WUR from within: straight, sharp, transparent

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The journalism platform for all at Wageningen University & Research

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FOREWORD

Trust

Science involves things like a questioning stance, insight and reproducibility. But there is something else too: trust. Supervisors have to trust their PhD students and colleagues have to trust one another; they have to trust the data is correct and is being used properly. We all know that doesn't always happen as we have heard of such cases outside Wageningen. But at WUR itself? Yes, even at WUR. *Resource* knew for years something was going on and when the law court report was published, that gave us the name of the PhD candidate who had committed fraud. We approached his supervisor. He was stunned and what he said was off the record. Last week, WUR announced that the court had decided after a lengthy process that the university could deprive the fraudulent PhD candidate of his doctor's title (see page 22 for the long read on this story). Another story we got after a tip — precisely one year ago — was of concerns among graduate schools about the collaboration with China. It turned out the directors had written an evaluation report. To cut a long story short, we need to talk about China (and about Saudi Arabia, according to a report this weekend in *De Volkskrant*, see page 5). For example, data used by some Chinese PhD students cannot easily be checked, or may not be accessible at all. There are other issues too (see page 12). Trust is under pressure sometimes here as well. That is a dilemma. But one thing is certain: we can't do without trust.

Willem Andrée
Editor-in-chief

BABY PLANTS

At student society Wageningen Student Farm (WSF), you can learn all about gardening, growing vegetables, and fermenting and preserving food. The smallest plants need a greenhouse. The old one was due for replacement and is now making way for a dome. The frame was sawn, varnished and put together before the winter. Last Thursday, the final section in the frame was covered with plastic. In time for the new baby plants. CJ

Photo Sven Menschel

Investigation into Saudi contract

WUR professor under fire for changing place of work from Wageningen to Riyadh.

Photo Shutterstock /Stanislau Palaukou

The Saudi universities King Saud University (KSU) and King Abdulaziz University (KAU) offer top scientists large amounts of money in return for giving the Saudi university as their main employer. Wageningen professors are among those approached. One of them, Vincenzo Fogliano (Food Technology), took the bait. The Executive Board has started an investigation.

'Buying' such an affiliation benefits the university as it gives the university status and improves its position in the annual rankings. A lot of money is involved in these transactions. At King Saud University, academics get 70,000 dollars a year for the affiliation.

'Buying a reputation'

The Saudis have been indulging in this practice for years. Professor Jan Willem van Groenigen (Soil Biology) got an email in 2019 inviting him to take part in the Distinguished Fellowship Program of King Saud University. That would involve an annual salary of 70,000 dollars plus 50,000 dollars for two visits a year and a bit of research. According to Van Groenigen, that research would not have amounted to much.

The condition was that he would have to give the Saudi university as his main employer on the Highly Cited Researchers website, so as to increase the university's visibility. Van Groenigen did not take up the offer. 'I find it quite unacceptable and scandalous. They are just buying a reputation. It also really harms the university you actually work for as only the first affiliation counts in the ranking systems.'

The affair made the news after an article appeared in the Spanish newspaper *El Pais* a couple of weeks ago. Last Saturday, Dutch newspaper *De Volkskrant* discussed the question at length following a report by consultancy firm SIRIS/Academic. The newspaper revealed the name of WUR scientist Fogliano, who admits he had such a contract with KSU from 2008 to 2020.

'I FIND IT QUITE UNACCEPTABLE AND SCANDALOUS, THEY ARE BUYING A REPUTATION'

Explaining

Fogliano says the fee went to WUR, not to him personally. On intranet, WUR reports that the issue is being investigated. Rector Arthur Mol does not wish to comment while the investigation is ongoing. 'But if it turns out colleagues have indeed changed their primary affiliation, we denounce such actions.'

Professor of Organic Chemistry Han Zuilhof was affiliated with King Abdulaziz University in Jeddah from 2011 to 2022. But he says that did not involve one of these lucrative contracts. 'I ended up there via one of my postdocs who went to work there. They have unique equipment for doing research at the nano scale. And that appealed to me.'

'I was never asked to change my affiliation,' says Zuilhof. 'They did sometimes ask at the end of the year what articles had resulted from the collaboration, and KAU is given as the affiliation for those articles.' Zuilhof ended the collaboration because of the decreasing opportunities for research. 'I think it's fine these collaborations are being investigated. You always need to be able to explain what you are doing.' RK

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Eleven refugees will be able to continue their scientific careers in the Netherlands in positions funded by the Dutch Research Council programme Hestia – Impulse for Refugees in Science. Two of them are getting (temporary) appointments at WUR. The Research Council has not announced their names but it does give the research topics: luminescence dating of earthworks such as dykes from Roman times, and the effect of antidepressants and antipsychotics on aquatic algae populations. ME

Reading together for Planet Earth

The campus has a new book club: the Reading for Planet Earth Book Club. According to Koen Arts, the man behind the club, the programme is a mix of classics and modern-day bestsellers: 'It is a list of works I think can influence our ideas about the planet.' Anyone can join the book club. The interactive part consists of a 75-minute session on campus in which the book is discussed in small groups. The book club operates in English but every fourth edition will feature a book in Dutch. To encourage students to get reading, they will be able to earn credits. To get three credits, they have to read three books, attend the sessions and write a 2000-word essay. RK

No spontaneous actions allowed

A blindfolded *Sower*, a pop-up park in a car park, packages with a lifejacket, cuddly toy and letter: various protests on campus have been removed almost immediately in recent weeks.

At the start of April, an unstaffed pop-up park put up by the Wageningen New Mobility Action Group was sawn to pieces and removed within a day. Two weeks later, packages with a lifejacket, a cuddly toy and a letter criticizing the EU's policy on refugees — referring to the 400 people who have drowned so far in 2023 in the Mediterranean and the Aegean Sea trying to get to Europe — were also removed in no time. And a kind of cat-and-mouse game developed around the sculptures on campus: Scientist Rebellion climate activists blindfolded them, only for the statues to be 'freed' within a few hours — faster each time.

'Our campus is not public land'

Last week, Extinction Rebellion activists blindfolded artworks on campus. Under the slogan 'science not silence', The *Sower* got a blindfold, as did the sculpture *Reclining Figure* by Cor van Kralingen, in front of Radix ◆ Photo *Resource*

House rules

WUR spokesperson Jan-Willem Bol: 'Our campus is not public land. For safety reasons, we have house rules and policies governing demonstrations. That is why consultation is required beforehand so we can agree the form, location, duration and contact names. When an application is made, we look at what is possible. For instance, two years ago scientists formed a clock symbolizing that time was running out in an action to persuade pension fund ABP to stop investing in illegal deforestation. We knew what the idea was and gave them the space to do this. I should point out that consultation beforehand doesn't automatically mean permission will be given for the demonstration.'

Playful protests were removed in the past too, such as the dismantled bike belonging to former President of the Executive Board Louise Fresco, which was supposed to symbolize the lack of a holistic vision. In contrast, a more recent protest that got a warmer reception was that by the POV pig farming association. It protested against the vegetarian nature of the AID barbecue last summer, handing out flyers with 'The true story' to the brand-new students. WA/ME

New festival

Wageningen is to get another festival: 0317. The event will mark the start of the summer with DJs, live acts and food trucks.

You need to seize your opportunities when they arise. That is basically what International Land & Water Management students and POPUPOP members Leonie Nispeling and Jes Kallen thought. At the end of June, Torckpark will be turned into a festival ground for Woetstok. If it is already full of speakers and portable toilets, why not use it for one day extra? So on 25 June, the day after Woetstok, DJ collectives 4XL, MiniCulture and newcomer Grassroots Bass Collective will take over Torckpark. Four live acts complete the programme. Kallen: 'Spellbreakers is a Belgian reggae band, Tukan performs live electronic music and Nnelg is a Dutch hip hop artist. We're keeping the last act a secret for now but it is one that will pull in the crowds.'

To find out more, check out 0317festival.nl

Rent committee finds in favour of Duivendaal residents

Landlord Xior charged Ninke Feenstra 2271 euros in service costs for her room of 12 square metres in 2021. She went to the rent committee, which said the service costs should have been 1572 euros, a difference of almost 700 euros. Eighteen other current and former tenants took their cases to the rent committee and were successful.

Xior illegally passed on certain costs to the tenants such as lift maintenance, a new floor and taxes, ruled the rent committee. Xior was also unable to produce all the invoices for gas, electricity and furnishings. That was why the committee decided eight of the eleven service cost items should be reduced or removed.

In total, Xior overcharged the 179 Duivendaal tenants 75,000 euros in service costs in 2021. The rental committee's decision, which is binding, does not automatically apply to everyone: each tenant has to start their own case. Talking to the current residents reveals that 12 cases are currently under consideration and various other tenants are thinking about starting a case. Under rental law, they have until 30 June 2024 to do so. SS

Footballers seek sponsoring for Euros debut

Wageningen will be sending a men's team and a women's team to the student European Championship, due to start in Albania on 25 June. This is the first time Wageningen is sending teams to the Euros. A nice first, but it also requires a lot of organizing. All in all, taking part will probably cost them some 40,000 euros. The players are looking for sponsorship deals to cover the costs of taking part, the equipment and the journey. Individuals, companies and other organizations that want to help the WUR teams can contact judithalkema@outlook.com (women's team) or rijk.dersjant@wur.nl (men's team). LZ

The women's football team ◆ Photo Luana Sobral Beekhuizen

Bearded vulture dissected at Wageningen

The rare bearded vulture that visited the Netherlands at the end of April ended up dead next to a railway. Animal ecologists Hugh Jansman and Ralph Buij examined the bird.

The bearded vulture is the largest species of bird in Europe with a maximum wingspan of about 2.80 metres. Only two bearded vultures have been spotted in the Netherlands before. One did not survive an encounter with a wind turbine. This visitor – the first to have been born in the wild – also met an unhappy end.

'What we find in their bodies says a lot about the ecosystem as a whole'

The accelerometer in the bird's GSP transmitter reported a flatline (=no more movement) in an ominous location: the railway near the Oostvaardersplassen nature area. Hans Pohlmann, chair of the Vulture Conservation Foundation, found the vulture dead. 'Given the cloud of little feathers, she must have been hit by a train and thrown about 20 metres,' he concluded. Hugh Jansman carried out a post-mortem, assisted by Ralph Buij, a researcher and big fan of birds of prey. That examination confirmed Pohlmann's assumption. 'The skull, the wings, the legs: everything was broken. It must have been an enormous blow,' says Buij.

