown by the Marrons in Surinam originally came from Ivory Coast. **AS**



PHOTO: ALICE BERTIN

▲ Tinde van Anandel (centre) studies rice among the Marrons in Surinam.

VISION

'Baby oysters are good news for the North Sea'

Four new-born flat oysters were found on a diving expedition by DDNZZ, a foundation that uses divers to clean up the North Sea. This is a sign that the reintroduction of flat oysters in the North Sea is having success, says researcher Linda Tonk of Wageningen Marine Research.



Is Wageningen Marine Research celebrating the births?

'We were certainly pleased. This is the first time broods have been found. Probably the descendants of 80,000 flat oysters that were placed in the Borkumse Stenen section of sea, just north of Schiermonnikoog, in May 2018 by the conservation organizations WWF and ARK Nature in partnership with us. Oysters reproduce at the start of the summer so we were hoping there would already be babies. There are probably more than just those four but we would need more extensive monitoring to investigate that.'

Has the tide turned for the flat oyster?

'In the 20th century, about 20 per cent of the North Sea bottom was covered with oysters. But over time they all but disappeared, mainly due to overfishing and diseases. The fact that the oysters we put out are now reproducing is a promising result. We hope they make it through the winter and that we get more baby oysters next year. If there is enough growth from offspring, the oyster bed will be self-sustaining, which is an important part of this experiment.'

Why is it important to get the flat oyster back?

'Oyster beds provide important ecosystem services: they generate more diversity and they regulate the water quality. The bottom of the North Sea consists mainly of sand but the oyster beds offer a hard substrate. All sorts of creatures can live on that, such as lobsters, crabs and sea anemones. The beds also function as a nursery for sharks and rays, for instance, which lay their eggs there, and as a shelter and place to hide for little fish. That in turn attracts predatory fish and sea birds due to the opportunities for hunting. In this way, the oyster beds help create a more diverse and healthier North Sea.'



SEA URCHIN NURSERY IS HELPING THE CORAL

Sea urchins protect the coral reefs in the Caribbean. But their numbers are a fraction of what they used to be. A new 'nursery' for sea urchins is aimed at changing that.

Before 1983, the coral reefs around Saba and Saint Eustatius were strewn with *Diadema antillarum* sea urchins. Then a mysterious disease, probably a bacteria, caused the population to collapse within a year. It has never recovered from that blow, explains PhD student Alwin Hylkema. The decline of the sea urchin is bad for the coral. Sea urchins protect coral by feeding on macroalgae. Hylkema: 'Sea urchins graze the reef clean, creating space for the coral larvae to establish themselves. Coral needs space. But space is in short supply because algae are taking over the reef. This is affecting the coral's resilience and there is no potential for recovery.' The *Diadema* project wants to change that. The project aims both at protecting the young sea urchins and helping them establish

themselves. According to Hylkema, that is where things go wrong. 'Research shows that there are quite a lot of sea urchin larvae at some locations. But they don't get established or after doing so, they fall prey to predators.' So not enough sea urchins survive their infancy. Previous attempts to do something about that were mainly focused on breeding sea urchins ashore. But that is complicated and time-consuming,

'Sea urchins graze the reef clean, creating space for the coral to establish itself'

says Hylkema. The *Diadema* project wants to establish and protect the sea urchins on the reef itself. In practice this means developing a 'Diadema booster', which is a structure in which sea urchins can lodge themselves and grow up safely before setting off into the big wide world. You could call it a



▲ Macroalgae are taking over the coral reef around Saba and Saint Eustatius. *Diadema antillarum* offers a solution, because it eats macroalgae.

nursery or crèche. The first trials have already taken place. They were partly about the choice of material for optimizing sea urchin establishment. Materials tested underwater include pieces of artificial grass, rope, shower mats and bio-balls (for filtering aquaria). The *Diadema* booster will not save the coral single-handedly. 'But

bringing back the sea urchins will undoubtedly have a positive impact on the coral. It will grow, which will create more habitats and places of refuge for new young sea urchins. It helps make the coral more resilient in the face of pollution and the warming of the water, both of which stimulate the growth of macroalgae.' **✪ RK**

WUR WORKING ON NEW-STYLE SOLAR PARK

Solar parks should include room for nature and agriculture. WUR wants to design such new-style solar parks.

That is the essence of the Solar Research Programme, which started this week. The programme, which was initiated by ESG, aims to generate collaboration across WUR to achieve this. 'The idea is to have tried and tested new concepts for solar parks within five to ten years that are integrated into crop production environments and nature landscapes,' says spokesperson Jeroen Sluijsmans. At present, solar parks all over the

world look the same. Sometimes the park has a border of greenery to improve the look. 'But no one thinks these parks look attractive,' says Sluijsmans. 'I believe we should be able to show that you can combine energy production, biodiversity and agriculture in ways that fit in with the surroundings and are supported by the general public.' Sluijsmans has in mind solar parks with room for agriculture and nature along-side the generation of sustainable energy. 'Combinations of sustainable energy and crop production could well lead to new business models.' Sluijsmans says neighbouring

countries are already experimenting with this. 'For example, growing potatoes under solar panels. In fact, yields are higher than normal because the microclimate in the shadow of those panels on hot summer days is better than in the full sun.' He points to technological developments too, such as double-sided panels that stand upright rather than horizontal,

'Combinations of sustainable energy and crop production could well lead to new business models'

and semi-transparent solar panels. The first field trials will be on WUR's own land. The Nergena solar park, which will be erected in the Binnenveld area, will focus on increasing biodiversity. 'The space between the panels will be sown with indigenous wild plants; we will be working with seed companies involved in the Living Archive project for that. That park will then function as a seed bank for preserving genetic material.' What is more, part of the solar park will become a testing ground for new technologies such as vertical panels and panels that rotate with the sun. **✪ RK**

Do you dream about your first novel?

Are you a student with literary ambitions? *Resource* has linked up with a nationwide literary competition for students, and the prize is the chance to receive guidance from a literary agent to get your novel published.

JOIN IN!

On resource.wur.nl you can find detailed information about the competition and how to enter it.

Please note: your entry must be in Dutch.

RESOURCE

For everyone at Wageningen University & Research

PROPOSITION

‘Break the silence on euthanasia’

For her research, PhD candidate Merel van Veen worked a lot with cancer patients and doctors. Her grandfather was a doctor and a strong advocate of open discussions about the end of life. He was behind her proposition: ‘Every GP must actively discuss end-of-life wishes with their patients.’

‘My granddad inspired me. He used to be a doctor and once he was living in an old people’s home, he did his utmost to get his fellow residents to see the importance of discussing subjects like euthanasia with your doctor in good time. You often find

that people reach a point when they don’t want to go on, but it is too late to arrange things. This was all over the media again recently because of a court case against a doctor who had administered euthanasia to a woman with advanced dementia. I think it’s good that the Public Prosecution Service keeps a close eye on this and when in doubt, asks for legal scrutiny. Euthanasia is a complex grey area. I think GPs should pro-actively discuss the end of life with their patients. Not just so that the doctor gets a clear picture of their wishes, but also to make people aware of their options. The doctor who was

prosecuted was found not guilty and I think the judge sent a good signal, because otherwise doctors might not dare make decisions anymore.

Fortunately, my granddad had arranged everything properly in advance, and he died with palliative sedation, which means you are put to sleep and don’t wake up, so you die naturally. For us, that was very good. At some point he was extremely confused but luckily he also had clear moments so we could consult him. It is nice to know what someone wants, not just for the family but also for the doctors.’

Ⓡ TL



PhD candidates are required to submit a few propositions with their thesis. In this feature, they explain the thinking behind their most provocative proposition. This time it’s the turn of Merel van Veen, who obtained her doctorate for her research on the provision of nutritional information for cancer patients and healthcare professionals.

How can we halve nitrogen emissions in the livestock sector?

Concentrate on the cowsheds

The Netherlands must drastically cut its nitrogen emissions from livestock farming, industry and traffic so as to protect nature, says the Remkes commission. Exactly how this should be done, the commission doesn't say. Wageningen researchers offer four options for the livestock sector. With the inevitable ifs and buts.

text Albert Sikkema illustration Geert-Jan Bruins

The Remkes Commission, formed to advise the cabinet on short-term solutions to the nitrogen problem (see pp 14-15), published its first report last week. One of its recommendations is that the government should buy up and clean up polluting livestock farms located close to nature areas in the short term. Other farms should install extra emissions-cutting measures. The commission does not suggest by what percentage nitrogen emissions must go down, nor which measures farmers should take to restore nature. Wim de Vries, personal professor in the Environmental Systems Analysis chair group and a nitrogen specialist, does give a percentage. He thinks nitrogen emissions in all sectors, including livestock, have got to be halved. How could the livestock sector manage that?

