

WUR in the Guggenheim

Wageningen input for exhibition | **p.6** |

Physics to detect fraud?

Prof. Joost Pennings knows how | **p.7** |

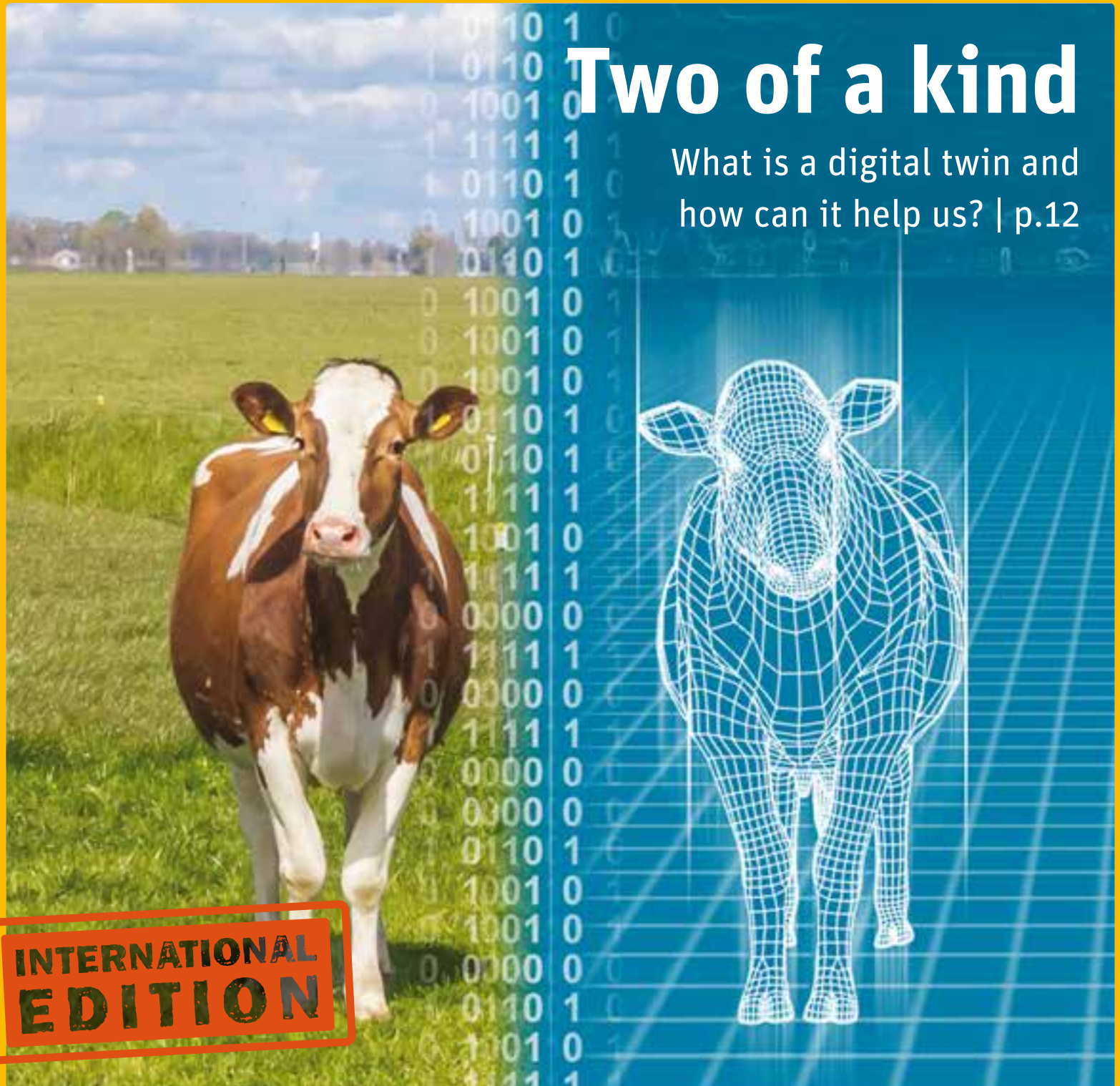
Lenzholzer on landscape

'It is all interconnected' | **p.18** |

RESOURCE [EN]