Ralph Buij shows the impressive wingspan ◆ Photo Sander Moonen / Hugh Jansman

Shot

They also saw damage in the bird's coat of feathers consistent with being hit by lead shot. But Buij now knows that didn't happen. 'Later, my colleague Sander Moonen and I put the bird through the X-ray machine. It showed one fragment of lead shot, and in a place in the body that makes it likely the vulture ingested the lead shot with its food.'
Another interesting find in the post-mortem was a piece of deer leg that the bird had apparently only just eaten and that had pierced the vulture's skin due to the force of the impact. The leg was almost entirely intact — the fur and hoof were undamaged — and impressively large: 43 centimetres in length. 'We were all amazed to find such a large object.'

Organ samples, for instance taken from the liver and kidneys, will reveal whether this bearded vulture has more surprises in store. 'Large birds of prey like this are at the top of the food chain,' explains Buij. 'Toxins accumulate in their bodies. That makes them incredibly interesting for ecological research. They are a kind of early warning system. What we find in their bodies says a lot about the ecosystem as a whole: what kinds of chemical contamination are there and how bad is it? If populations of birds of prey start to deteriorate, that means there are problems further down the food chain.' That makes it a golden opportunity to be able to examine such a large bird of prey, he says. 'Most large birds die anonymously.'

Naturalis

It is not the first time that a bearded vulture has ended up on a Wageningen dissecting table. In 2021, Jansman and his team examined the wind turbine victim. But it is still an impressive beast, says Buij: 'A bearded vulture is a colossal bird.'
It is not yet known whether this bird will end up stuffed in a museum like the previous bearded vulture. 'But Hugh has deliberately been very meticulous in his examination, so stuffing the bird is possible. And Naturalis has already emailed us. So who knows?' ME

[Live&Learn]

A failed experiment, a rejected article: in science, such things are soon labelled failures. As for talking about them – not done! But that's just what WUR colleagues do in this regular feature. Because failure has its uses. This time we hear from Helen Esser, associate professor in the Wildlife Ecology & Conservation Group.

Text and illustration Stijn Schreven

'I have dreamed of doing fieldwork in the tropics ever since I was a child. I finally got the chance to do so for my Master's thesis in Panama on the effects of over-hunting agoutis (a kind of large guinea pig) on seed dispersal. Without agoutis, the seeds stay on the ground below the mother tree and not many of them survive. In order to find out how many seeds got left under the tree and what they died of, I dug out patches of one square metre. That proved to be very hard work: it was the dry season and the soil was like concrete.

You feel so miserable you cry

I did that work for three months, spending all day on my own, digging away. It was terrible and I ended up in an existential crisis: this was supposed to be what I had wanted all my life, but I certainly didn't want to be doing this for the rest of my career. But I persevered. I wanted to come home with worthwhile results. Later, more experienced field biologists told me I was crazy to keep at it. That cheered me up: maybe it was just this type of fieldwork that wasn't for me. Instead of feeling a failure, I began to feel proud of myself for getting it done. I decided to do another Master's thesis in the same country, but this time with my partner, who was doing his internship there. We sailed from island to island in the Panama Canal, setting camera traps and collecting ticks. It was fantastic. It was tough too, but this time the work was varied and I was not alone.

So I found out that that I can be persevering. And that it isn't always you: fieldwork in the tropics is just tough going. I always tell my own students: there will be disappointments and moments when you feel so miserable you cry. But also moments of enjoying the rainforest. I still enjoy going on a fieldwork trip.'

Coffee extract as vegan emulsifier

Melanoidins from coffee dregs or coffee beans can replace animal proteins as a stabilizer and antioxidant in food products. Jilu Feng got a PhD last year for this work and has published two articles with colleagues in the journals *Food Hydrocolloids* and *Journal of Agricultural and Food Chemistry*.

From peanut butter and ice cream to creams and foams, they all contain something to keep the mixture intact. That is because all these mixtures combine watery and oily components that do not mix naturally. An emulsifier solves this problem. Examples are egg yolk in mayonnaise and milk proteins in dairy products.

Strawberry ice cream could well taste of coffee

Feng and her colleagues in the WUR groups Food Quality & Design and Food Process Engineering wondered whether coffee melanoidins would also be suitable as emulsifiers. Feng: 'They are safe and easy to extract from coffee beans and coffee dregs. They could offer a natural and sustainable alternative.'

Coffee flavour

Feng filled bottles with mixtures of oil and water, added varying amounts of coffee melanoidins and assessed the stability during a four-week period. 'It worked. A really interesting finding was that higher concentrations led to emulsion gels being formed, so you could use it to change the texture of an emulsion.' The substance also works well as an antioxidant. That is important for food products with unsaturated fatty acids, such as margarine and mayonnaise.

But... doesn't that mean mayonnaise and strawberry ice cream will start tasting of coffee? 'Unfortunately, we didn't consider that aspect in our research. But I suspect the answer is yes because I always smelled coffee when carrying out the experiments. You can also see the brown coffee colour in our bottles.' So the coffee substance is promising, but there are still some obstacles to be tackled first. RL

Sharpening the CRISPR-Cas scissors

CRISPR-Cas lets scientists make precise changes to DNA. The combination of protein and RNA looks for the specified piece of DNA and makes a cut. Different DNA can then be inserted in that position to repair the cut. PhD candidate Thomas Swartjes came up with an elegant method for improving the snipper proteins (nucleases).

CRISPR-Cas is a bacterial defence system. But what works in one place in the DNA does not necessarily do so in another place. Some applications require customized scissors. Swartjes thought up a way to use evolution to let nature further develop the existing nucleases (the scissors). He uses bacterial sex as the instrument in that evolution.

Bacteria don't actually have sex, but geneticists compare the process of conjugation to sex. 'Conjugation is when bacteria stick to one another and transfer genetic material,' explains Swartjes. 'The bacterium forms protrusions on the exterior that function like a kind of lasso. They capture another bacterium and draw it in, which is followed by the transfer of a plasmid.'

The idea is to use evolution and conjugation to develop snipper proteins that get a bit more effective than their predecessor every time

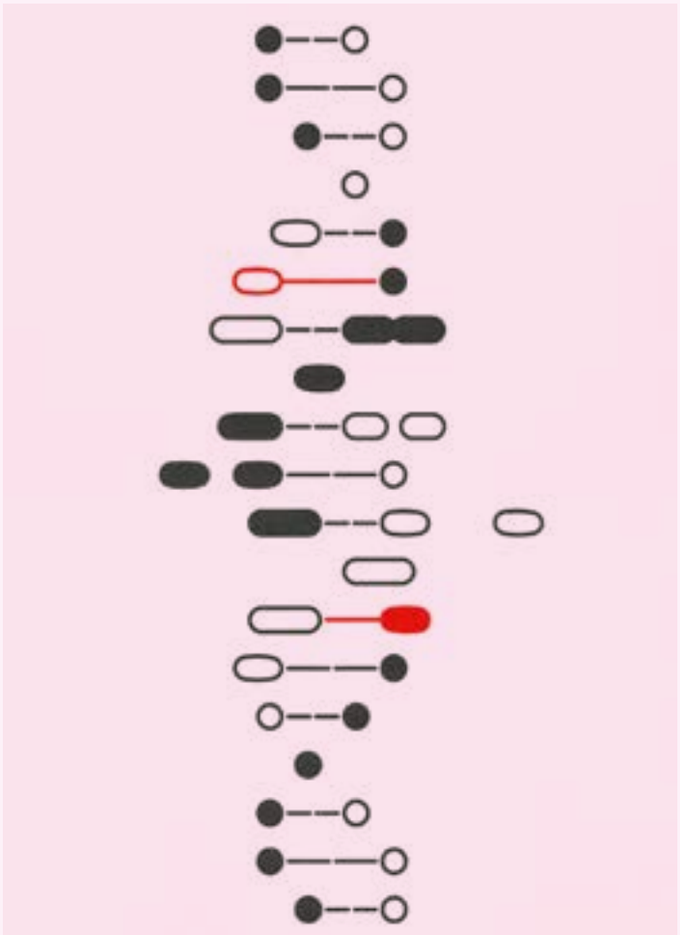
The plasmid, a loose piece of circular DNA, can then spread through a population of bacteria via conjugation (and replication). Swartjes is fascinated by this process. The title of his thesis is *Horizontal Dancing* for Bacteria. 'Horizontal dancing is a euphemism for sex, and a parallel for the horizontal transfer of genes between neighbouring bacteria. This is in contrast to the vertical transfer of genes through division.

Inhibition

Swartjes' idea is to use evolution and conjugation to develop nucleases that get a bit more effective than their predecessor every time. He uses bacterium cells (*E.coli*) with two plasmids: one with the gene for the snipper protein Cas-9 and one with genes that inhibit conjugation. 'The challenge for the Cas-9 protein is to mutate so that it can snip the inhibitor plasmid. If it manages that, the inhibition preventing conjugation is removed and the Cas-9 gene is transferred.'

The slightly improved Cas-9 then spreads through the bacterial culture through successive conjugations (sex). In each new cell, a new challenge awaits with intact inhibitor plasmid that has to be overcome. Evolution helps make the scissors increasingly more effective, more efficient and faster. And not much lab work is needed either. The idea is that nature does the work.

But there is still some way to go. The principle of conjugation and a plasmid spreading through a population works, says Swartjes. 'But I want a plasmid that only transfers the gene for Cas-9, not all the other genes needed for that process. I tried to place those genes on the bacterium chromosome. But then it suddenly stops working.'



Cover image of the PhD thesis *Horizontal Dancing for Bacteria* by Thomas Swartjes.

That is the point at which the PhD thesis ends. But not the research. 'As long as it looks promising, we will see if someone can continue with the research,' says Swartjes. 'It is a nice, elegant system, but if there are too many obstacles, we'll stop working on it. But we haven't reached that point yet.' RK

Using a balloon to measure the wind

Hot air balloons float where the wind takes them, so the balloon's movement is essentially a measure of wind speeds. Meteorologist Cisco de Bruijn used that fact to turn balloons into a free wind gauge, with the aid of a mobile phone with GPS.

His employer KNMI (Royal Netherlands Meteorological Institute) gave him the opportunity to do an experiment where information from various mobile phones on board a hot air balloon was compared to a very accurate GPS receiver. It worked. 'Phones measurements of the absolute position give a big error, of up to five metres. But they work fine when subtracting one position from another, which is what you need to measure speed.'
The new measure of speed is only 0.5 metres per second off. De Bruijn says that is good enough for use in weather models. But its mass means the balloon takes time to adjust to the wind surrounding it. 'I investigated that by suspending an accurate wind gauge under the balloon. If that gauge measures zero, it means the balloon is travelling at the same speed as the wind. It takes about five minutes for that to happen after a change in the wind speed.'