HALVING LIVESTOCK NUMBERS

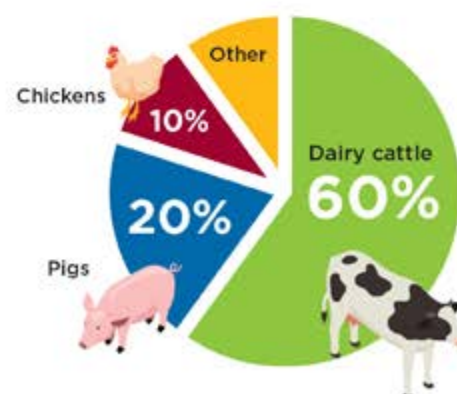
Many politicians and campaigners think halving livestock numbers is the solution. In principle, they are right, says De Vries: halving the number of cows, pigs and chickens would lead to a halving of the emissions from harmful nitrogen compounds such as ammonia (see pp 14-15). But the professor sees other options too. Dairy farmers could aim at reducing

ammonia emissions from manure in the cowshed, for instance.

Within agriculture, dairy farming is the biggest nitrogen producer. The sector is responsible for about 60 per cent of the nitrogen problem, pig farming for 20 per cent and chicken farming for 10 per cent. That is remarkable in itself. Because why do 3.9 million cows produce much more nitrogen than 12 million pigs and 100 million chickens put together? Because the pigs and chickens live in closed sheds fitted with air filters and designed to reduce ammonia formation. As a result, ammonia

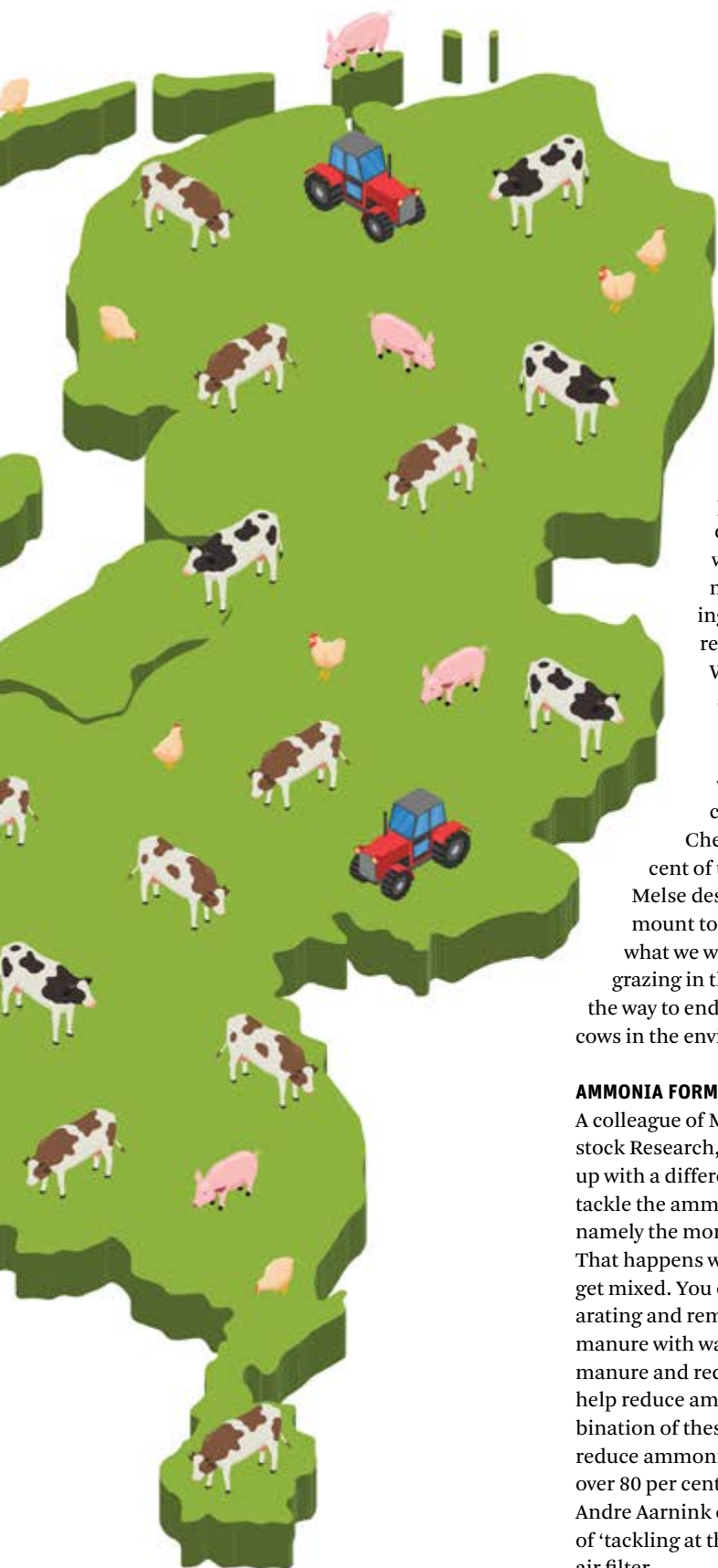


Livestock numbers per farm type



Nitrogen emissions per farm type

(in percentage of the total nitrogen emissions from livestock farming in the Netherlands)



emissions in pig and chicken farming have gone down a lot in the past 30 years.

CLOSED COWSHEDS

In the dairy sector, the cows are often kept in open sheds with few emissions-restricting measures in place. Emissions have gone down in this sector too, but that was mainly through injecting manure into the land and reducing the number of cows. So researcher Roland Melse of Wageningen Livestock Research suggests a solution to the nitrogen problem in the dairy sector that is as simple as it is controversial: put the dairy cows in closed sheds with air filters.

Chemical air filters capture 85 per cent of the ammonia, on average. Melse describes his proposal as 'tantamount to sacrilege' because nowadays what we want is open stalls and cows grazing in the fields. But that is precisely the way to end up with a lot of ammonia from cows in the environment.

AMMONIA FORMATION

A colleague of Melse's at Wageningen Livestock Research, Karin Groenestein, has come up with a different solution. She wants to tackle the ammonia problem at the source, namely the moment the substance is formed. That happens when the cow's urine and poo get mixed. You can prevent this by quickly separating and removing the manure. Thinning manure with water, acidifying or cooling manure and reducing the surface it covers also help reduce ammonia formation. With a combination of these measures, dairy farmers can reduce ammonia emissions from cowsheds by over 80 per cent, Groenestein's colleague Andre Aarnink calculated last year. So this kind of 'tackling at the source' can compete with the air filter.

Although it is important to do something about the cowsheds, that won't be enough to halve nitrogen emissions, says Wim de Vries. Emissions from the sheds only account for 30 per cent of the ammonia emissions from dairy farming. Nitrogen also gets into the environ-

FOUR WAYS OF CUTTING NITROGEN EMISSIONS IN LIVESTOCK FARMING

- 1 Less livestock
- 2 Air filters in dairy farming
- 3 Better manure management in dairy farming to reduce ammonia formation
- 4 Livestock feed that contains less nitrogen

ment through the storage of manure and its application on the land, and most of the emissions-cutting measures in this regard have already been put in place. Besides, investing in low-nitrogen sheds costs the farmers money.

LESS NITROGEN INPUT

Wageningen alumnus Frank Verhoeven, one of minister of Agriculture Carola Schouten's advisors on circular agriculture, suggested another way of solving the nitrogen problem in the sector magazine *Boerderij*: halve the inputs of nitrogen in agriculture in the form of artificial fertilizer and concentrated feeds. By purchasing less nitrogen, he foresees that livestock farmers can close the nitrogen cycle. Good idea, responds Wim de Vries. 'That is called the "feedprint". With less nitrogen in the livestock feed, you reduce the amount of nitrogen in the manure and therefore the emissions of ammonia too. But importing less livestock feed does mean you can keep less livestock in the Netherlands, unless you can keep up the milk production with less nitrogen in the feed. Also, this doesn't produce nearly enough of a nitrogen reduction to meet the targets.' Using less artificial fertilizer doesn't reduce ammonia emissions by much, according to De Vries.

Read too The Nitrogen Problem in Five Questions on pp 14-15.

The nitrogen problem

There is nothing wrong with nitrogen in itself. We are breathing it in all the time. The problem lies with nitrogen compounds. Wim de Vries, personal professor at Environmental Systems Analysis and a nitrogen specialist, explains.

1 Why is nitrogen a problem?

Nitrogen (N) is an element that is all around us in the form of odourless gas: 80 per cent of the air consists of it. It is one of the most important nutrients for plant growth too, and is therefore applied on Dutch farms as a fertilizer. In combination with hydrogen, nitrogen is converted into the gas ammonia (NH_3), which gets into the atmosphere. And in combination with oxygen, nitrogen gets converted into nitrogen oxide (NO_x). Traffic and

industry are the main culprits here. These reactive nitrogen compounds are the problem. They land on the ground (deposition, see inset). In nature areas they raise the nutrient richness of the soil this way, and contribute to soil acidification. This causes a loss of biodiversity. What is more, nitrogen oxides lead to the formation of fine particles and smog, making them harmful to human health as well.