For everyone at Wageningen University & Research

no 12 – 27 February 2020 – 14th Volume



Two of a kind

What is a digital twin and how can it help us? | p.12


**INTERNATIONAL
EDITION**

Pieter + Hemotek Feeder

WUR researchers work with all kinds of equipment.
Meet Pieter Rouweler, head of insect rearing at Radix



FEEDING MOSQUITOES WITH HUMAN BLOOD

Malaria research requires a lot of mosquitoes. The Entomology Laboratory's insect centre breeds them in a climate chamber in Radix Klima. On the menu as their feed are sugar water and human blood: the female mosquitoes need the blood to lay their eggs in. Rouweler uses a feeder heated to 37°C as a model for the human body. To get to the blood, the mosquitoes have to pierce a parafilm (the 'skin'). A sock with added sweat odour and blasts of CO₂ ('breath') make the simulation complete.  RK, photo Sven Menschel

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50 SHADES OF GREEN

Overview of green student clubs

BLAST FROM THE PAST

'I have to be at the LUW some day soon — how about I drop in?' A sentence from the email I got yesterday from my uncle, who studied here and wanted to pop into the office for a chat. It took me a moment before it clicked: LUW is the Dutch abbreviation for 'Wageningen Agricultural University'. That's a blast from the past. The times they are a-changin', as you can see in this issue. The main article (page 12) is on digital twins, self-learning models in which WUR is investing four million euros. Now we can look forward to the first digital twin of a tomato plant. Page 22 has a feature on how farmers have discovered social media as a tool for influencing politicians and the general public. WUR researcher Tim Stevens studied this phenomenon. On the subject of change, the new workstation arrangements (myWURspace) have sparked heated debate, including on our website where many comments are quite scathing. The switch from LUW to Wageningen University was a big step at the time. The big step now is the switch to myWURspace. The times they are a-changin'... At any rate, we are planning a *Resource* lunch debate on the topic on 16 March; details to follow. For now, enjoy this issue.

Willem Andrée, editor-in-chief

AND MORE...

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>> Calves on large farms are no better off or worse off than calves on small farms, PhD candidate John Barry concludes on the basis of his research. | p.10



THE WUR COUNCIL: WHAT'S IN IT FOR ME?

In a series of four articles, *Resource* talks to members of WUR's consultative bodies. People have until 22 April to nominate themselves as a candidate. The elections will run from 2 to 6 June 2020.

Part 1: Ton Bisseling, professor of Molecular Biology: 'Choose the subjects where you want to make a difference.'

'PROFESSORS IN THE COUNCIL (OR NOT?)'

Wageningen has not had professors in its consultative bodies for years. They 'have better things to do'. But Ton Bisseling, professor of Molecular Biology, decided over 15 years ago to join the Plant consultative body and the Central Works Council. A decision he has never regretted. 'I still remember the stacks of paper I was given. You do need to be able to separate out the key issues from the side issues. But as a professor you have a

lot of influence because you know how teaching and research goes and you have a good idea of the effect a policy will have on the university. The directors know that too so they take you seriously.'

Bisseling in turn learned a lot about the WUR organization through the consultative bodies. 'I learned about the research and funding of Wageningen Research and all aspects of the applied, practical research. You develop respect for other parts of the organization and it makes you better informed when setting up collaborative projects.' Bisseling found his three years on the consultative bodies excellent preparation for the position of research director of EPS, which he held for the next 12 years. 'I never got bored in the council. I think it would be really good if professors could be in the consultative bodies to have a say on tenure track, work pressure, how extra funding for science is spent and English-language teaching. My advice, however, is to choose the subjects where you want to make a difference.' **AS**



VICI GRANTS FOR TESTERINK AND ETTEMA

Wageningen researchers Thijs Ettema and Christa Testerink have each secured a Vici grant of one and a half million euros from the Dutch Research Council (NWO). The Vici grants let experienced researchers develop innovative lines of research.