9000 observations

Hardly any wind speed measurements are made at the altitudes hot air balloons travel at. There are about 8000 to 9000 balloon trips a year in the Netherlands, so there is a huge potential for observations. For his experiments, De Bruijn developed an app to collect and pass on the raw data. It is not yet clear whether a more user-friendly variant of the app will be launched. RK

THE PROPOSITION

PhD candidates explain the most thought-provoking proposition in their thesis. This time it's Daniel Monino Lopez, who obtained a PhD in Plant Breeding on 14 April.

'Limited freedom in proposition compilation renders the added value for a PhD thesis obsolete'

'While my PhD thesis was approved immediately upon submission, my proposition list was rejected four times by the Academic Board. I went through a frustrating time modifying my original propositions to make them meet the criteria. When the list finally got approved, I felt a great relief.
I understand and value the importance of having a proposition section in the PhD thesis. As a pre-scientist, you should be able to think critically and demonstrate that you can engage in scholarly debates. However, do these restrictive criteria end up being counterproductive? I wanted to include a societally related proposition regarding sustainability, but I couldn't, because I've been told the proposition was too closely related to my thesis topic on plant breeding. I also had to discard one proposition which was always in my mind, because someone had already proposed the same idea earlier than me.
In my opinion, your propositions are your thoughts that came along with four years of hard work, and they will always remain an integral part of your book. As such, shouldn't you have the freedom to express your true opinion? I felt that the restrictive criteria constrained me. After several rounds of changes, my propositions no longer feel like "my" propositions.' NF

Lost in lists

Sjoukje Osinga

If you're a teacher, don't imagine you are done when you've finished grading the exam, because you've still got to enter the grades. Which is easy enough if there is only one grade per student. But not if you have grades for different components from different systems (Osiris, Brightspace, ANS and of course your own Excel files). You have to merge those grades, and that's when the trouble starts. In theory, it's easy. But I spend half a day every year fiddling around. I always feel a bit ashamed. Why can't I do this right the first time? After all, I work in Computer Science! To combine the grades, the student lists have to be complete and of the same length, but they never are. Some students drop out and others join the course. Some were only resitting the exam, and so you have to find their coursework grades from last year. And there are phantom students. Linking the lists requires meticulous cutting and pasting. You always end up losing a few students or having some to spare.

'The mishmash of lists is frustrating, time-consuming, and error-prone'

Some lists are ordered by student number, and others by user account, or, even worse, by name alone. This makes combining the lists a perilous undertaking. Suppose you have James Bond with student number 007, and Hermione Bond with student number 008.

You are combining two lists, one ordered by student number (Number1), the other by name (Number2). Then this may happen:

Student number	Grade 1	Name	Grade 2	Final grade
007	6	**Bond, H**	10	**8**
008	8	**Bond, J**	6	**7**

The minute differences in the name are not noticeable, but 007 comes off well here, while 008 gets short-changed. This may look fictional, but it happened to me once. Fortunately, Hermione asked for clarification and I was able to rectify it. James was less pleased. And it was embarrassing for me. When I confessed spontaneously to a few random teachers, I discovered that I am not the only one who struggles with grades. They poured out one terrifying example after another. This mishmash of lists is frustrating, time-consuming, and error-prone. Of course, I will never get it wrong again myself. But how many Hermiones have already been short-changed by WUR's numerical registration?

Sjoukje Osinga (55) is an assistant professor of Information Technology. She sings alto in the Wageningen chamber choir Musica Vocale, has three sons who are students and enjoys birdwatching with her husband in the Binnenveldse Hooilanden.

WE NEED TO TALK ABOUT CHINA

Cheap Chinese PhD students are on such low grants that WUR is considering subsidizing them. And that's not the only issue with the Chinese.

Text Roelof Kleis

PhD candidates are the university's foot soldiers. WUR has 2428 of these toilers, according to November figures. Between them, they account for a big proportion of WUR's scientific output. But not all the PhD candidates are well paid for their work. In fact, hundreds of them earn less than the minimum wage in the Netherlands.

Most of the low earners are international scholarship PhDs, who do their PhD research on a grant. The majority of these scholarship PhDs are Chinese and are paid by the Chinese Scholarship Council. A scholarship from the CSC amounts to 1350 euros a month, which comes to 8.5 euros an hour based on a 40-hour working week. Not only is that below the minimum wage in the Netherlands, but with the soaring inflation of the past few years, it is also below the qualifying level for a residence permit used by the IND (the Dutch Immigration and Naturalization Service).

Work pressure

'Bizarre,' says lecturer Lennart Beun. 'I only found this out recently in conversation with some colleagues. This makes no sense. They do the same work as PhD students who are salaried and they get less than the Dutch minimum wage for it. The work pressure and stress are bad enough and then you have this financial stress on top of it. That is going to take its toll.' Beun raised the matter with the management of his Physical Chemistry & Soft Matter chair group. They acknowledged the problem, says Beun, but couldn't do anything about it. 'Helping out seems complicated, legally. That's partly to do with tenure track; they were honest about that. You can't always attract a PhD candidate any other way. But you need to do that research because you've got to publish, so you just go for a cheap CSC-funded researcher.'

The number of Chinese PhD students starting at WUR each year has more than doubled over the past decade to 71 last year. There are a total of 401 Chinese PhD candidates at WUR (as of last November). That is 17 per cent of the overall total and a quarter of the international PhD candidates. Only the Dutch outnumber the Chinese at 35 per cent. This growth

Back burner

According to its revised China strategy, Wageningen Research has put cooperation with China on the back burner. The updated document states that a lot of knowledge has been shared with China over recent years, but the promised collaborations did not get off the ground. 'We had higher expectations,' says Director of Strategy and Accounts Ron Mazier. 'That is partly related to the complexity of doing business with China. The effort you have to put into drawing up contracts and obtaining the money involved in that is not proportional to the return you get.' In practical terms, this means that Wageningen Research has scaled down its efforts in China. Mazier: 'We are not going to invest any more time in it proactively. You can sometimes get the same return elsewhere in Asia for half the investment of time required by a project in China.' For WUR's in-country China office, the cutbacks will mean a halving of the staff.

'China is the elephant in the room. I wonder how long Wageningen is going to carry on hosting a large group of students and PhD candidates who lack academic and social freedom.' ◆ Illustration Valerie Geelen

is partly due to a couple of large joint research programmes WUR has entered into with CAAS (China Academy of Agricultural Sciences) and CAU (China Agricultural University). China is a vast country with big agricultural issues. From the scientific point of view, there are many insights to be gained that are of interest to WUR. But most of the increase in Chinese PhD students is in those on individual scholarships provided by the CSC. This Chinese government agency gives about 9000 scholarships every year to citizens wanting to do a PhD at a foreign university. As the best agricultural university in the world, Wageningen is of interest to the CSC, and its Food and Plant Sciences research in particular attracts many Chinese PhD students.

Bench fee

Another factor is that WUR receives about 80,000 euros from the Dutch state for each PhD completed. At Wageningen, most of that money goes directly to the PhD student's chair group. 'Wageningen has an output-driven model,' says an insider, who wishes to remain anonymous. 'The pressure to perform and deliver is high and so is the incentive to recruit a PhD candidate. A Chinese scholarship PhD is an easy way to do that. And that's how you get opportunism. The PhD business is a massive cash cow.' And that in spite of WUR accepting the fact that the CSC categorically refuses to pay the so-called bench fee in addition to the fellowship. A bench fee is a monthly sum (in this case 1000 euros) that PhDs not employed by WUR have to pay for their tuition. An estimated 80 per cent of Chinese PhDs do not pay a bench fee, which means that WUR misses out on hundreds of

'They do the same work as PhD students who are salaried and get less than the minimum wage for it'

thousands in revenue every month. This refusal to pay bench fees is a thorn in the side of the graduate schools, reveals an internal evaluation by the schools of their cooperation with China. ‘China is a rich country,’ says Johan Feenstra, secretary of WIMEK graduate school (Environmental Science) and one of the people behind the evaluation. ‘Why should they get out of paying that money while others do pay – that’s the objection.’ This disparity is actually being addressed at the national level now. The assumption is that from next year, the CSC will pay an annual bench fee of 10,000 euros per PhD student. But it remains to be seen whether that will happen: China is notoriously difficult to get to pay up. But the payment of bench fees within the CAAS and CAU programmes has been agreed through tough negotiations.

Strong growth

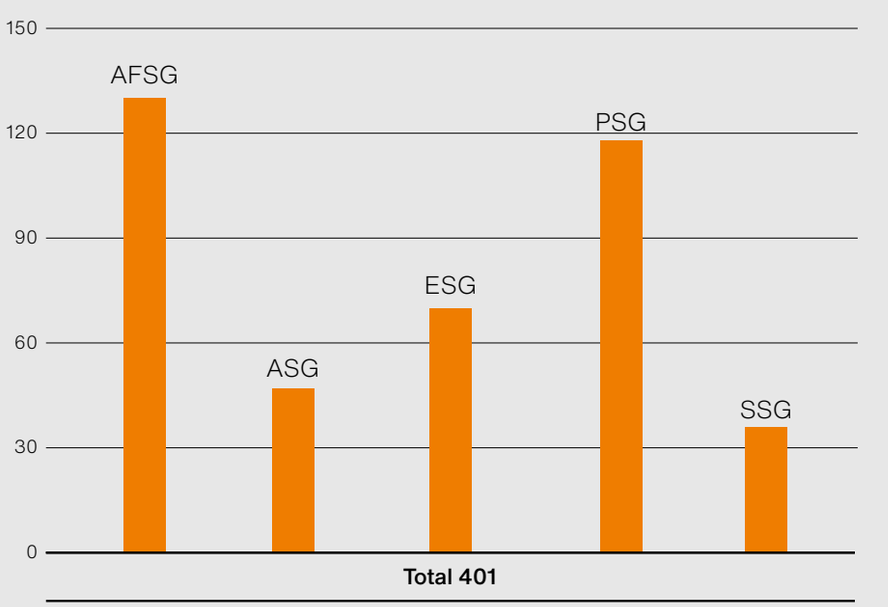
Money matters aside, cooperation with China is problematic for other reasons too, the evaluation notes. Due to strong growth, the proportion of Chinese PhD candidates is becoming very large. Feenstra: ‘Concerns have been raised about maintaining a balanced mix of nationalities and the total number of Chinese PhD candidates. Views differ on this, though. In most chair groups and PhD classes, there is a good mix, but not everywhere. A good balance is crucial for integration and collaboration, and provides the basis for a diverse and inclusive academic environment.’ The evaluation therefore calls for the establishment of criteria on what constitutes a healthy mix.