2 Why is there such a fuss about nitrogen at the moment?

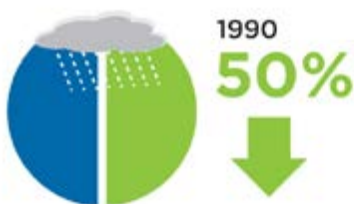
Nitrogen has been problematic since 1980, when the Netherlands was suffering from 'acid rain'. Apart from sulphur dioxide (SO_2), that was also made up of nitrogen oxides and ammonia. Since then, the Dutch government has cut nitrogen emissions. Emissions of nitrogen oxides and ammonia have been halved since 1990. And yet too much nitrogen is still being deposited on about three quarters of Dutch land devoted to nature. Moreover, emissions of

ammonia have hardly been going down at all since 2010. The programme for tackling nitrogen (PAS) which the government introduced in 2015 aimed at reducing nitrogen emissions. But in May this year, the Council of State ruled that this programme is inadequate. After this 'nitrogen statement', many construction permits have been put on hold and planned new neighbourhoods and roads scrapped, and it has become harder to get new permits.

3 What is wrong with the programme for tackling nitrogen?

The system aimed at simultaneously cutting back nitrogen deposition in nature, and offering more scope for new economic activities that involve nitrogen emissions. If a permit applicant indicated that he would install emissions-restricting measures in future, such as low-emissions housing for livestock or

nature conservation measures, he got a permit to build new barns, roads or houses. But the Council of State ruled that generalized plans no longer sufficed: a constructor had to prove that nitrogen deposition in Natura 2000 areas would not increase. In practice, that is extremely difficult to prove.



Nitrogen and ammonia emissions down since 1990



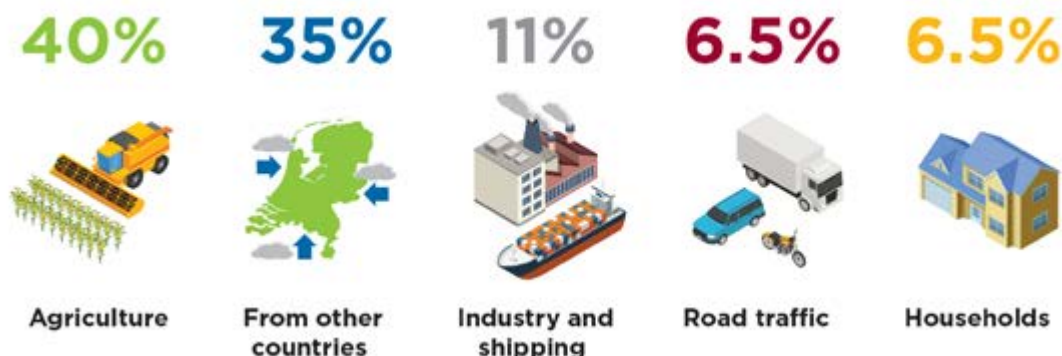
Three quarters of nature suffers from excessive surplus



in five questions

4 Who produces nitrogen?

Agriculture produces 40 per cent of the nitrogen that is deposited in the Netherlands, whereas 35 per cent is blown in by the wind from other countries. Then industry and shipping produce 11 per cent of the Dutch nitrogen, and Dutch households and road traffic a further 6.5 per cent each. The Netherlands is actually a net exporter of nitrogen: four times as much nitrogen is blown over the border than comes into the country.



5 By how much do nitrogen emissions need to go down?

According to the PAS, nitrogen deposition needs to go down to what is known as the critical load.

Barren grasslands can cope with less nitrogen than a wood on sandy soil. The national average nitrogen deposition comes to 21 kilograms of nitrogen per hectare. The critical load varies from 5 to 25 kilos. For most types of nature, the critical load is between 10 and 20 kilos. With an average deposition level of 14 kilos, most of the nature will stay healthy. An average deposition reduction from 21 to 14 kilos per hectare per year seems like a modest ambition, but in terms of emissions reduction it is highly ambitious. That is because the country's own contribution to nitrogen deposition on Natura 2000 areas is only 60 per cent; the other 40 per cent comes from abroad. The

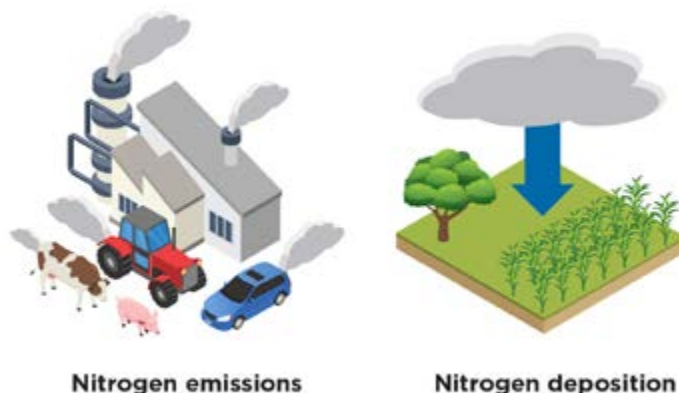
Dutch government can exercise very little influence over this 'import'. That means that the improvement has to come from Dutch emission reduction. To achieve this target, you have to reduce them by 50 per cent. If you want to achieve that by, say, 2030, you are talking about an emissions reduction of five per cent per year. ¹⁰



Emissions reduction of 5% per year


DEPOSITION IS NOT EMISSION

It is important to differentiate between nitrogen emission and nitrogen deposition. Nitrogen emission in the Netherlands is all the production of nitrogen by Dutch farmers, industry and vehicles. Nitrogen deposition in the Netherlands is all the nitrogen that lands on its farmland and nature areas. Emission and deposition are not the same thing, as some of 'our' nitrogen blows into neighbouring countries, while nitrogen from other countries ends up here. In Dutch nature areas, for example, the Dutch share in the deposition is 60 per cent, and the share from abroad 40 per cent. It's important to bear this in mind when you look at statistics. A halving of the nitrogen emissions by Dutch agriculture means 20 per cent less nitrogen deposition in the Netherlands, since agriculture is responsible for 40 per cent of that deposition. Halving nitrogen emissions from cars, which account for 6.5 per cent of nitrogen deposition, only cuts deposition by 3.25 per cent.





NOW FOR STAFF AS WELL

The wooden obstacle course at De Bongerd Sports Centre has been there for nearly a year now. Members of student survival run club Woest could have the time of their lives on it, but it remained a spectator sport for WUR staff. That changed recently. Staff can now release their inner monkey at the free survival run training on Tuesday afternoon. The course is part of WUR's vital@work programme and will be taught by students from Woest. Marjolein Sterk, a researcher at Aquatic Ecology (in the red shirt) is enthusiastic. 'It is nice to do this in the afternoon break and then go back to work with a clear head.' 

TL, photo Guy Ackermans



Bert Holtslag: 'We now understand the atmosphere much better'

Silent revolution in meteorology

Weather forecasts have improved dramatically in recent decades, says the departing professor of Meteorology, Bert Holtslag. 'I call it a silent revolution because almost no one outside meteorology has noticed although the impact is huge.'

text Roelof Kleis photo Aldo Allesie

The weather during the photoshoot at the WUR weather station in the fields between Wageningen and Rhenen is not his favourite type. Grey skies, blustery and quite cool. Not the 25 degrees with sun and cumulus clouds that professor of Meteorology Bert Holtslag (66) calls 'his kind of weather'. But then it is autumn. And it was predicted. Sorry, forecast. 'Meteorologists don't predict the weather, they make forecasts.' And those forecasts have improved immensely in the four decades or so that Holtslag has been in the business.

In the farewell lecture that you will be giving next week, you call it a silent revolution. Why?

'Huge progress has been made in meteorology. We now understand the atmosphere much better. The forecast for a week's time is now just as accurate as the forecast for a couple of days was 40 years ago. That's the silent revolution. Silent because it happened gradually and almost nobody outside the field has noticed. And a revolution because the impact is huge. When I started in this field over 40 years ago, it was still quite common to draw weather maps based on observations. Now all that is done with models, and everyone can see it in no time with loads of detail on their mobile phones.'

As a conscientious objector, you went to work for the Royal Dutch Meteorological Institute (KNMI). So was meteorology just a matter of chance?

'No. I deliberately looked for an appropriate alternative national service. My degree in applied physics at the technical college focused

heavily on technology and measurements, which I found boring. I wanted to use that knowledge and do something with the environment. That made me think of the weather and the climate. There's also the fact that I grew up in Borculo, which was hit by a tornado in 1925. You can still see that history in the town, for example in the cyclone park. My interest was stoked further by the course *The Weather and Us* that was broadcast on TV back then. I've still got the syllabus in a bookcase somewhere.'