Christa Testerink, professor of Plant Physiology, will study how plant growth and development is inhibited when there is a lack of water or only salt water. Plants try to resolve this problem by changing the way the roots grow or when the plant flowers. Testerink wants to know what makes this flexibility possible and how it contributes to crops' stress tolerance.

COMPLEX LIFE

Professor of Microbiology Thijs Ettema studies the origins of complex life on earth. Plants and animals evolved from single-celled microorganisms. Recent research has shown that Asgard archaea, a group of unicellular organisms, are related to complex cell life forms. Ettema will study the physiology and cell biology of these archaea in order to get a better understanding of the origins of complex life.

INNOVATIVE

Testerink and Ettema are relatively new professors in Wageningen. They will be able to use the 1.5 million euro grants to set up their own research groups. The Vici grants are part of NWO's innovation incentive scheme. The funding council also hands out Veni grants to talented young researchers and Vidi grants to experienced postdocs. This time round, NWO gave a total of 32 Vici grants to researchers at Dutch universities and medical research centres. **AS**



PHOTO: SHUTTERSTOCK.COM

CELEBRATING FREEDOM WITH BEER

These days it is standard practice to mark an event with a specially brewed beer. Wageningen could do that too, thought Joppe Boon when he was at the festivities to mark Operation Market Garden last September in Eind-

hoven. 'Eindhoven Brewery was selling beer in five bottles with the faces of prominent liberators on the labels.'

Boon contacted the local brewery Stadsbrouwerij Wageningen with his idea. The brewery worked with the Liberation Festival organizers to design a new beer: Road to Freedom. The first bottle of the brew was handed to Wageningen's mayor Geert van Rumund last Thursday in Hotel De Wereld. The date was no coincidence: 20 February was precisely 75 days before the 75th Liberation Festival kicks off.

The beer itself is a top-fermenting pale ale with an alcohol content of 7 per cent. Almost all the ingredients come from Wageningen: the water is local tap water and the barley comes from Graangeluk and is grown in Wageningen. The hop used is an American product called 'Liberty'. Stadsbrouwerij has brewed 2000 litres of the special beer. And it's a question of while stocks last, according to the brewery, as there was no more local barley available. **RK**



WUR EMPLOYEE STARTS INTERIM YEAR FUND

Students who are not sure what to study, can take an interim year programme to find out what suits them. But not everyone can pay for such a programme. That is why WUR information officer Hermien Miltenburg has set up the Interim Year fund.

'Inequality of opportunity is increasing again in the Netherlands. Education is supposed to reduce that inequality, but you do then need to know what you want to study,' says Hermien Miltenburg, who will retire in a few weeks. 'A number of academic and applied universities offer interim-year programmes. Participants spend two or three days a week on intensive ex-

'Everyone gains from students ending up in the right place'

ercises to discover what degree or job would suit them. It's good such programmes exist because 20 per cent of students stop in their first year. If you don't know what to do want next, you have a problem.'

RICH PARENTS

Interim-year programmes are expensive. Miltenburg: 'That is not a problem for young people with rich parents but there are also youngsters who can't afford it. The Interim Year fund can help this group. The fund covers half the costs of an interim-year programme. Students have to find the money for the other



▲ Prospective students and parents attend an open day.

half themselves. But most programmes are two or three days a week so they can just get a part-time job'.

The fund is currently being financed mainly by Miltenburg herself. 'I earned some money by giving training courses for student counsellors. That's enough to sponsor two or three prospective students. I am also a co-organizer of the Interim Year Fair on 26 March. The admission fee for that will be added to the fund.'

FINANCE

Eventually, Miltenburg wants to investigate other forms of financing such as crowdfunding. 'In the final analysis, everyone gains from students ending up in the right place: the students themselves, their parents and society at large. Motivated students are less likely to get behind in their studies and use up less of the subsidy for studying. They go on to become motivated, well-educated professionals. The Netherlands Inc. needs such people.' **LZ**

AULA SALE LAWSUIT

The Noordereng Group wants the courts to force WUR to reconsider its sale of the Aula to rival group BOEi/Van Swaay. Noordereng claims the assessment was not objective.