The evaluation also points out the presence of China’s long arm, mentioning rumours, incidents and stories from the graduate schools about peer control and the role played by the Chinese embassy. ‘Such control mechanisms may exist, but they’re hard to identify and understand as long as PhD students are not free to share their experiences,’ write Feenstra and his colleague Esther Roquas of the WASS (social science) graduate school. In recent months, there have been regular reports in the media about that control and the obligation Chinese PhD students have to report on each other and those they interact with. ‘We in the graduate schools can tell when something isn’t right,’ Roquas says. ‘But we don’t want to talk about it. I think that’s terrible. That’s what motivated me to conduct this evaluation. China is the elephant in the room. I am wondering how long Wageningen is going to carry on hosting a very large group of students and PhD candidates who lack academic and social freedom. Who are scared and can’t speak out. If there are incidents, we can’t investigate them so we can’t talk about them. Things go on in expat communities that we shouldn’t ignore. Having said that, let me emphasize that we have very nice, intelligent Chinese PhD candidates. They are fine, and many of them do well and produce nice dissertations. But there are so many

‘China is the elephant in the room’

‘There are concerns about a balanced mix of nationalities’

Chinese PhD students
(as at 15-11-2022) in the five science groups



‘We are not going to invest any more time in it proactively’

incidents that you mustn’t ignore. Yet that is often what happens.’

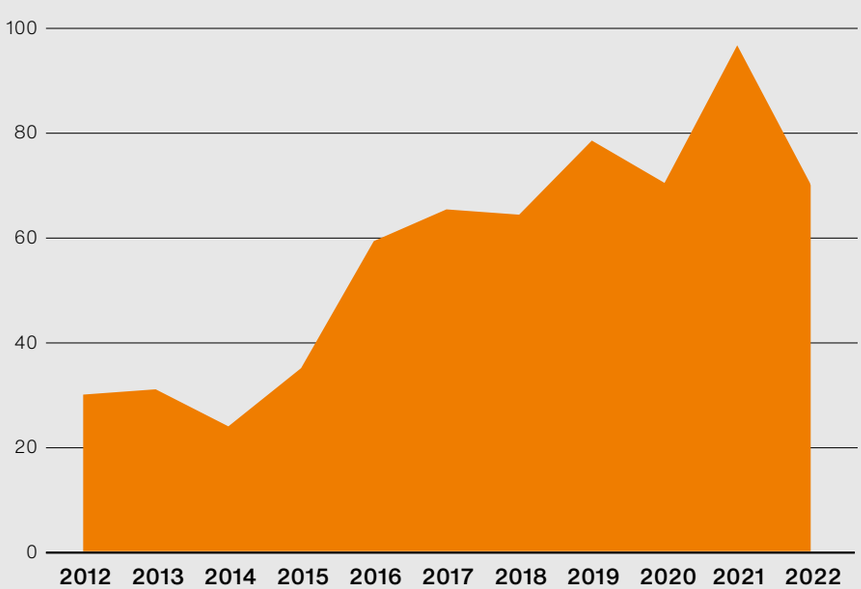
Evaluation

The evaluation – based on interviews with all the graduate school directors as well as others – concludes that there can be no ducking out of an open discussion on the cooperation with China. Other relevant issues include WUR’s (excessive) financial dependence on CSC, geopolitics and the political debate on China in the Netherlands. Internally, that discussion has already taken place, actually – as reflected in the revised China strategy adopted by the Executive Board in December. The Board sees no need to tinker with the existing academic cooperation. ‘Our attitude towards China is not fundamentally different from that to other countries with value systems that are very different to ours.’ The control of PhD candidates and other students by the Chinese government is not seen as a big issue. It is considered important, however, to ensure that scientific data are accessible and freely available to all. But precisely that accessibility is sometimes particularly lacking in social science research, say the graduate schools. For certain topics, for example, it is hard to get hold of reliable and verifiable data, or some data are not accessible to supervisors.

But for the Chinese fellowship PhDs, there is now a glimmer of hope that their financial situation may improve. WUR is looking into whether financial support for them is possible and affordable.

That is not enough for Lennart Beun. He has decided to resign anyway. ‘I have always enjoyed working here. There is mutual respect other and open and honest communication. My work has always been appreciated. But my chair group has CSC PhD students too, so it is part of the system. And I am very disappointed by that. Cheap scholarship PhDs are a business model. The idea behind the PhD bonus is to help make the Netherlands a knowledge economy. Universities are misusing the PhD bonus to train Chinese scientists. In this way, Dutch taxpayers are helping to fund the education of Chinese people. Strictly speaking, it’s legal but I consider it an abuse of the system.’ ■

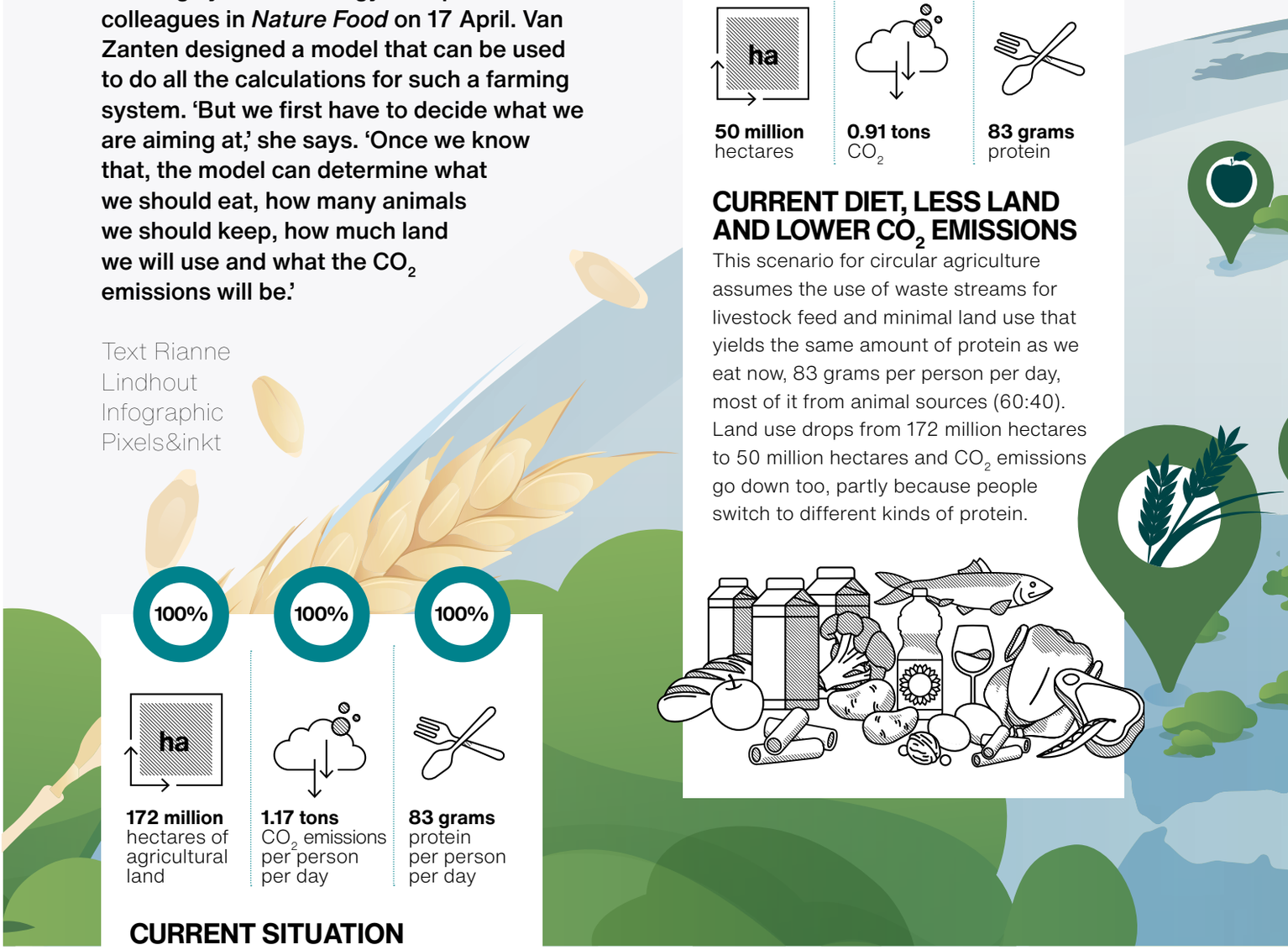
Intake
of Chinese PhD candidates



CIRCULAR AGRICULTURE IN EUROPE

It is possible to grow enough healthy food within a self-sufficient European food system, wrote Hannah van Zanten of the Farming systems Ecology Group and her colleagues in *Nature Food* on 17 April. Van Zanten designed a model that can be used to do all the calculations for such a farming system. 'But we first have to decide what we are aiming at,' she says. 'Once we know that, the model can determine what we should eat, how many animals we should keep, how much land we will use and what the CO_2 emissions will be.'