You stayed with the KNMI and worked on a PhD at Wageningen. Quite something for a technical college graduate.

'That became possible when the legislation on doctorates changed in 1985. If you had completed a four-year degree programme at an applied college, you could start a university PhD. Almost no one does that now, but I was one of the first back then. The professor of Physics and Meteorology in Wageningen at the time, Bert Wartena, said I had some good material that could be turned into a PhD.'

NEW ÉLAN

In 1999, Holtslag moved to Wageningen, where the new professor and chair holder faced a difficult assignment. The Meteorology and Air Quality subgroups had to be merged and substantial cuts had to be made. 'A testing task, but we managed it successfully. After that dip in 2000, the chair group has grown and grown. I think I gave the group new élan and focus. We now have two chair holders; there are personal professors, professors by special appointment and our very

capable staff.' The group's growth and its success are what Holtslag mentions first when asked about his 'gems'.

And what is your scientific legacy?

'I've authored or co-authored more than 150 peer-reviewed articles. The articles that deal with an application in particular are frequently cited. I've always liked applying scientific insights. You can combine the development and utilization of knowledge really well, for example in estimating evaporation from crops using simple techniques. I've also worked on models for the weather and the climate and made a substantial contribution to the better understanding of interactions between the Earth's surface and the atmosphere. In recent years, my group has done a lot on the weather and the climate in cities. I also set up an international research programme for the systematic comparison of atmosphere models.'






‘Climate change has given our discipline a real boost’

Just when you think you’ve figured it out, the climate is changing. What does that mean for your discipline?

‘Climate change has given our discipline a real boost. It raises a lot of questions and that’s good news for us. It has also produced new knowledge. The further you look, the more you see. When I started out 40 years ago, it was already clear something was going on with the climate and the relationship with greenhouse gases. Then in 1990 you had the first IPCC report (Intergovernmental Panel on Climate Change, ed.). These days, we know enough about what we need to do to slow down global climate change, but it is not so clear what that means for the Netherlands or specific regions. There *are* regional climate scenarios, but they could definitely be improved.’

Do we understand the weather?

‘We increasingly understand how the atmosphere works and how that affects the weather and the climate. Nowadays we have 14-day weather forecasts worldwide with a resolution of 10 kilometres. We can also produce increasingly detailed forecasts on a small scale. We are already forecasting the weather in Amsterdam on a scale of 100 metres. 100 metres! The city can do with forecasts like that, especially on hot summer’s days.’ 

Bert Holtslag will be giving his farewell lecture on Thursday 10 October at 16:00 in the Aula.

BERT HOLTSLAG (BARCHEM, 1953)

| | |
|---------------|---|
| 1972-1976 | Technical College (HTS), Enschede |
| 1977-1988 and | 1991-1999 Researcher at the Royal Netherlands Meteorological Institute (KNMI) |
| 1989-1990 | Researcher at the National Center for Atmospheric Research (NCAR) in Boulder, Colorado, USA |
| 1993-1999 | Part-time professor of Meteorology at Utrecht University |
| 1999-2005 | Professor of Meteorology and Air Quality, WUR |
| 2005-2019 | Professor of Meteorology, WUR |

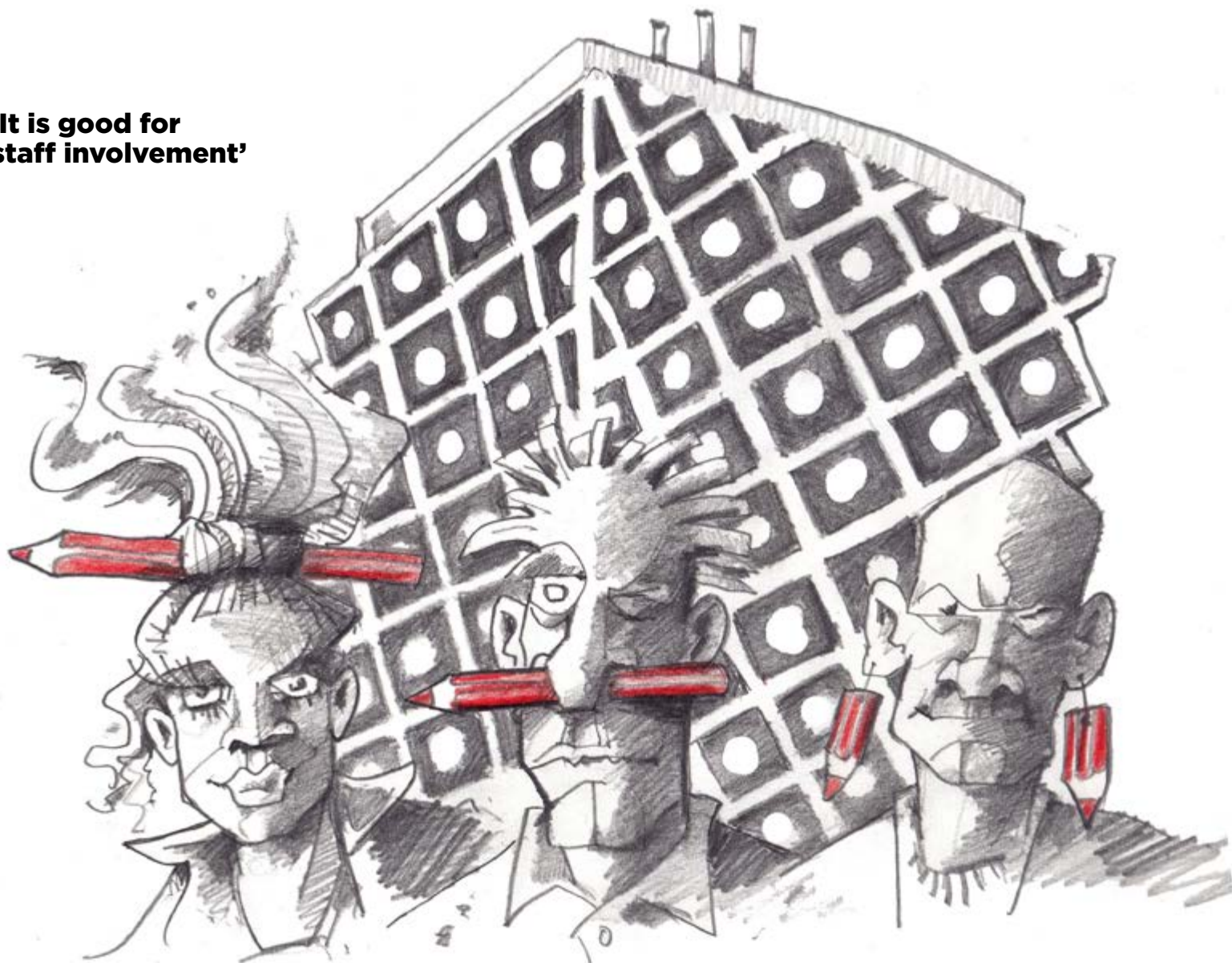
Bert Holtslag is married with two sons. He is a member of the KNMI supervisory board and an elected fellow of the American Meteorological Society. Jordi Villa will take over from Holtslag as the chair holder.

WHO GETS THE MOST VOTES WINS?

WUR is taking a whole new approach to the allocation of 600,000 euros for research on the protein transition. All staff get to vote and the project with the most votes gets the money. A good idea? Or would it be better to leave this decision to the experts?

text Anja Janssen and Tessa Louwerens Illustration Henk van Ruitenbeek

'It is good for staff involvement'



Wouter Hendriks



Dean of Research

‘For certain projects, this input could be desirable and even essential. **It puts WUR staff in closer contact with the research. And you can further increase that involvement by sharing research results as you go along.** WUR could definitely do this more. In other cases, though, this approach is less desirable. It could disadvantage research projects of a more fundamental nature, or the ones that don't appeal to the imagination as much. But where possible, this is a nice way of giving people more of a say and involving them more.’

Kris van 't Klooster



Lecturer at the Laboratory of Plant Physiology

‘I think it's a good idea that everyone gets to help brainstorm about protein transition. This is an important topic in the debate going on in society. **Personally, I voted for the project that relates best to my ideals.** Without knowing who is behind it, although I did hear that later. Only I do wonder why students aren't allowed to vote, as this affects their future, after all.’

Marten Scheffer



Professor of Aquatic Ecology and Water Quality Management

‘**This is a great way of drawing staff in to look at the ideas being generated.** It would be nice to ask afterwards what effect that has had. Unfortunately, though, it doesn't solve the problem that scientists spend a quarter of their time, on average, on writing and assessing proposals. We are hoping to start an experiment at the Dutch Research Council (NWO) in which every researcher gets a fixed, unconditional sum in funding, a proportion of which he or she must anonymously donate to another scientist. That makes use of the “wisdom of the crowd” as well as doing away with the need for the proposal circus and making disparities easier to manage.’