The Noordereng Group spokesman Gerben Kuipers announced this decision. He says Noordereng is angry because it is not clear why the group's plan for the Aula was rejected. Noordereng and BOEi/Van Swaay were both in the race to purchase the Aula on Generaal Foulkesweg in Wageningen and redevelop the building and surrounding land. WUR initially expressed a preference for Noordereng's plan to turn the Aula into a debating centre but it changed its tune after the two parties produced amended plans.

They had done this because Wageningen's municipal executive preferred the BOEi/Van Swaay plan to turn the Aula into a cinema. BOEi/Van Swaay made significant changes to its plan and won the competition. Kuipers said it was not clear why Noordereng lost.

EXTRACT ANSWERS

When Kuipers asked for more information, he did not get a satisfactory answer and now he wants the courts to extract those answers. According to Kuipers, this could even result in a reassessment of the plans. WUR spokesman Simon Vink says that the documents it has been sent will be studied. 'We will respond to the Noordereng Group and their lawyer in due course.' **RK**

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What pension?

Everyone employed by the university automatically builds up a pension with ABP. I had a look recently and it turns out all my contributions to date will get me the massive post-tax sum of 200 euros a month after I retire. Last November, minister of Social Affairs Wouter Koolmees came with good news for pension recipients: pension funds would be given yet more time to restore their finances (the umpteenth extension granted by a minister). Jubilation all round among trade unions and pensioners, despite ABP's current funding ratio of about 94 per cent.

'My generation is too busy to worry about it'

Almost no one in my generation is worried about this — we are all too busy with our careers, kids and homes. That is why you never hear a peep from them, not when there is news about the funding ratio nor when the recovery period is extended. But it is younger employees whose pensions are being sacrificed because a cut in benefits is invariably deemed politically sensitive. Can't we do something about this? The most logical route would be ABP's accountability body, which advises the board on policy and the consequences for pension fund members. But guess who is in that accountability body. Only 18 of the 45 members represent employees (the rest represent employers and pensioners). Of that 18, 13 represent a trade union. The same trade unions that never want cuts because their rank and file are over 55 on average. No wonder pensions are never reduced.

I hope there will still be something left of my 200 euros in 30 years' time. **I**

Guido Camps (36) is a vet and a postdoc at the Human Nutrition department. He enjoys baking, beekeeping and unusual animals.



WUR PROMINENT IN THE GUGGENHEIM

The exhibition *Countryside, The Future*, which opened on 20 February in the Guggenheim museum in New York, relies heavily on Wageningen's contribution.

WUR was represented at the opening by philosopher Clemens Driessen (Cultural Geography) and Lenora Ditzler (Farming Systems Ecology). They coordinated the Wageningen input in the exhibition, which was curated by the architect Rem Koolhaas. Koolhaas exhibits the developments taking place in the countryside in the spiral 'rotunda' of the Guggenheim. Agriculture is one of those developments.

TWO MEANINGS

The title *Countryside, the Future* has two meanings, according to Driessen. 'It's about the developments in the countryside, as well as their significance for the future of the world. It's about the relationship between city and country, how things are part of a larger whole, and what that means. Artists and architects look at it in a different way to scientists.' Preparations for the exhibition started over four years ago, when

Rem Koolhaas came to the campus at the invitation of WUR president Louise Fresco. Since then, Koolhaas and his team have spent four days on the campus to orientate themselves. A group of ACT (Academic Consultancy Training) students compiled an overview of the latest developments in research and technology at WUR. Gradually, says Driessen, a story emerged for Koolhaas.

But agricultural technology in a museum? Is that art? 'It reminds me of the urinal (*The Fountain*) with which Marcel Duchamps shocked the art world in 1917,' says Driessen. 'Taking things out of their usual context has an alienating effect. But it is also about creating a podium to show how important agriculture is, and to put it in the broader perspective of the latest developments. It's about paying attention to how important changes in the world go unnoticed.'