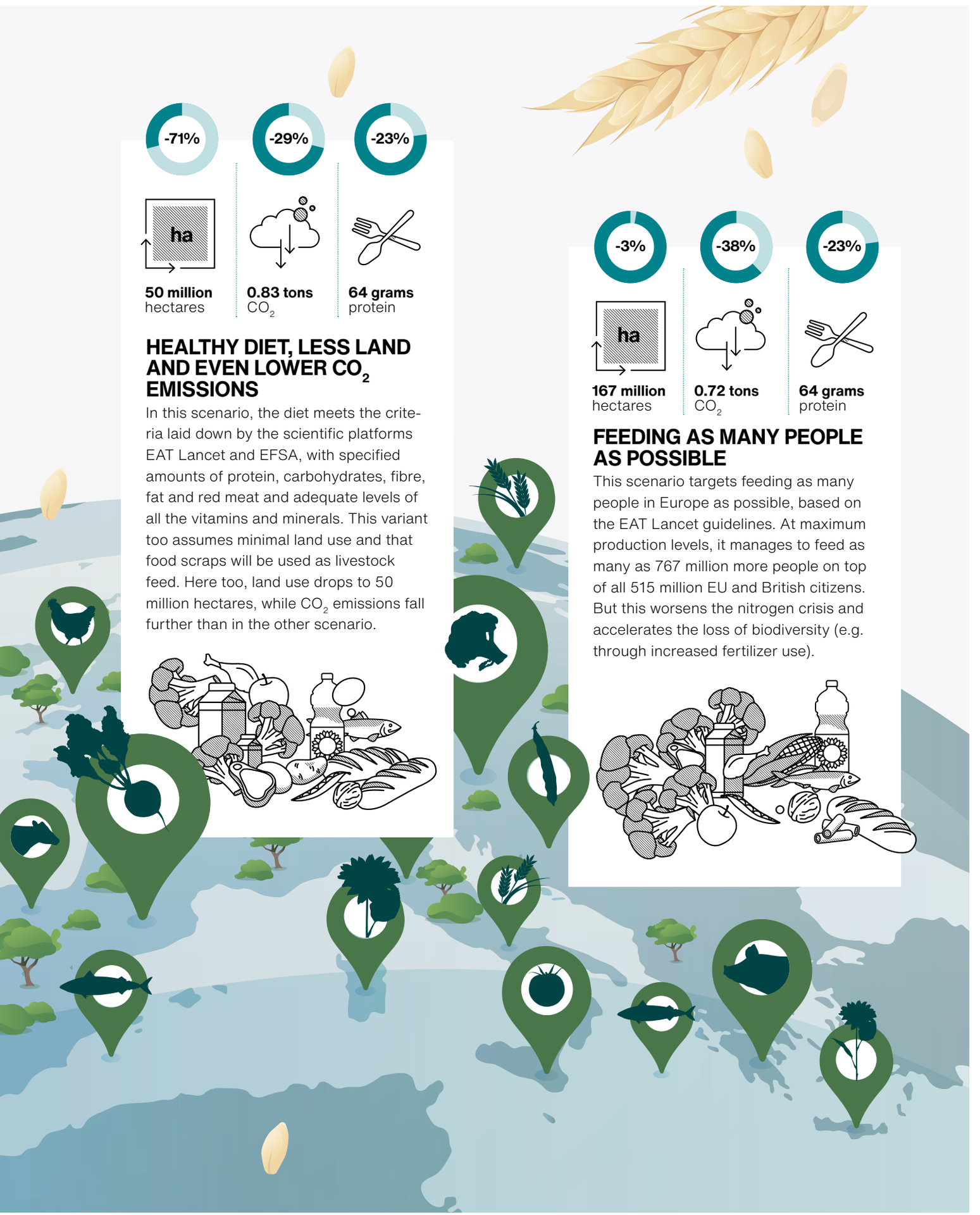
Text Rianne Lindhout
Infographic Pixels&inkt



CURRENT DIET, LESS LAND AND LOWER CO_2 EMISSIONS

This scenario for circular agriculture assumes the use of waste streams for livestock feed and minimal land use that yields the same amount of protein as we eat now, 83 grams per person per day, most of it from animal sources (60:40). Land use drops from 172 million hectares to 50 million hectares and CO_2 emissions go down too, partly because people switch to different kinds of protein.

CURRENT SITUATION



HEALTHY DIET, LESS LAND AND EVEN LOWER CO_2 EMISSIONS

In this scenario, the diet meets the criteria laid down by the scientific platforms EAT Lancet and EFSA, with specified amounts of protein, carbohydrates, fibre, fat and red meat and adequate levels of all the vitamins and minerals. This variant too assumes minimal land use and that food scraps will be used as livestock feed. Here too, land use drops to 50 million hectares, while CO_2 emissions fall further than in the other scenario.

FEEDING AS MANY PEOPLE AS POSSIBLE

This scenario targets feeding as many people in Europe as possible, based on the EAT Lancet guidelines. At maximum production levels, it manages to feed as many as 767 million more people on top of all 515 million EU and British citizens. But this worsens the nitrogen crisis and accelerates the loss of biodiversity (e.g. through increased fertilizer use).

Ex-WUR researcher committed fraud; now there is a court ruling

Fraud = lose your title

For the first time in history, a court has allowed a university to deprive a fraudulent PhD student of his doctorate. The PhD candidate in question was from Wageningen. And that is good news, says rector magnificus Arthur Mol. Text Roelof Kleist • Photo shutterstock

Mol says he was 'momentarily nonplussed' when confronted with the severe case of fraud by P. (see inset) five years ago. As the chair of the Academic Board, he has since been intensively involved in the case.

You tweeted the news about the court's verdict. That draws attention to a case of severe scientific abuse at WUR. Why did you do that?
'I think it is very important that we now have a court ruling showing a university can revoke a doctorate that was granted under false pretences. I also think it is very important that by doing this, we show that we give top priority to scientific integrity. If you do not act with integrity as a scientist, that has consequences. And the ultimate consequence is that you don't get your degree or it is taken away from you. By going through this process, the university shows it takes these things seriously.'

The Academic Board doesn't have the right to revoke the title of doctor. Did you know that when you took this decision?
'No. We were amazed when the counterparty questioned that right. The law states explicitly that the Academic Board can grant a doctorate but does not say explicitly that it can revoke it. Other places have revoked doctorates previously, but that was never disputed. This is the first time there has been a legal dispute about this decision. That is what makes the court ruling so special.'

Was an alternative sanction to revoking the doctorate considered?
'The Academic Board soon reached a unanimous decision that this was the only possible sanction in this case. Data was manipulated on such a large scale, both citations and numbers. All the changes are designed to support the conclusions reached by the PhD candidate; you would get different conclusions if you used the original data. So these aren't human errors, they are deliberate changes. If you do that, you really are undermining everything science stands for.'

The doctoral thesis has been withdrawn by WU. In addition to the thesis, P. has written articles with Wageningen co-authors. Have they also been investigated?
'Yes. And nothing was found, apart from one small error in one of the articles that has been corrected.'

Has P.'s employer been informed?
'When we discovered the fraud, the employer at the time was informed of the suspicions. But we won't be alerting all his future employers. He has lost his title of doctor. If he continues to use it and makes an explicit connection with Wageningen University, I can imagine us taking action.'

'THESE AREN'T HUMAN ERRORS, THEY ARE DELIBERATE CHANGES'

The judges, the Academic Board, the national scientific integrity organization LOWI and a complaints committee all conclude the supervisors were not at fault. Shouldn't they have performed more checks?

'Science isn't possible without basic trust in the scientist. Science has a lot of checking mechanisms and they are needed, but in the final analysis you rely on your trust that other scientists act with integrity. This violation of scientific integrity could only have been prevented if you had sat next to the PhD candidate the whole time to see whether they were copying a citation or number correctly. You can't do that all the time so you need a basis of trust.'

What are the key lessons you draw from this case?

'The importance of teaching people scientific integrity. It was already part of the basic PhD training programme and we will now be doing it in the Master's phase too. This case shows the consequences if you don't act with integrity in science. However, the whole process took a long time, which is extremely frustrating. The articles were available and being used for five years, whereas we knew they were wrong. But there was no alternative. You have to go through all the steps carefully, because of course it is a major consequence.' ■

Caught

Frank (not his real name) sits in his hotel room that evening in 2018 reflecting on a confusing day. He is at a conference in the US. What is troubling him is a workshop he attended that day. German scientists have carried out exactly the same research as his colleague P. His colleague's study shows a clear relationship between rainfall and the number of prisoners in Nigeria in the first half of the previous century. P. obtained his doctorate some six months earlier for research that included this article. But the strange thing is that the German scholars don't find any correlation. They must have made an error. Frank had a lively discussion with them. He knows the study by his colleague P. like the back of his hand. They have worked together intensively for years and were in the same PhD cohort. Frank got his PhD a couple of months after P. Cum laude. And now the Germans are claiming it was all wrong. The next day, a Sunday, he sits down with the German academics. They conclude both parties have used exactly the same source, but P.'s numbers are completely different. They deviate so much from the original file that it can't be a question of sloppiness. Frank tells his supervisor the following day. By the end of the week, a scientific fraud complaint has been submitted to WUR's Scientific Integrity Committee. It decides that P. has committed fraud on a large scale, a conclusion also reached later by the national scientific integrity organization LOWI. He did this not just in one article but in all his thesis articles. In May 2019, the WUR Academic Board published its decision to revoke P.'s doctorate. Last month the court in Arnhem confirmed the Academic Board's decision..

(The names of the people involved have been withheld for privacy reasons. Resource approached P.'s supervisors for their story, but they prefer not to comment at present.)

The study showing a clear relationship between rainfall and the number of prisoners in Nigeria in the first half of the previous century turned out to be wrong. ◆ Photo Shutterstock/Tolu Owoeye

Spiritual tourism can work wonders for nature conservation

CLEANSING THE SOUL

Nature can fill a spiritual void and the tourism industry can capitalize on that, claims an article in *Annals of Tourism Research* co-authored by WUR assistent professor in Forest and Nature Policy Bas Verschuuren.

Text Rianne Lindhout • Foto shutterstock

Verschuuren has been researching people's spiritual connection with nature for years. 'This new research shows that spirituality is a factor in visits to protected areas and that the tourism industry can enhance such experiences.' And not just in China, which the article is about, but in the Netherlands as well: 'Twenty years ago it was not common, but here too people now pay visits to extraordinary old trees, do yoga in natural environments or take part in a shamanic workshop.'

Verschuuren: 'The spiritual dimension that we in the West neglected for a long time is very deeply ingrained in us and plays an important role in our relationship with nature. If tourism makes use of this, spiritual experiences can make visitors and local managers realize the importance of nature conservation.' And that is urgently needed: 'In China's Yunnan province, 90 per cent of the sacred forests have been turned into rubber plantations. The remnants have become the starting point for forest and biodiversity restoration in the region.'

But there is a risky side to spiritual tourism, admits Verschuuren. 'We should not for example let an area where hermits live peacefully in caves get overrun with tourists.' He previously presented international guidelines to help nature managers recognize the cultural and spiritual significance of nature and put that at the heart of the way we protect it. Two years later, those guidelines have been put to good use. 'A ministry in Brazil has already laid on more than 60 workshops and courses for policymakers and nature managers. This summer, we ourselves are hosting a workshop for the FAO, the UN food and agriculture organization, on how to use cultural and spiritual values in managing food systems in mountain areas.'