Melanie van Berkum



Study advisor and lecturer in Food Technology

‘When I read that we could vote I was enthusiastic at first. But then I found it difficult to choose a project on the basis of the information provided. I want to base my choice on the feasibility of the project and how long they expect it to take before the innovations can be realized, rather than on the most appealing story. In that case, it's nicer to know who is behind the project. After all, a lot of money is involved here and it's important that it is spent wisely. **Because I couldn't make a well-informed decision, I decided not to vote in the end.**’

‘My main fear is that it will turn into a popularity contest’

Nur Alim Bahmid



PhD Candidate at Food Quality and Design

‘I voted, although I don't know if my vote counts as I don't have a WUR contract. **I like the idea of voting, but then it is better if everyone can vote and not just employees.** Perhaps the organization has reasons for this, though. I voted for the project that I believe has the best chance of success in the future. But my main fear is that it will turn into a popularity contest, with less focus on quality. All you need to vote is your email address, so in principle people can ask others to vote for their project. I don't know if that happens. Perhaps it is good to make the final choice depend not only on the votes, but also on an independent quality assessment.’

Erik Pekkeriet



Senior business development manager, Agro Food Robotics

‘It is good for WUR staff involvement and it offers people at all echelons the chance to submit a research proposal. **But most of the staff don't have much understanding of the protein transition. So they vote from the heart, and I'm not sure that's what we want.** With a limited budget like this, I

think it's OK, but I wouldn't do it with very big budgets.

I don't have strong objections to cronyism. If you can mobilize all your WUR friends, that has a positive effect on the focus on the protein transition across the board in WUR. And let's not kid ourselves: even with other project opportunities you have to sell your proposal to the decision-makers.’

Henrice Jansen



Researcher at Sustainable Aquaculture, Wageningen Marine Research

‘This can stimulate innovative ideas, and the threshold is low for PhD students and the like. However, I wouldn't be in favour of it if the entire research budget was involved, because I think it's important that there is a clear line in the research programming. **The proposals are anonymous, but will still often be traceable to the research group they come from.** And that means there's a big chance that staff will mainly vote for topics related to their own work, so that some research groups will get a disproportionate number of votes. I would also predict that the quality of the research will take second place; the idea will be the most important thing. It is important to evaluate whether this kind of call leads to very different projects than the rest of the research programme. If that doesn't happen, it doesn't have any added value.’

Hans van der Lienden



Technical building manager at Facilities and Services

‘The positive thing is that WUR is involving the staff in things that are important to the institution. The only thing is, a lot of people don't know anything about a research project. They will go by their feelings and by whatever is prominent in the media at that moment, so they'll vote on the basis of popularity and interest value. I can't imagine that's the intention. **I think the organization would be better off selecting projects according to its long-term vision, not on the basis of popularity.** So I would rather leave the question of how to allocate research funding to scientists.’

Read too the report on p.4.

WUR researchers explore the world of Chinese aquaculture

Learning from China



Researchers from the Aquaculture and Fisheries group paid a visit to their colleagues in China this summer. To see how they conduct research, as well as to do some networking. ‘After these two weeks, I could see myself working in China in the future.’

text Tessa Louwerens photos Vivi Koletsi

‘China is the biggest producer of fish in the world, and has the longest track record in aquaculture and fisheries,’ says PhD student Gauthier Konnert of Wageningen’s Aquaculture and Fisheries chair group. ‘The country has several universities and research institutes that specialize in this field.’ This was what prompted him and his fellow PhD students Twan Stoffers and Vivi Koletsi to make plans for a trip to China. Their professor, Geert Wiegertjes, was enthusiastic from the start. ‘There is a tremendous amount going on in the research world in China, but it is not easy to get a grasp of it because the country is fairly complex,’ says Wiegertjes. Taking a look for yourself struck him as a good solution, and so

the professor and 12 PhD candidates from his group set off for China for two weeks this summer.

TILAPIA

One of the institutes the group visited was Ocean University of China in Qingdao. This university has about 25,000 students and over 3000 academic staff spread over four campuses, and does a lot of research on aquaculture. ‘Thanks to increasing prosperity, consumption of meat and fish is going up in China,’ says Konnert. ‘That’s why the Chinese government is investing heavily in research on aquaculture and fisheries. The abundance of public funding allows them to dedicate more

to fundamental research on fish biology, whereas here the main emphasis is on applied research.’

Konnert himself is researching the best way of feeding the tropical freshwater fish tilapia so that it grows well but has as small an environmental impact as possible. ‘China is the world’s biggest producer of tilapia. So I hoped to find out more about that. But the funny thing was that the Chinese researchers we spoke to are not actually very interested in tilapia because it is a cheap fish. They would rather focus on species that are hard to farm such as the largemouth bass.’ Not that Konnert is disappointed. ‘For me, the value of this trip lies in the fact that I have gained an understanding of the Chinese research world, and had the chance to expand my network. After these two weeks, I could see myself working in China in the future.’

BEACHES FULL OF SEAWEED

The PhD students also visited several large-scale commercial farms. For Koletsi, the high point was a visit to a sturgeon farm, Kaluga Queen in Quzhou. ‘Thirty per cent of all the caviar in the world comes from this company.

‘There is more room for fundamental research in China’

When you see how it is produced, you understand the high price of caviar. For example, it takes seven years for the females to produce eggs – caviar.’ Koletsi is researching the effect of mycotoxins, contaminants produced by fungi in plant ingredients, on fish health and welfare in order to help feed formulators to produce sustainable fish feed.’ She was keen to go to China to see what the local researchers were working on. ‘We know little about Chinese research. Publications in our subject area are sometimes written in Chinese, so we can’t read them.’

Stoffers was especially impressed by the huge seaweed farms the group visited. The seaweed is grown on ropes hanging in the sea. These are then harvested from little boats and laid out to dry on the beach. The result: kilometres of beach strewn with seaweed. ‘Somehow I expected it to be more industrial. But it is logical, really, because there is no shortage of labour in China.’

Stoffers own research is about the potential of river-floodplain systems as nursery areas for the endangered river fish in the Netherlands, such as the common barbel and nase. Less attention is paid to the functioning and restoration of river ecosystems in China, says Stof-

fers. ‘But they were very interested in how we in the Netherlands manage our rivers, while paying heed to ecological objectives.’

BETTER AT COMMUNICATING

The Dutch could do well to take a leaf out of China’s book when it comes to communication, say Gauthier Konnert, Twan Stoffers and Vivi Koletsi. ‘What struck me most was that fish farming companies and research institutes seem to invest a lot in communication with the public,’ says Konnert. ‘The East China Sea Fishery Research Institute (ECSFRI), for instance, has its own visitors’ centre with information about fisheries and aquaculture.’ Stoffers: ‘I think we should do that more often in the Netherlands, especially when you see how much ignorance there is. Many consumers have no idea how fish is farmed or where it is caught. By being transparent you could hopefully create more understanding.’

Western researchers are also often critical of scientific practice in China. ‘And sometimes that is justified,’ says Wiegertjes. ‘There are certainly some poor quality studies. But that critical attitude makes us miss the good things. I think we can learn a lot about aquaculture from China.’



▲ PhD student Twan Stoffers visits a large sturgeon farm.

He is not afraid of scientific espionage – another phenomenon often associated with China. ‘Anyway, the exchange of knowledge during a trip like this is pretty superficial. Its main value lies in coming to understand people and seeing how they work. The real exchange of knowledge is starting now for me, now that I know where the good research groups are that I would like to build a long-term relationship with. That’s what our group has got out of this.’ **B**

▼ Unusual fish species are often sold at the market in China.



▼ Professor Geert Wiegertjes (centre) with colleagues including Gauthier Konnert (second from left), Vivi Koletsi (to the right of Wiegertjes) and Twan Stoffers (back right).



Wageningen students sail to climate summit in Chile

One way to change tack on air travel

A group of young people from all around Europe boarded a three-masted on 2 October to sail to Latin America in seven weeks. Among them are Wageningen students Moon Weijens and Mark van der Poel. 'We want to make a statement against the increase in air travel.'

text Milou van der Horst *photo* Aldo Allesie

How come air travel – one of the most polluting activities around – is still so cheap, easy and popular? This question has bugged Wageningen student Moon Weijens (International Land and Water Management) for a long time and she wanted to do something to draw attention to it. Together with three other Dutch students and ex-students, she came up with Sail to the COP. They rented the three-master *Regina Maris*, complete with a crew of five, and invited young Europeans to sail with them to the UN climate summit scheduled for 2 to 13 December in Santiago, Chile. Master's student of Environmental Sciences Mark van der Poel signed up. *Resource* interviewed Weijens and Van der Poel just before they set sail.

What are you going to do?