The top floor of the exhibition is dedicated to agriculture. Wageningen provided the Phenovator, Pixelfarming and the Cartesian Countryside. The Phenovator is a piece of apparatus developed by plant geneticist Mark Aarts for monitoring photosynthesis. The



PHOTOS: SEBASTIAN BERNARDY

▲ Driessen and Ditzler in the 'WUR room'.

'But it's also about creating a podium to show how important agriculture is'

Clemens Driessen



▲ The Phenovator from Mark Aarts.

original is used for research on the campus in Radix. A new version was made especially for the exhibition by the Wageningen company Phenovation.

MOSAIC

Pixelfarming is a new approach to agriculture, in which crops are divided over patches (pixels) of 50 by 50 centimetres, each with their own crop. It is really an extreme form of strip cultivation. Seen from above, the pixels form a mosaic. PhD student Lenora Ditzler made a video about this project for the Guggenheim. 'It's an amazing, vivid sight when you're in the field. Seen from

above, it looks like a painting by Mondrian or Gerhard Richter,' says Driessen. 'Like the Phenovator, it has something Cartesian: the world as graph paper.' Which ties in with his own contribution, the Cartesian Countryside. 'Descartes developed the mathematical system of coordinates. He lived in the seventeenth century and spent time in Holland. We made an animated film about the link between Cartesian thought, the Dutch landscape and the origins of horticulture in the Westland region.' **© RK**

NUCLEAR PHYSICS HELPS DETECT FRAUD

Wageningen professor Joost Pennings will be tracking down stock-market fraud with technology from the Swiss particle physics lab CERN.

What does particle physics have to do with stock-market fraud? Both involve vast amounts of data and searching for a needle in a haystack. Professor of Commodity Futures Markets Joost Pennings had this brilliant insight when on a guided tour of CERN, the European centre for fundamental research on elementary particles in Geneva.

The experiments in CERN involve billions of collisions between elementary particles in ultra-short time periods. Try finding that one deviant collision that can advance our knowledge of physics in that mass of data. At CERN they use the data analysis program ROOT. On

the stock exchange too, vast numbers of transactions take place in a short space of time, some of which might constitute dubious trading.

PHANTOM ORDERS

Pennings spotted the analogy and believes ROOT can help identify the dodgy transactions. Together with CERN and the Roermond Commodity Risk Management Expertise Centre (CORMEC), the professor will be spending the next three years on the detection of fraud in the commodity and financial markets. CORMEC specializes in commodity futures markets and risk management for farmers. Pennings will be focussing on spoofing, a way of driving up prices by placing phantom purchase orders. The market responds by increasing the price. The buyer then cancels the order and sells his own contracts at a profit. That might be



PHOTO: SHUTTERSTOCK.COM

clever but it is also illegal. Pennings wants not only to detect spoofing but also to prevent it by discovering such market movements in good time. Incidentally, this unusual collaboration was made possible by Pennings winning a competition or-

ganized by the Chicago Mercantile Exchange Group. The world's largest futures exchange organized a competition for the best research idea using their database of transactions. Pennings won and can now use the database for his research. **Ⓜ RK**

'WORLD FULL OF OPTIMISTS IS BORING'

'I am not an optimist by nature,' said professor of Physical Chemistry and Soft Matter Joris Sprakel at the start of his inaugural lecture last Thursday. Professors too can be unsure and have doubts. But that is not a problem as academia needs pessimists as well, says Sprakel.

'I am not self-assured in daily life and am inclined to worry. As a result, I have often felt an outsider,' explains Sprakel. 'I am blessed with a somewhat sombre view of

'It took me a while to find my way in this field of research'

life.' But Sprakel finds science gives him cause for optimism: 'Science shows that even the toughest challenges can be overcome.' 'It took me a while to find my way in this field of research. I had a ten-

dency to change course if others said something wasn't feasible.' As an example, he cites the common approach in molecular biology of looking at averages as they are easier to understand than the individual molecule. 'But averages never tell the whole story. In our research, we achieved a scientific breakthrough precisely by concentrating on molecules that differed from the average.'