Researching spirituality

That motivates Verschuuren, in spite of how bad things are looking for nature worldwide. 'Within our Forest and Nature Conservation Policy chair group, we specifically focus on human-nature relations and contribute to social change. Interest is growing, both among the general public and among scientists

Spiritual pyramid

The research that got into *Annals of Tourism Research*, an academic journal on tourism studies, in late February, is by PhD student Shaohua Wang of the University of Girona (Spain), who was supervised by Verschuuren and others. It concerns a pyramid-shaped model of spiritual tourism that Wang tested in interviews with visitors to Chinese nature reserves, policymakers and tourism professionals. At the bottom of the pyramid are people who 'simply visit' a protected nature reserve. Just above them come people who have an unexpected first spiritual experience during their visit. For example, one person reported that hearing stories about people from the past made them think more seriously. At the next level are the people who visit an area with the express aim of having a spiritual experience such as a sense of 'flow', a feeling of being one with nature, or a chance to think about who you really are and what you want in life. One interviewee said: 'It seems that visiting such places can cleanse our souls.' At the top of the pyramid are people who visit nature areas in order to participate in spiritual or religious activities.

and students. In collaboration with the Nature College Foundation, we now teach courses such as Wild Perspectives and Anthropology of Basic Nature Skills, which focus on relational learning in and from nature. And our new associate professor of Human-Nature Relations in the Anthropocene, Maria Tengö, has an important role as a driving force and networker within science, with a focus on positive relationships in the co-production of knowledge.' These developments support the research on spirituality in human-nature relations, says Verschuuren. Research by PhD student Cathrien de Pater, for instance, shows that it is possible to clarify the element of spirituality in relation to forests, for which she developed a conceptual framework similar to Shaohua Wang's pyramid (see inset). 'This type of research is important because it facilitates the analysis and interpretation of spirituality in forest management plans and forest policy.' De Pater and Verschuuren and other researchers recently published their analysis of the spiritual aspects of 10 Canadian and 10 Dutch forest management plans in *Forest Policy and Economics*. Interestingly, spirituality is not only relevant for forest management in areas where indigenous people live, but also here in the Netherlands.

'TWENTY YEARS AGO IT WAS NOT COMMON, BUT EVEN HERE PEOPLE NOW PAY VISITS TO EXTRAORDINARY OLD TREES'

Spiritual policy

Traditional and new knowledge on spirituality can enrich debates on biodiversity loss and climate change, says Verschuuren. In policy circles, there is a growing interest in the role of spirituality in nature management. 'We still have a lot to learn from indigenous people and the role of spirituality in their connection with nature. Many indigenous people are animists to whom places, animals and plants have a unique spiritual essence. That influences how they learn from and interact with their environment. At the UN Biodiversity Summit late last year in Canada, it was agreed that 30 per cent of all land and water should be protected nature by 2030 and that indigenous people have a key role to play in this. However, thanks to the EU and others, no mandatory legal protection of indigenous habitats was agreed on.' Instead, the emphasis was on new protected areas, which are usually less effective. Indigenous habitats alone account for almost 30 per cent of the earth's surface and by some estimates contain approximately 80 per cent of the biodiversity, but they are subjected to deforestation, mining, infrastructural development and agricultural expansion. 'So it is very doubtful whether the recognition of indigenous people and their spirituality will suffice for dealing with this.' ■

Young scientists discuss CRISPR-Cas after *Zembla* programme

‘Scientists are never objective’

Wageningen scientists have been lobbying misleadingly for food that’s been genetically modified with CRISPR-Cas, the Dutch TV programme *Zembla* claimed recently. Young Wageningen scientists met to discuss what was said on *Zembla*, and CRISPR-Cas technology in general.

Text Nicole van 't Wout Hofland

Cutting and pasting in the DNA of plants with CRISPR-Cas technology is a development that scientists, politicians and the general public all have something to say about. And they certainly differ – even the scientists’ views clash. At the instigation of Wageningen Dialogues, some 50 young scientists from Wageningen met in Impulse at the end of April to discuss CRISPR-Cas. *Resource* was there and has drawn up a list of the key points made.

1 Don’t tar CRISPR-Cas and GMO with the same brush

Zembla’s documentary shows the negative effects of genetic modification on crops, yields and soils in South America, where it has been used in agriculture since the 1990s. Some of the dialogue participants felt that the documentary did not differentiate sufficiently between GMO and CRISPR-Cas. One of them commented: ‘I missed any explanation of the difference between transgenesis and cisgenesis.’ In transgenesis, scientists add a piece of DNA from another organism, while cisgenesis entails making small modifications to an organism’s own DNA. ‘The documentary shows the consequences of prolonged use of transgenic crops in Argentina, whereas CRISPR-Cas’s strong point is that it can make small modifications to a crop’s own DNA.’

2 Scientists are human and therefore never objective

Another subject of discussion was the accusation that Wageningen scientists are too positive about CRISPR-Cas and are lobbying for the technology. One participant noted that scientists seem to be expected to be neutral. ‘But scientists are only human and they do have their own political convictions and opinions’. Those participants who work with CRISPR-Cas themselves admitted their enthusiasm for the technology. ‘Since you sincerely believe it to be a useful technique, it is almost impossible to be truly objective,’ said one of the researchers. Others thought they were blinded by their enthusiasm, though. And saw that as a reason to keep on talking to critics and exposing all the pros and cons whenever researchers speak on behalf of the scientific world.

3 Talk about CRISPR-Cas as a technology, not a solution

Various things go wrong when people talk about CRISPR-Cas, suggested some of the young researchers. For instance, urgency and climate change are put forward as reasons for using CRISPR-Cas. ‘With that negative starting point, we paint a picture of a world that’s going to the dogs, and needs saving with this technology.’ Several of the participants criticized the way some people present CRISPR-Cas as a solution. ‘Scientists, politicians and the public should see CRISPR-Cas as a technology, a tool,’ said one researcher. ‘Like any other technology,

Photo a still from the *Zembla* programme

it can produce good and not-so-good results. You can compare it to an internal combustion engine, which powers life-saving ambulances as well as destructive tanks'. According to some, that is precisely the issue. Because the opponents of CRISPR-Cas are not wary of the technology itself, but of how it might be used. 'So we must make sure the public are well-informed about the technology's potential and its limitations.'

4 Don't underestimate the general public

One of the young researchers in Impulse used to be a fierce opponent of GMO. 'It was only when I learned how genetic modification works and what it can achieve that I changed my mind.' So keeping society well informed is crucial. 'But how do you explain something as complex as CRISPR-Cas clearly?' one person wondered. Other researchers pointed out that it is a risky misconception to assume that the public doesn't understand GMOs. 'This not only underestimates society, but also distracts us from what really matters. Which is to start a conversation with the lay public on how we should use the technology, what it means for different groups of people, and who stands to benefit from it.'

5 Make science more tangible and visible

The discussion also threw up the million-dollar question: what is the role of scientists in relation to society? One of the researchers sees this role as that of a guide or a parent. 'You need to be empathetic and in touch. Although it's okay to correct people if they've got their facts wrong, your job is to help them cut their own path through this, and not to push them in a certain direction.' Other participants felt that science and scientists should be more visible to society. 'Make science more tangible by organizing an open day,' suggested one researcher. 'Open up Orion or one of the laboratories and invite people for a guided tour. Have a chat with them over coffee and cake.' One participant drew attention to the option of joining the Science Communication Interest Group for young scientists. The group meets monthly and lays on these kinds of events.

Follow-up

The dialogue will continue in June, when it will delve deeper into the role of scientists, as well as the question of how intellectual property affects the development of techniques such as CRISPR-Cas. ■

The magic of the student challenge

Challenge accepted (again)!

Students love student challenges. Some of them are so keen that they get involved in more than one, undaunted by the amount of time and effort they require. *Resource* asked two serial challengers what inspires them.

Text Luuk Zegers

'Student challenges are addictive,' says Tijmen Visser (27), a Master's student of Biosystems Engineering. He is currently tackling the ReThink Waste Challenge organized by WUR, in which participants are tasked with transforming a waste stream into something of value. 'It could be a waste stream from the construction industry, the textile industry, the food industry, you name it. Each team has to come up with a business plan for an economically viable product. Then a jury of people from the business world studies our plans, looking at things like the social and ecological impact of the idea and what problem it solves. Each team gets 500 euros to work on their project, and the winner gets 6000 euros to actually implement the winning idea as a start-up.' Together with his team, Visser is looking at ways to make micro-proteins using waste streams from the agricultural sector. 'You can convert them into protein extracts for things like protein shakes.' A total of more than 190 students from 72 universities in 33 countries are taking up the challenge. This is not Visser's first challenge, though. In the 2021-2022 academic year, he joined in the third edition of WUR's Greenhouse Challenge, in which participants made plans for a sustainable urban agriculture project in Washington to contribute to a healthy residential environment. 'I was in a Wageningen team. You could see that we had given careful thought to the green aspects of the project: from the selection of suitable plants to ensuring soil diversity and designing the right kinds of greenhouses. On the other hand, other teams from universities with schools of architecture had much sleeker designs. There are also differences between teams who put their studies on hold for months to participate in a challenge and teams like us who just carry on studying fulltime and work on the challenge in free hours.'

Pizza

Visser's team meets every Tuesday, Thursday and Friday for the ReThink Waste Challenge. 'And sometimes we meet in the evening over a pizza.' It's a substantial time commitment, Visser says. 'You have to set clear boundaries, otherwise you can get completely swallowed up by it. But if you are really excited about a subject and you're working on it with a team in a positive spirit, it energizes you rather than sapping your energy.' Master's student of International Land and Water Management David Mornout (24) has taken part in two challenges too. And he didn't leave it at that: he then became a student assistant at WUR Student Challenges. 'When you take part in a student challenge, you work in a team on a project that you really like and that's on a topic you might want to work on later in your career. You are

Five years of Wageningen student challenges

- WUR Student Challenges was established in 2017 and has since organized 16 challenges;
- To date, 2,276 students have participated in the challenges in 370 teams;
- 614 of the participants were WUR students; the others came from 249 other universities in 67 countries;
- 8.3 per cent of WUR respondents to the National Alumni Survey of 2021 had participated in a student challenge; 97 per cent of these students found it (very) rewarding;
- Seven student challenge teams went on to start a company, and one a foundation.

guided by a mentor or coach who knows their stuff. You get to know people and you might even win a prize. If you ask me, that's a brilliant learning environment.'

Designing campus

The first challenge Mornout took part in kicked off with a trip to Hainan in China for him and nine other WUR students. 'That was the A5 Student Challenge of the Agrifood 5 Alliance, a partnership between WUR and universities from America, China and Brazil. All the universities took a group of students to Hainan, where five Chinese universities wanted to develop a joint sustainable campus,' says Mornout. The students were divided into small teams with one person from each university. Mornout: 'All the team members had their own areas of expertise. My main focus was on how best to fit the campus into the landscape.'