Weijens: 'As a group of 36 young people, we will sail in seven weeks to Chile – a voyage of over 10,000 kilometres –, because we want to make a statement about the growing air travel sector. We'll be stopping in Casablanca, Tenerife, Cape Verde and Recife, and finishing in Rio de Janeiro. From there we'll travel by bus to Santi-

'We are showing that responsible travel is possible and even enjoyable'

ago, which will take a week. Our five biggest partners – Climate KIC, WUR, the ministry of Infrastructure and Water Management, Better Places and ProRail – have given us a problem about sustainable and fair travel to try and solve during our voyage. A couple of partners have assigned a junior expert to join us and be part of our floating thinktank.'

Why do you specifically target air travel?

Weijens: 'It doesn't get a mention anywhere in the Paris Climate Agreement. Farmers are going under because of the nitrogen restrictions, but air travel just goes on growing? That's not fair. Also, 82 per cent of the world population have never flown, whereas they do suffer the consequences of climate change.'

Van der Poel: 'The air travel industry is much more heavily subsidized by the government than other industries, whereas they don't have to pay any tax. That's outrageous. It is also important not to lay this problem at the individual traveller's door. I for one try to live sustaina-

bly, I recycle and am a vegetarian. And I know that one flight is disastrous for my footprint, but it is hard to avoid flying altogether. Experience abroad is good for your personal development and future employers set store by it. With the no-fly movement and flight shaming, it seems it's not OK to fly anymore; this feels like an attack on your personal choices. It's very important that we talk about this more.'

Isn't this also a good excuse for a nice sailing trip?

Van der Poel: 'I'm a sailing instructor in Friesland and I have been to sea before, during the student event Race of the Classics. That was fantastic, so I'm looking forward to this trip tremendously. But I am genuinely concerned about climate change as well. After studying the climate for six years, this is the ultimate opportunity to make myself heard. And we are not just sitting back and having it all done for us. All the participants pay at least 2500 euros, they help sail, they have household duties, do preparatory research for the conference and participate in the thinktank. And it is a social experiment, actually. We all come from different cultural backgrounds and we'll be together in a small space for a long time. I'm curious what that will be like.'

How did you raise the funds?

Van der Poel: 'We are paying a reduced fee for the ship because the person renting it out supports our principles. And we are all paying to participate and our partners are contributing. We also did some successful crowdfunding.'

What would make the voyage a success?

Weijens: 'We want the world population to engage in climate-neutral and fair travel by 2050. To achieve that, we want to get people thinking about the impact of flying and to show that responsible travel is possible and even enjoyable. Finally, we want to raise our ideas at the climate conference. We are doing that through Marcel Beukeboom, for example. He is taking part in the climate summit as a Dutch Climate Ambassador, has a lot of contacts and is helping us get a chance to speak. It is partly thanks to him and our partners that we get to help organize a number of side-events.'

Van der Poel: 'Imagine that each participant has about 100 contacts who hear about our project. That means thousands of people hearing about our ideas. Social movements start small. I see this as an opportunity to push society towards new travel options.'

How are you getting home after the summit?

Weijens: 'The participants organize their own return journey, as lots of them plan to stay in



PHOTO: ANDREAS GROTEVENT

▲ The three-master *Regina Maris* will take the group of young Europeans to Rio de Janeiro in Brazil. From there they will travel on to Santiago, Chile by bus (see map).

South America a while. Personally, I'm going to tour by bike. Half of the participants have already booked their return journey and are not going to fly. Most of them have booked a place on a container ship. Everyone shares experiences of finding a responsible means of transport back to Europe, so we have already established new contacts and found good websites. Because flying is not an option for any of us anymore.'

Van der Poel: 'I'm going straight on to do my thesis research in Colombia. I want to make the return journey on a sailing boat as crew or as a "hitch-hiker". There are lots of ports in South America. That's what I'm going for!' 📍



IN OTHER NEWS

BOTTLED-FED

Even prehistoric babies were bottle-fed, shows research at the University of Bristol. A broad team studied little bottles – actually little bowls with a spout – that were found in infant graves from about 5000 BC. Chemical research showed that they had contained sheep's and goat's milk. The bottles were found in Bavaria, which doesn't rule out stronger liquids.

ABC

'Drink halves pass rate' is more likely to be believed than 'WUR bans alcohol'. Why? According to researchers from the University of Texas, it's because the first letters of the words are in alphabetical order. Dhpr sounds better than wba. The researchers have demonstrated that our brains are sensitive to that order. Good to know (gtk). Important point to understand (iptu).

OLD SEED

Older sparrows have more offspring, even though 'old seed' is less vigorous. How come? Because more of the sperm reach the egg, scientists at Imperial College London have discovered. It is not known how older sparrows manage that. But it's no good if they're too old to be the early bird that catches the worm.

ATTRACTIVE COLOUR

The darker the spots on a male giraffe's neck, the more success he has with the ladies, shows research at the University of Queensland. For a long time, age seemed to be the main determinant of success. But not every giraffe goes darker as it gets older. It turns out now that colour is the decisive factor. The researchers think colour might be an indicator of the male's physical fitness.



Student builds vertical tandem

Tandems have been around as long as the bicycle. Two bikes in one. But a vertical tandem? Biology student Bas Nooren built one. And it works!

A year ago, *Resource* photographed Bas Nooren riding across the campus on his homemade high bicycle. By then, he was already dreaming of his next creation: a vertical tandem. He didn't know at that point how he should build it. Let alone how you could ride it.

'It is more stable precisely because of the height; you can ride more slowly without falling'

But now he has proven that it is possible. And if you can overcome your fear, it's nice to ride, says Nooren. He and Bram de Pecker, a BSc student of Bionanotechnology, demonstrated the Double-B – B for Bas and Bram – on campus at the end of September.

Nooren readily admits that it's 'a bit nerve-racking' to cycle on the tandem. Although he has two handlebars up there on top, the real steering is done by the cyclist nearer the ground. What are the handlebars for then? 'One of them is just to hold on to,' explains Nooren, 'and you can steer with the other one if you are riding the bike on your own.'

The most critical moment is when you mount the bike. Nooren and De Pecker made use of the wall of the Forum. After that, the tandem needs to pick up speed. They stop by grabbing hold of a lamppost. Nooren is not scared of falling. 'It is more stable

▼ Nooren on his earlier creation, the 'high B'.



PHOTO: GUY ACKERMANS



PHOTOS: BERBER HANJA

▲ Bas Nooren and Bram de Pecker (below) on the Double-B.

precisely because of the height. You can cycle more slowly without falling than you can on an ordinary bike. That has to do with momentum. Just try balancing a pen on your finger. But it's easier to do it with a long broomstick.'

The vertical tandem consists of six bicycle frames. The whole thing was put together in JP's garage in De Nude neighbourhood, where Nooren works when he is not studying.

The Double-B is coming in for plenty of attention. Oohs and Ahs can be heard from all around: Nooren is getting some recognition for his work. 'All we have to do now is to be on *Hart van Nederland*,' he laughs. Meanwhile he's already pondering his next project. Something for three people, perhaps? **© RK**

Watch the video on *Resource's* YouTube channel.



Major protest by Extinction Rebellion in Amsterdam

Students to block roads

▼ Extinction Rebellion Wageningen at a climate march in Wageningen on 17 May

The activist group Extinction Rebellion is going to occupy a bridge and junctions in the centre of Amsterdam from Monday 7 October. About 50 Wageningen students are taking part in the protest.

The protest in Amsterdam is part of an international protest campaign, Rebel without Borders. Between 2000 and 3000 demonstrators are expected to congregate on the Museum Bridge in front of the Rijksmuseum in Amsterdam, where they will block the streets and set up camp. The same thing will happen in other major cities such as Berlin, London and New York.

'We want to put pressure on our government to take the climate crisis seriously,' says Nadine Mingers of Extinction Rebellion (XR) Wageningen. The group feels that the Dutch government is not doing enough to tackle the climate

and the ecological crises. Mingers: 'We demand that the government takes action to reduce greenhouse gas emissions to zero by 2025. We also demand that the government communicates openly and honestly, and raises awareness about this crisis.'

XR also wants the government to set up a Citizen's Council that will play a leading role in decision-making. 'We shall go on until this demand is met, or in any case until the government agrees to plan a meeting with our negotiators.'

Mingers says she is not afraid of arrests for disturbances to the peace. Participating students are given training sessions to make sure the



PHOTO: XR WAGENINGEN

protest goes smoothly. 'We explained how they can participate in non-violent demonstrations. We have told them what they can expect, including legal consequences or police interventions, and what's the best way of reacting to them.' TL

MEANWHILE IN... JAPAN

'The magnitude of Typhoon Faxai took people by surprise'

Typhoon Faxai hit Japan on 29 August, claiming three lives. Record-breaking winds of 207 kilometres per hour were recorded and more than 800,000 households were without power. It was this large-scale blackout that caused people most trouble, says Master's student Yuka Hasegawa.

'In Japan we usually identify typhoons with numbers. This one we call Typhoon 15, as it was the 15th typhoon in 2019. Faxai was, without a doubt, the strongest one so far. Typhoons are pretty common during the summer in Japan and people usually know how to cope with them. But the magnitude of Faxai took people by surprise.