BORING

Sprakel finds it important for science to be integrated into society and for there to be a debate about diversity. 'But we mustn't simplify the issues by focussing exclusively on gender equality. There are other challenges that the world of science needs to tackle in order to be truly diverse. There are many groups of young students and researchers who are underrepresented, whether in terms of gender, ethnicity or sexual orientation.

And let's not forget personality. Here too, we need to beware of focussing too much on averages. A world full of optimists may sound like a paradise to some but I think it would soon get boring.' According to Sprakel, it is precisely the

differences between us that lead to more balance. 'As the playwright George Bernard Shaw said, both optimists and pessimists contribute to society. The optimist invents the aeroplane, the pessimist the parachute.' **Ⓜ TL**



PHOTO: ROGER CREMERS

BELLY DANCE WINS 'DANCE YOUR PHD' CONTEST

PhD candidate Katharina Hanika of the Laboratory of Plant Breeding has won the international 'Dance your PhD' contest, organized each year by the journal *Science*. Hanika used her belly-dancing skills to visualize her research on resistance to a fungus in tomato plants.

'I have written and edited a lot of stories about plant diseases and this belly-dancing video was a nice, smart depiction of one such disease. I wish Katharina success in tackling this malignant fungus,' says John Travis, managing news editor at *Science*.

Hanika already knows what she will spend the prize of 1000 dollars on: 'I will use it to make new costumes for my belly-dancing group.' This group, from the International Students Organization Wageningen (ISOW), helped her make the video. **TL**



MOSQUITO NEEDS MEN

PhD candidate Marieke de Swart needs the blood of 50 men to investigate why the mosquito species *Anopheles coluzzii* – one of the main carriers of the malaria parasite – has a preference for some humans.

Mosquitoes find some people more attractive than others. Sweat and bacteria that turn the sweat into volatile substances for mosquitoes have a role in this process. 'But that still doesn't tell us why. So I am concentrating on the role of the blood itself. Female mosquitoes need blood in order to lay eggs. It seems as if some people's blood is better suited for laying eggs than other people's blood'. The question is what causes this. Her search is focusing on the role of amino acids. 'We know that some amino acids are necessary for the egg laying. Perhaps mosquitos have a preference for blood with higher concentrations of those amino acids.' De Swart is also working with Radboud University to investigate whether the immune system plays a part.

TORMENT

De Swart needs 50 non-smoking, healthy men aged 18-65 who are not overweight (BMI<25). The men will have to donate blood and sweat, and serve as food for 20 hungry female mosquitoes in four sessions of 15 minutes each. That involves resting your forearm on a bucket full of mosquitos. The reward for this torment is 100 euros, plus the knowledge that you are doing it for a good cause. Malaria is still a disease with a lot of victims world-wide. **RK**

HEAT KILLS KNOTWEED ROOTS

Two contractors may have found a method for tackling Japanese knotweed. A study by WUR shows that heating the soil kills about 99 per cent of the shoots of this fast-spreading weed.

Japanese knotweed is an invasive exotic plant that causes a lot of damage due to its tough rhizomes and stalks. To date, there was no effective method for getting rid of the plant. Removing the parts of the plant that are above ground doesn't help much as the rhizomes in the soil remain intact and continue to sprout. WUR joined forces with Probos and Tree-O-Logic to investigate a

technique developed by the contractors Van Gelder and Van den Herik Zuigtechniek. These two companies have built a mobile installation that heats soil containing Japanese knotweed. The aim of the study was to see whether the heat treatment destroyed the shoots. This turned out to be the case. Even after seven weeks there was no more knotweed. It is not clear yet whether this approach would work in practice. Proper follow-up care is required, say the researchers, because an effectiveness score of 99 per cent means a few root fragments may survive the heat treatment. **AS**



PHOTO: SHUTTERSTOCK.COM

NATURE CONSERVATION NEEDS FARMERS

How can you persuade farmers to increase the biodiversity on their land? Professor of Nature Conservation David Kleijn will be figuring out how to do that in a major European project.

'Most land is managed by farmers, who also have an indirect effect on nature reserves. So you must get farmers involved,' says Kleijn. 'But it is difficult to find effective conservation measures for farmers. The question is why.'