After the kick-off, Mornout spent six months working online with teammates from China, America and Brazil, to figure out a plan. 'The idea was that we would all fly back to Hainan for the finals. But because of the Covid pandemic, we had to do that online. It was a great experience, to help design a campus as a rookie in an international, interdisciplinary team. And to see China – that was really special.'

Experimenting

As a student assistant for the Nature Based Solutions Challenge, Mornout saw the challenge from a new angle. 'I helped search for sponsors and partners and plan what the challenge should look like. You learn a lot from that. The beauty of this educational approach: if it doesn't work, it's not a disaster and if it does work, it's terrific. Some participants start a business after the challenge.'

Professor of Education and Learning Sciences Perry den Brok sees student challenges as a positive development. 'As a university, we want our graduates to be well equipped for a future with big, complex, international challenges. This approach is a good way to start working on that. Students work on real problems, make substantive connections between different disciplines, learn to cooperate and be entrepreneurial. These are all competences they can put to good use later on.' ■

'If it doesn't work, it's not a disaster and if it does work, it's great'

Visiting a theme park in Hainan (China) to get inspiration for the design of the ideal campus. From left to right: Danielle Street (Cornell), Cui Yongqin (HNU), David Mornout (WUR), Joao Camargo (USP), Feng Yuan (UCD) and the team's mentor Professor Rebecca Nelson ◆ Own Photo

Wageningen ELSA lab develops, human-centred artificial intelligence

‘Human intelligence is nothing like AI’

With a 2.2 million euro grant from the Dutch Research Council NWO, the Artificial Intelligence for Sustainable Food Systems project, ‘AI4SFS’, led by professor of philosophy Vincent Blok, seeks to bridge the divide between the scientists eagerly embracing artificial intelligence and a society that has grave doubts about it.

Text Rob Buiter • Photo Jeroen Bouman (portraits Guy Ackermans)

Vincent Blok, the new professor of Philosophy of Technology and Responsible Innovation, tells it like it is: ‘Artificial intelligence is here to stay, whether we like it or not.’ But Blok does not close his eyes to the resistance that ‘AI’ evokes. ‘People have no wish to share their personal data with anonymous computers, or they are afraid that machines will take over all their work. And on the other hand, there are the people who think it is terrific and mainly see the opportunities. You could see that recently, for example, when the US company Open AI launched the now famous – or infamous – app ChatGPT. Students embraced it right away as a potential aid for writing theses, while lecturers worried about the authenticity of texts’.

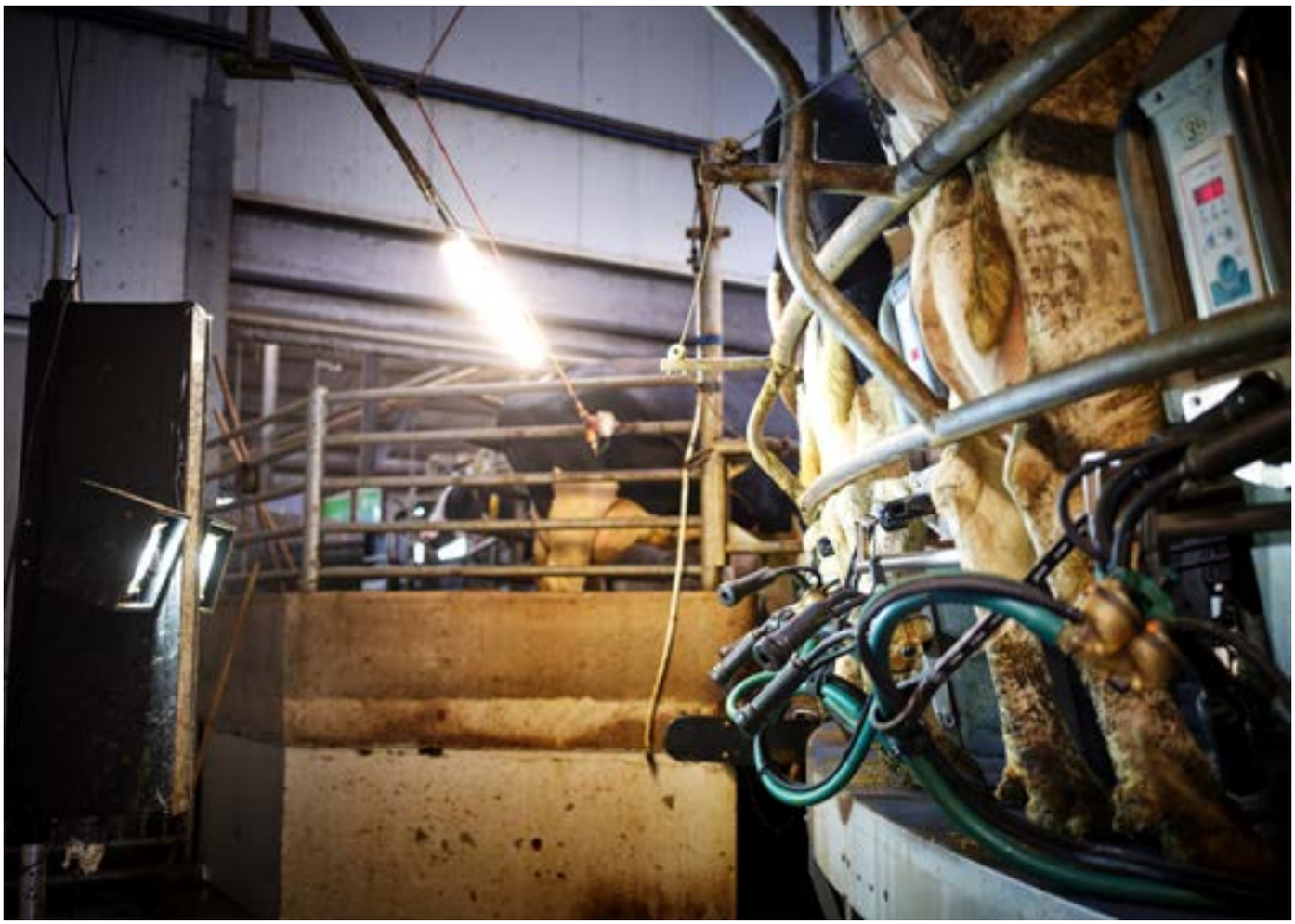
In view of the rising tensions between the proponents and opponents of its technology, Open AI recently proposed we all take a six-month ‘breathing space’. Blok thinks that’s a bit extreme. ‘It suggests that human and artificial intelligence are similar, but they are not. Artificial intelligence makes correlations on a scale and at a speed that humans cannot match. Very useful, but they remain correlations based on big data, nothing more and nothing less. Human intelligence truly will always be incomparable.’

Blok notices that the most enthusiastic proponents of artificial intelligence are people working in the natural and technical sciences. The objections raised to it are largely of an ethical, legal or socio-political nature. ‘So when NWO launched a call for projects in the field of artificial intelligence, my then colleague Simone van der Burg and I saw it as an excellent opportunity. As philosophers, we are in a position to make the connection between technology and society in the field of food production and consumption. And we can start building that bridge now in what we call an ELSA lab, where the ethical, legal and social aspects of AI are studied.’

Smart milking robot

In the domain of food production and consumption, the social issues regarding AI are staring you in the face, says Blok. ‘For a start,

They remain correlations based on big data, nothing more and nothing less’



'A farmer with 100 cows used to have to take blanket measures, but an intelligent milking robot can make a big difference to that.'

look at the industrialization and instrumentalization of our food production. Many people think that animals and ultimately perhaps even consumers have become mere instruments in a vast industrial process. And if that's how you see it, then AI is just one more step towards further industrialization of food production.'

But there are other possible angles to take, in Blok's view. 'A farmer with 100 cows generally used to have to take blanket measures, but an intelligent milking robot can make a big difference to that. For example, when "Jannie 38" is being milked, a milking robot can also detect that this cow may have the beginnings of an udder infection. Like that, a robot of this kind can combine milk production with veterinary diagnostics. So AI can be a manifestation of a bio-industry taken to extremes, but it can also support a progressive, sustainable method of milk production and good, individualized care for farm animals. AI can serve industrialization without any concern for humans and animals, but as a technology, it can also be used to safeguard the interests of humans and animals as industrialization intensifies.'

'People must still be the orchestrators of artificial intelligence'

Tray

The smart milking robot case study is one of the first six specific examples that will be studied at Blok and his colleagues' ELSA lab. In another example, Guido Camps and his colleagues at Human Nutrition's Hungry Robot Lab are looking at the food consumption side of things. 'Among other things, we have developed trays with built-in sensors that record what you eat and how much. We can also use cameras to record how long you chew on a particular mouthful of food.'

And that information is where the added value of the ELSA lab comes in, says Camps. 'In terms of privacy,

Irregular Opening Hours May 2023

Forum

		Building	Library	Student Service Centre	ServicePoint IT	Restaurant	Grand Café	Wageningen in'to Languages
Ascencion Day	**18 May**	10 am - 6 pm	closed	closed	closed	closed	closed	closed
Friday	**19 May**	8 am - 11 pm	8 am - 10 pm	closed	8:30 am - 5 pm	closed	closed	desk in Forum closed*
Saturday	**20 May**	10 am - 6 pm	10 am - 6 pm	closed	closed	closed	closed	closed
Sunday	**21 May**	10 am - 6 pm	10 am - 6 pm	closed	closed	closed	closed	closed
Monday	**22 May**	8 am - 11 pm	8 am - 10 pm	10 am - 2:30 pm	8:30 am - 5 pm	9 am - 3 pm	8 am - 5 pm	10 am - 2 pm*
Tuesday	**23 May**	8 am - 11 pm	8 am - 10 pm	10 am - 2:30 pm	8:30 am - 5 pm	9 am - 3 pm	8 am - 5 pm	10 am - 2 pm*
Wednesday	**24 May**	8 am - 11 pm	8 am - 10 pm	10 am - 2:30 pm	8:30 am - 5 pm	9 am - 3 pm	8 am - 5 pm	10 am - 2 pm*
Thursday	**25 May**	8 am - 11 pm	8 am - 10 pm	10 am - 2:30 pm	8:30 am - 5 pm	9 am - 3 pm	8 am - 5 pm	10 am - 2 pm*
Friday	**26 May**	8 am - 11 pm	8 am - 10 pm	10 am - 2:30 pm	8:30 am - 5 pm	9 am - 2 pm	8 am - 5 pm	10 am - 2 pm*
Saturday	**27 May**	10 am - 6 pm	10 am - 6 pm	closed	closed	closed	closed	closed
Whit Sunday	**28 May**	closed	closed	closed	closed	closed	closed	closed
Whit Monday	**29 May**	10 am - 6 pm	10 am - 6 pm	closed	closed	closed	closed	closed