People were not ready to face such a big typhoon and they didn't know how to deal with it. Some houses were damaged, their roofs gone, and there was a landslide. The people whose houses were damaged have been relocated. None of this has happened before, making Faxai an extraordinary storm.

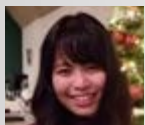
The main form of transport around Japan is the train, but during Faxai most trains stopped running, so many passengers were stuck at



PHOTO: SHUTTERSTOCK

train stations. People's daily lives were immensely affected. The blackout in particular caused a lot of turmoil. I experienced a blackout personally after the 2011 earthquake. It becomes extremely hard to live without water, gas, electricity or a mobile network. Due to this, many people have to travel to nearby cities in search of a network, to inform their loved ones that they are safe, or to alert the authorities about the damage and request help.

I contacted my friend whose hometown is one of the places that was affected, Minami Boso city. It is in the countryside and most of the residents are elderly people, with very few young people. Communication was impossible, so nobody was aware of the damage there, not even the news channels. Eventually, some young people were able to draw attention to their plight through Twitter.' KR



Yuka Hasegawa (23), an MSc student of Food Technology from Japan, reflects on recent events in her home country.

YOU ON CAMPUS

It is a nice Sunday afternoon and it is quiet at De Bongerd Sports Centre. Some students are lying on the grass or doing some relaxing exercises but Anna, an exchange student from Switzerland, is active on the athletics track. 'Jogging is something I've always done. I prefer to do it on my own and at my own pace because then the music just wobbles with me!'

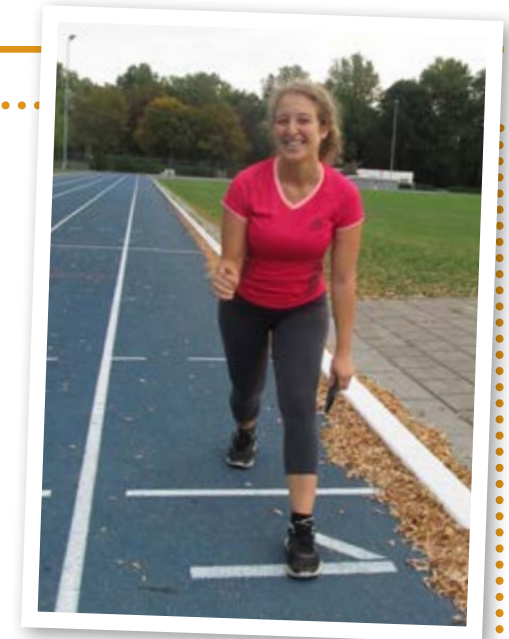
It all started after the AID, during which Anna made – in her own words – too many friends. The weather was wonderful and the start of the academic year was 10 days away. 'As the AID consisted primarily of partying, I wanted to do something else. From my room in the Bornsesteeg I have a good view of this running track and I immediately felt attracted to it.' She doesn't train that often, but Sunday is a fixed day. 'I love to run on Sunday be-

cause it is always the day you feel you have eaten too much over the weekend and you have to lose that.'

When asked if she's participating in any of the races, the answer is a definite 'no!' 'Have you see me run? Then you'll see that I'm defi-

'From my room in the Bornsesteeg I have a good view of this running track'

nately not in the competition.' She does take part in other activities at the sports centre, such as Pilates. 'I already did a lot of sporting activities in Zürich but here in Wageningen I like to do even more. It really is one of the best sports centres I've ever seen!' Anna advis-



es everyone to benefit from it. 'Sport helps to keep your mind straight. That is perfect during the busy university life.'

Anna will stay in Wageningen for six months to complete the Nutrition and Health Master's specialization Epidemiology and Public Health. However, do not be surprised if you see her running around here a little longer. 'I have only been here for a short period but I'm already having a great time. The university is very interesting and has so many great opportunities for students.' **HB**

'Tired and hungry, they come for their keys'

DIARY OF A CARETAKER

Eugene van Meteren works for Idealis as a caretaker. He writes about his experiences for *Resource*. You can read all his columns on resource-online.nl.

Each September, Eugene van Meteren sits behind his desk and watches the world trickle in. That is the time of year when students from all four corners of the world register with Idealis.

'The annual arrival of the new batch of international students is always quite an experience. Many are leaving their home country and their family behind for a couple of years. They have had a long journey and often arrive at our desk perspiring, tired and hungry, with suitcases full of household paraphernalia, to pick up the keys to their room.

This year, one young woman from India looked in a particularly bad state. The first thing she wanted to know was where she could find the nearest hospital. Concerned, I asked why and she replied: "I've travelled for almost 24 hours, I haven't eaten much and I haven't slept for longer than one hour. I'm scared I'm going to faint. And if that happens I want to go to a hospital." I explained to her where the hospital is. Then I got her to sit down and gave her a bottle of water. Ten minutes later, she was already feeling better. After taking the key, she went off in the direction of her furnished room in Bornsesteeg, where she would be

able to enjoy some well-earned rest.

We always have a basket of traditional Dutch liquorice on the counter as a gesture of welcome for the new residents. Once, two girls from China were standing next to the basket. They each had a sweet in their hand and they were daring one another to taste it. I surveyed the scene from behind the desk. They put the unfamiliar candy in

'The first thing the lady from India wanted to know was where the nearest hospital was'

their mouths simultaneously. A moment later, they grimaced as if they were eating a lemon, but they made a valiant effort to get their candy down. One girl swallowed it within a few seconds while the other bravely chewed while suppressing retching reflexes. Amused, I asked them what they thought of the candy. With a big smile, they replied: "Very nice, thank you very much." This year, we handed out 932 keys. So Wageningen has once again been enriched, with 932 new residents from all over the world.' **HB**



Wageningen Master's students do internships and thesis research all around the world, getting to know their field and other cultures. Here they talk about their adventures.

Keeping afloat in the Chinese office culture

'When I was exploring thesis topics in discussion with researchers in the Forest Ecology group, I was intrigued by the idea of tropical ecological research in China. Very few people had done this type of research there. I was going to look at the way lianas adapt to water scarcity caused by climate change. It felt like unexplored territory.

When I first arrived at Xishuangbanna Tropical Botanical Garden, I was amazed by the exceptional richness of the tropical flora. From the botanical garden we soon moved on to a plot deeper in the rainforest to collect our liana samples there. It was an even more unique experience to get to know that environment with all its unusual plants and insects.

We examined the samples from the rainforest in the Botanical Garden's facilities. Most of the researchers there were Chinese. Their work ethic is more hierarchical and they seemed to work almost all day long. After dinner they would usually go back to the lab or their computers.


It was in this environment that I struggled to balance the high expectations with my own boundaries and physical limitations. In the previous year I had been diagnosed with Lyme disease. I was still exploring my boundaries, which had changed. For example, I discovered that if I had a long day, which had never bothered me before I was ill, it now took me days to recover. And when I didn't take enough time for that, the symptoms resurfaced that I had when I was at my worst.

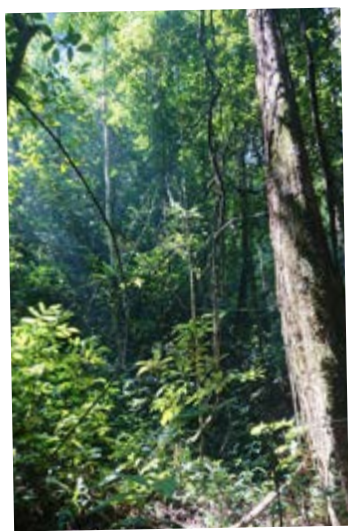
In the end my colleagues and I had to find a solution out of necessity. We had a long talk

about this and we divided the work differently, leaving me with the physically less taxing work. I could work to my own schedule and take breaks when I needed to. I really had to

'I really had to learn to stand my ground and say no'

learn to stand my ground and say no. At the start, the people I worked with couldn't see the whole picture, but in the end they did. If there is anything I would like to pass on to future thesis students, it is to trust your instincts about what is best for you, and not to hesitate to speak up about it.

Even though I struggled, when all is said and done I consider this a healing experience that brought me closer to myself.'  AdH



THE WORKS

Who? Evelien Konings (26), MSc student of Forest and Nature Conservation and Geo-Information Science
What? Thesis research on lianas
Where? Xishuangbanna Tropical Botanical Garden, Mengla, China

Do you too have a nice story about your internship or thesis research abroad?
 Email lieke.dekwant@wur.nl.



Announcements

Career Day

Explore your future and take part in the Career Day on 16 October. Free of charge, with registration. The Career Day Light is open to all students, graduates and PhD candidates. We have around 48 employers who want to meet you and we also offer career support activities such as a free LinkedIn photoshoot. Register now and you might find a nice job or internship or just find out more about the possibilities in the labour market.