Kleijn will be investigating this over the next five years in a major European project entitled Showcase. The idea is that the study will pinpoint the right incentives for getting farmers to invest serious-

ly in biodiversity. Kleijn: 'We will look at the effect measures have on farmers' income, for instance.'

TEN AREAS

Showcase will consider 10 areas in Europe that represent the full range of different farming systems. It will focus explicitly on the impact of measures on farmers' business operations (yields and profits). That is why sociologists and economists are also involved. In the Netherlands, there will be a study in south Limburg where Kleijn is trying to reintroduce the shrill carder bumblebee with measures such as new mowing practices. **✉ RK**

ANTIBODIES AS COURIERS FOR MEDICINES

Antibodies are very specific in the intruders they attack. Jorick Bruins has used this property to make sure cancer medicines reach the right place in the body.

Human bodies have a very advanced immune system. Intruders are tagged by antibodies, which render them harmless and then dispose of them. These specialized proteins know exactly where they need to be because they recognize the 'fingerprint' of the intruder (the antigen). That capability should make them the ideal couriers for medicines. In his PhD thesis that he defended last Friday, Jorick Bruins shows that you can use antibodies to deliver medicines. You can then send cancer medicines to the scene of the crime without affecting healthy cells.

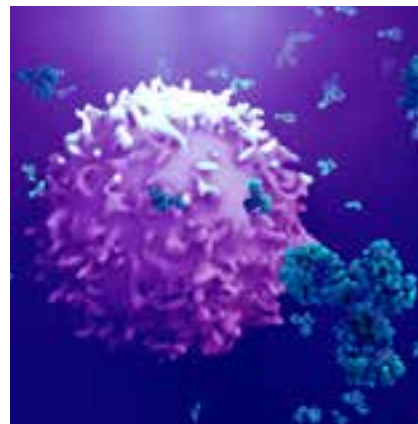
FUNGI

Bruins attaches the medicine to a chemical compound (an alkyne) that acts as a carrier. That carrier is then conjugated (fastened) onto one of the amino acids of the antibody (using cycloaddition). That amino acid is important: it is a tyrosine at the end of the antibody's protein chain. It needs to be oxidized first before it can react with the carrier. This all sounds like a lot of work, but it is not in practice, Bruins explains enthusiastically. 'All the necessary reactions

can take place in one step with relatively simple resources.' For example, the enzyme required to oxidize tyrosine is found in fungi.

PERFECTLY

Bruins improved the efficiency of the process to such an extent that 95 per cent of the antibodies were carrying the medicine. As proof of principle, he performed the reaction with the known antibody trastuzumab, which recognizes breast cancer. That worked perfectly. In principle it should be easy to make variants, says Bruins. 'You have just two variables: an antibody and a chemical group that you attach with the cycloaddition technique.' **✉ RK**



▲ A breast cancer cell is attacked by antibodies.

VISION



'Rapid spread of coronavirus is worrying'

The coronavirus is claiming more and more victims. How dangerous is it? The rapid spread of the virus is very worrying, says Wageningen virologist Wim van der Poel. But he sees some good news too.

You have seen various other virus outbreaks. What strikes you about this coronavirus?

'This coronavirus has almost the same genetics and symptoms as the SARS virus but it is spreading far quicker. It's still a mystery why that is. With SARS, patients had clinical symptoms of illness before they spread the virus. That helped to stop it spreading. Epidemiologists suspect that the coronavirus is spreading before there are visible signs of illness.'

Does this have implications for the efforts to combat it?

'The centre of the virus outbreak is the Chinese city of Wuhan in Hubei province. That makes the necessary approach clear: prevent human traffic with this province and put people coming from this province in quarantine. In Germany, for instance, the virus was found in people who had had contact with a woman from Hubei who was diagnosed with the virus. In Italy it went wrong: a visitor from Hubei who seemed to have recovered from the virus and tested negative was not put in quarantine and went on to infect others.'

Can we expect a pandemic?