*Online desk open 9 am - 5 pm

Orion

		Building	Bike basement	The Spot	Restaurant
Ascencion Day	**18 May**	closed	closed	closed	closed
Friday	**19 May**	8 am - 6 pm	8 am - 9 pm	8 am - 8 pm	11:30 am - 2 pm
Saturday	**20 May**	closed	closed	closed	closed
Sunday	**21 May**	closed	closed	closed	closed
Monday	**22 May**	8 am - 7 pm	8 am - 9 pm	8 am - 8 pm	11:30 am - 2 pm
Tuesday	**23 May**	8 am - 7 pm	8 am - 9 pm	8 am - 8 pm	11:30 am - 2 pm
Wednesday	**24 May**	8 am - 7 pm	8 am - 9 pm	8 am - 8 pm	11:30 am - 2 pm
Thursday	**25 May**	8 am - 7 pm	8 am - 9 pm	8 am - 8 pm	11:30 am - 2 pm
Friday	**26 May**	8 am - 6 pm	8 am - 9 pm	8 am - 8 pm	11:30 am - 2 pm
Saturday	**27 May**	closed	closed	closed	closed
Whit Sunday	**28 May**	closed	closed	closed	closed
Whit Monday	**29 May**	closed	closed	closed	closed

Aurora

		Building	Bike basement	Your Barista
Ascencion Day	**18 May**	closed	closed	closed
Friday	**19 May**	8 am - 6 pm	8 am - 6 pm	8 am - 4 pm
Saturday	**20 May**	closed	closed	closed
Sunday	**21 May**	closed	closed	closed
Monday	**22 May**	8 am - 7 pm	8 am - 7 pm	8 am - 4 pm
Tuesday	**23 May**	8 am - 7 pm	8 am - 7 pm	8 am - 4 pm
Wednesday	**24 May**	8 am - 7 pm	8 am - 7 pm	8 am - 4 pm
Thursday	**25 May**	8 am - 7 pm	8 am - 7 pm	8 am - 4 pm
Friday	**26 May**	8 am - 6 pm	8 am - 6 pm	8 am - 4 pm
Saturday	**27 May**	closed	closed	closed
Whit Sunday	**28 May**	closed	closed	closed
Whit Monday	**29 May**	closed	closed	closed

Leeuwenborch

		Building	Coffee Bar / Restaurant	Library
Ascencion Day	**18 May**	closed	closed	closed
Friday	**19 May**	7 am - 6 pm	8:30 am - 2 pm	8:30 am - 6 pm
Saturday	**20 May**	10 am - 5 pm	closed	closed
Sunday	**21 May**	closed	closed	closed
Monday	**22 May**	7 am - 10 pm	8:30 am - 2 pm	8:30 am - 6 pm
Tuesday	**23 May**	7 am - 10 pm	8:30 am - 2 pm	8:30 am - 6 pm
Wednesday	**24 May**	7 am - 10 pm	8:30 am - 2 pm	8:30 am - 6 pm
Thursday	**25 May**	7 am - 10 pm	8:30 am - 2 pm	8:30 am - 6 pm
Friday	**26 May**	7 am - 10 pm	8:30 am - 2 pm	8:30 am - 6 pm
Saturday	**27 May**	10 am - 5 pm	closed	closed
Whit Sunday	**28 May**	closed	closed	closed
Whit Monday	**29 May**	closed	closed	closed

WAGENINGEN
UNIVERSITY & RESEARCH

‘We’d better steer it in a direction we find acceptable’

‘You have to consider how to keep such information away from health insurers’

people might not be too pleased about footage of their chewing faces disappearing into our database. But that doesn’t have to happen. To analyse chewing, we only need images of a few points on the corners of the mouth, the eyes or other coordinates of the face. So we didn’t fit our systems with the common ‘Raspberry Pi’ minicomputers found in many smart devices these days, but with a more powerful Jetson nano. That can process the images of the face instantly and store only the data points without the entire face.’
Camps expects that this detailed recording of consumption patterns will primarily be of use in nutrition research and in healthcare. ‘You can imagine that for patients in rehab or who’ve just had an operation, it is important to know how much protein they’re getting. Their recovery depends on that. For “ordinary” consumers who want to record their healthy eating habits, I think there will be simpler systems in future, using the cameras in phones or on smart watches. But even there, you have to give careful thought to how you keep that kind of information away from certain parties – like health insurance companies, say.’

Tall stories

With each of his six case studies, like the smart milking robot and the tray that records your eating behaviour, philosopher Blok takes two perspectives. ‘On the one hand, we are looking at individual applications, such as the milking robot. It’s got to be crystal clear to the dairy farmer, for example, what information the milking robot collects and who it is shared with and how. People should always be centre-stage, as users and as designers. People must still be the orchestrators of artificial intelligence. That’s the only way to avoid tall stories about computers becoming autonomous and taking over.’

Disruptive technology

Blok’s second vantage point is that of the proverbial helicopter, with an overview of society. ‘That shows you that in many cases AI is now at the service of powerful companies whose main interest is in their own business model. And then you encounter the concerns of employees worried about losing their jobs, or politicians afraid that power will be concentrated among big players in the economy. Philosophy is pre-eminently the discipline that can bridge the divide between those echelons too.’
Looking at historic precedents, Blok predicts that AI will be at least as disruptive as the invention of printing, the steam engine or electricity. ‘These too were all developments that had a massive impact on everyday life. Just try to imagine a society without books or without industrialization. It’s almost impossible to do that. Similarly, artificial intelligence will drastically change the way we live and work. But personally, I am not too pessimistic about the direction this development will go in. As long as we don’t stop thinking carefully about the place of machines in relation to humans as the essential orchestrators.’
Ultimately, Blok hopes that the ELSA lab in Wageningen will become the place where technology, economics and ethics come together. ‘From the One WUR point of view, it would be great if our lab can help bridge the gap between technology and society. And if anyone with questions about the ethical use of artificial intelligence could come to us.’ ■

Vincent Blok
Professor of Philosophy of Technology and Responsible Innovation

Guido Camps
Vet and researcher at Human Nutrition and OnePlanet

THE SIDE JOB

You've got to make ends meet somehow. We can all borrow from Uncle Duo, but there are also students who earn money from unusual side jobs, like Jari Gaarenstroom (24), a Master's student of Forest and Nature Conservation. As a 'video ranger', Jari makes videos about the animal kingdom for Burgers' Zoo in Arnhem.

Text Steven Snijders

Video ranger Jari films animal

Who: Jari Gaarenstroom
What: vlogger for Burgers' Zoo
Why? Jari makes videos to share his passion for nature
Hourly wage: €11.00

'In the Burgers' Zoo videos, I share my passion for nature. I find nature incredibly interesting and versatile. I take my viewers to places in the zoo that the average visitor doesn't get to, such as the capybara enclosure. Capybaras are the world's biggest rodents. Or behind the scenes of the "Ocean", an aquarium that recreates a tropical sea.

'You hold up a stick and start talking to it'

I always film together with a zookeeper. As I film, they feed the animals and talk about their characteristics and peculiarities, teaching me, and the viewer with me, new things about the animal kingdom. If you can put it across well, there is something magical about nature, especially for children. Burgers' Zoo has divided the park into different eco-displays, in which ecosystems have been simulated with great expertise. Visitors learn how amazing nature can be, but also how vulnerable it is. My aim in the videos is to bring people and nature closer together. I hope this will help to convince the general public of the importance of nature conservation. I make the vlogs and TikToks with a whole team: there is usually a readymade script, and I'm surrounded by camera operators. I sometimes think up my own topics too.

I didn't have any experience before starting as a video ranger at Burgers' Zoo. You need self-confidence to be a presenter – you've got to do it with conviction. So before my first video at the zoo, I practised vlogging in a shopping mall, ha ha! That did feel silly at first – you hold up a stick and start talking to it. But it did help! I hope more opportunities will come my way in future, as I have ambitions to carry on with this sort of thing. I dream of one day having my own TV show about nature. Freek Vonk is a hero, of course, but I don't want to copy him. I want to be myself and create my own TV personality. That's what I'm exploring and developing now.'

You can follow Jari online on his personal channels (TikTok, Insta, YouTube) under the name @jarigaarenstroom.

As a video ranger, Jari shares his passion for nature ◆ Photo Mira Meijer.

Do you have an unusual side job or know someone else who does? Send an email to steven.snijders@wur.nl

Colophon

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

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The pop-up park put up by the Wageningen New Mobility Action Group last April in the Radix car park was sawn to pieces and removed within a day ◆ Photo *Resource*

NEW MOOC: BREAKING UP PEACEFUL PROTESTS

How can universities discourage activist students? This is the key question addressed in the new MOOC 'Breaking Up Peaceful Student Protests on Global Socio-Environmental Challenges'.

The course was developed in partnership with Groningen University, Erasmus University in Rotterdam and the University of Amsterdam. The partner universities will give guest lectures on topics such as ending the peaceful occupation of university buildings by students. 'If you are tactically smart and keep on at them long enough, the police will come in the end,' says Groningen guest lecturer Jouke de Fiets. 'Police officers usually rather enjoy pulling students off the stairs by their ankles.'

In his experience, universities don't need to worry about bad press. 'You can trust the strong arm of the law to downplay the situation. Even if a lecturer is black and blue from the blows, the police will still tell the press the violence used was negligible.'

Applied research by his Rotterdam colleague Kate El Bynk supports this conclusion. She also has a tip. 'Drop a hint to the police that there might be members of Extinction Rebellion, Occupy or Greenpeace among the demonstrators. That gives them a great excuse to intervene early and take a hard line. In our case, they said "Perhaps we intervened too early, but that also means it can't get out of hand". Brilliant, don't you think?'

'This series of lectures is not for people who are upright when it comes to their principles'

Wageningen experts will be in charge of the practical activities. They include sawing through activist equipment, unblindfolding statues at speed (who can set a new Wageningen record?!) and kowtowing to the fossil-fuel and meat industries. 'Participants will be expected to demonstrate sufficient flexibility in a physical test,' explains Professional Education coordinator Ben de Zaak. 'This series of lectures is not for people who are upright or straight as a die when it comes to their principles.'