WUR.NL/CAREERDAY

Good sense of smell?

Want an easy way to earn money (€9 an hour net)? And do you have lots of free time? Buro Blauw in Wageningen is looking for people for its odour panel. For more info or an appointment, email geurlab@buroblauw.nl or call 0317 466699.

Het Andere Koor rehearsals are starting

The choir Het Andere Koor (Wageningen) and Wageningen symphony orchestra HWSO will start practising an interesting programme of works by Verdi and Puccini for an anniversary concert. There is room for more singers. Email info@hwsolak.nl before 5 October.

HWSOLAK.NL

Agenda

Thursday 3 to 17 October SHOWING AT MOVIE W

The Last Male On Earth: Dutch documentary about the last northern white rhinoceros. *So Long, My Son*: Chinese drama about loss and the one-child policy. *Jinpa*: Tibetan road movie about truck driver and hitch-hiker. *Rojo*: Argentinian thriller about national apathy and military dictatorship. *Dolor Y Gloria*: Spanish drama about tormented filmmaker

who looks back on his poverty-stricken youth and glorious career. On 15 October: *Movies that Matter on Tour with The Feminister*. Venue: Wilhelminaweg 3A, Wageningen. €6.50/€5.

MOVIE-W.NL

Saturday 5 October, 9:00–10:30 CUTTINGS AND PLANTS EXCHANGE FAIR

You are invited to Belmonte Arboretum with your seeds, cuttings, bulbs, tubers and indoor and outdoor plants. Gardening books and used tools in good condition are also welcome. The swapping will start at 9:30 and you can have a cup of coffee afterwards. The fair is free for non-members too, even if you don't have any plants to contribute. Organization: Groei & Bloei, Wageningen branch. Venue: Belmonte Arboretum, Generaal Foulkesweg 94 in Wageningen.

Saturday 5 October, 11:00–16:00 OPEN DAY: NATIONAL SCIENCE WEEKEND AT WAGENINGEN CAMPUS

3D printing, reading the language of trees, becoming an entrepreneur, searching for a mysterious tree disease and guided tours of the campus, including the impressive Forum and experimental greenhouses with Dutch bananas. All these WUR activities will be on offer from the Atlas building. WUR's neighbour NIOO also has lots planned for this fun and educational Saturday on National Science Weekend.

WEEKENDVANDEWETENSCHAP.NL

Tuesday 8 October, 12:30-13:20 WAGENINGEN WRITING LAB LUNCH WORKSHOP / WUR LIBRARY 'CITING AND REFERENCING'

To avoid plagiarism in academic writing, it is essential to cite and reference the sources you use. But what sources exactly, where do you put an in-text citation, and how do

In memoriam

Gerard Oosterbaan



Gerard Oosterbaan, who graduated in Crop Sciences at Wageningen in 1958, passed away on 8 June 2019 at the age of 85. He started his career in 1960 at the Dutch government's Land Improvement Service, and in 1977 he was appointed director of the

Institute for Land Improvement and Water Management (ICW). After a merger of four institutes, in 1988 he was appointed director of the Staring Centre, an institute for rural research (which later merged into Wageningen Environmental Research). He led the centre until he retired in 1996. He held various positions in land and water management, including chairing the interdepartmental Study Committee on Water Needs and Water Supply in Agriculture and Horticulture (SWLT). This committee was established by the cabinet in the late 1970s in response to an extremely dry year in 1976. Its recommendations were of use in 2018 and 2019. In retirement, Gerard Oosterbaan remained an active member of the Committee on 21st Century Water Management.

On behalf of Wageningen Environmental Research, Jacques Jansen (deputy director of the Staring Centre, 1991-1999)

Are you an Idealis tenant? Win 1 month's free rent!

idealis



From **Monday 7 to Friday 11 October**, an undercover agent from Idealis will be walking around on the Campus. If you can show him or her, on request, that you have downloaded the **Idealis Buddy app** onto your phone, you are in with a chance of winning 1 month's free rent!

> So download the app now. More than 1,800 tenants have already done so. On the Idealis Buddy you will find all the information you need when renting a room with Idealis.

 Idealis Buddy

you make a reference list? These questions will be addressed in this workshop, together with different citation styles and how tools like EndNote can save you countless hours formatting reference lists. Free access. Be on time, as participant numbers are limited to 20. Venue: Forum Library Room 259. Info: info.wageningenwritingLab@wur.nl.

Thursday 10 October, 12:00-17:30 SUSTAINABILITY DAY 2019 – TOGETHER TOWARDS CIRCULAR FARMING: ANNUAL FORUM.

The Dutch Minister of Agriculture presented a vision on the transition of the Dutch agricultural system to circular farming. Many different stakeholders are working on this transition in different ways, and have different perspectives on how it is to be done. The Circular Farming Platform Wageningen is organizing this event and offers a series of panel discussions on education, politics and policy, and practices and business

models. A wide range of stakeholders will participate, including researchers, farmers, politicians, agribusiness stakeholders and more. Venue: Room C2030, Orion.

CIRCULARFARMINGPLATFORM.NL

Friday 11 October, 12:15-13:30 NATURE WALK ON CAMPUS

Do you know the secret gardens of the WUR campus and have you discovered all the different and beautiful plant gems that grow around here? This walk will definitely inspire you to look at the campus a bit differently! An amazing plant expert will guide you through plant names, fun facts and the importance of the biodiversity on campus. You'll get to know the place where you work or study in a different way and be more aware of the nature surrounding you. So just take your lunch outside for a change and join us. Gather at the entrance to Lumen (building No. 100). This event is part of the Seriously Sustainable Week.

Friday 11 October, 19:15 PRIDE WALK WAGENINGEN

On international Coming Out Day, a poem on diversity by city poet Ivanka de Ruijter will be unveiled in the town hall. Prior to the unveiling, local LGBTQ+ society SHOUT Wageningen is organizing a Pride Walk to underscore the importance of the municipality's statement. Everyone is welcome to join in. Representatives from various societies, political parties and other organizations will be taking part in the Pride Walk to show that their organization also believes everyone is welcome regardless of their orientation and gender identity. The Pride Walk will start in 5 Mei Plein and proceed via Bergstraat and Hoogstraat to the town hall in the market square. Participants will gather in 5 Mei Plein from 18:45.

Wednesday 16 October, 20:30-23:00 CINESCIENCE MOVIE TALK: SOYLENT GREEN

In her movie talk, Dr Evelien de Olde will link the current environmental and social challenges of our food system to a dystopian seventies movie (starring Charlton Heston). It is 2022, the earth is overpopulated and polluted, natural resources have been exhausted and the population is solely fed by Soylent Industries. When investigating the murder of the company's CEO, a detective unravels a bizarre and disturbing business secret. What remained fiction and what became reality over the past decades? In CineScience movie talks, researchers from WUR give unique and accessible insights into their scientific work by linking it creatively to a personally selected movie or documentary. WUR considers its connection with the city of Wageningen and its residents extremely important and is eager to show that everyone actually deals with the themes being researched and developed in Wageningen in their everyday lives. Venue: Heerenstraat Theater.

WUR.NL/EN/ACTIVITY/CINESCIENCE-MOVIE-TALK-SOYLENT-GREEN.HTM

Colophon

Resource is the independent medium for students and staff at Wageningen University & Research. Resource reports and interprets the news and gives the background. New articles are posted daily on resource-online.nl. The magazine is published every fortnight on Thursday.

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Marc Lamers, Corporate Communications & Marketing, Wageningen University & Research



>>TYPICAL DUTCH




ILLUSTRATION: HENK VAN RUITENBEEK

Dopper bottles everywhere!

You don't really notice it at first, but drinking water from a Dopper bottle is a real trend in the Netherlands. Once you've spotted the first few colourful bottles in people's backpacks, you will start to realize that they are all around you.

At a lecture at the beginning of Period 1 last year, I noticed that there were many colourful bottles of the same design on my fellow students' desks. At first I thought this kind of bottle may have been a freebie students got during the AID. But I found out I was wrong when I started to travel around the Netherlands. In Utrecht, Amsterdam and other cities, I would always see such bottles in people's backpacks. I realized that this was a popular water bottle all over this country.

At first glance, I didn't really like the style of the Dopper bottle, although the design was impressive. But as time went by, I began to love Dopper bottles and even got one myself! My Dutch friends told me that Dutch people do not like to spend money on a good brand of mineral water but tend to drink tap water from their own bottles. After all, tap water is drinkable and free in the Netherlands. Dopper bottles are just a sustainable and environmentally friendly solution for them. And for me too now! 

Zihao Wang, an MSc student of Food Safety, from China

'Drinking tap water from their own bottles is a sustainable solution for the Dutch'

Do you have a nice anecdote about your experience of going Dutch? Send it in! Describe an encounter with Dutch culture in detail and comment on it briefly. 300 words max. Send it to resource@wur.nl and earn 25 euros and Dutch candy.