'The way the coronavirus outbreak is developing is very worrying and it could become a world-wide epidemic. On the other hand, the mortality rate is falling. You often see that with viruses. At the start of the outbreak, doctors only count the most severe cases as only those come to their attention. Then a laboratory test is made available and everyone with a cough is tested, including people who don't become ill from the virus. Then the percentage of deaths declines. The mortality rate for the coronavirus is currently estimated at 2 per cent, which is still not good. It is quite possible that this rate will decrease further because the virus may become less virulent over time. But I have to add that this is a new virus and it could behave differently.'

What is WUR doing about the coronavirus?

'We have tests available for testing animals. Other scientists are working on vaccines for the virus. Once they have them, the vaccines will have to be tested extensively on animals. We have a very secure test location in Lelystad for such research.' **✉ AS**

‘FOOD INDUSTRY INVESTS TOO LITTLE IN HEALTHY PRODUCTS’

When developing new products, food companies should not have such high requirements for commercial aspects such as the taste and price so as to allow more room for societal values such as health and sustainability, argues PhD candidate Jilde Garst.

‘Companies do not always find it easy to innovate and create healthier products,’ explains Garst, from Business Management & Organization, who obtained her doctorate on 5 February. Firstly, this is because health does not always go well with other important product characteristics such as the taste and the price. There is also disagreement on what counts as healthy, while new research results can lead to shifts in the definition of healthiness.

Garst discovered that companies that are consistent in their definition of healthy are more successful in developing healthy products. Moreover, companies that ask

NGOs and consumers for feedback on their product development end up developing more healthy products. Feedback from commercial players such as suppliers has no effect. ‘One possible explanation is that there is often already a consen-

Price and taste play a bigger role in consumers’ purchasing decisions than health and sustainability

sus in the food industry about what is healthy, so you don’t get much critical reflection, whereas feedback from society at large leads to new insights.’

INVISIBLE

Garst argues that companies should not just aim for profit but also try to make a positive contribu-



PHOTO: SHUTTERSTOCK.COM

tion to society. A difficult choice for businesspeople. ‘If a company makes a product with less sugar, there is a risk that consumers will switch to its competitor.’

Labels such as Vinkje and Nutri-Score were set up to avoid this and create a level playing field. But Garst says this does not necessarily give companies an incentive to in-

novate. A label increases the visibility of healthy products but the adverse health consequences of unhealthy products remain invisible. Garst: ‘You could give more insight into companies’ performance by ranking them, for example based on the percentage of healthy products in a company.’ **® TL**

FARM SIZE DOES NOT AFFECT CALF WELFARE

Calves on large farms are no better off or worse off than calves on small farms, concludes PhD candidate John Barry of Animal Production Systems. He investigated the welfare of calves on Irish dairy farms and developed a protocol for assessing and improving this.

‘Farms have expanded fast since milk quotas were abolished in 2015,’ says Barry. ‘And the number of animals on the farms has grown accordingly. That could be a risk to their welfare simply because the farmer has less time per calf. One of the factors that have a big impact on calves’ welfare is feeding just after they have been born. The first milk, known as colostrum, is

important in giving the calves immune cells. On most farms, the standard procedure is to mix the colostrum from the cows. Barry discovered that calves that were given mixed colostrum had less IgG (an important antibody) in their blood, but they still had enough. ‘The disadvantage is the increased risk of transmitting diseases,’ says Barry. ‘If the mix contains colostrum from a sick cow, that can infect every calf that drinks it.’

PLAY

To assess the calves’ well-being, Barry also investigated the relationship between the amount of space the beasts had and the mortality rate. ‘It’s often assumed that

large-scale livestock farming comes at the expense of welfare. My study shows that is not the case.’ On average, the calves had twice as much space as the legal minimum of 1.5 square metres. Barry did find that calves kept in large groups played less, which could point to reduced well-being. Furthermore, there is a greater risk of disease spreading in a larger group.

The protocol that Barry has developed is designed for Ireland, but with a few changes it could also be applied internationally. Barry: ‘It would be interesting to incorporate different techniques such as sensor technology. For example, you could use an automated feed

trough to keep track of how much an animal eats, which can give an indication of possible welfare problems.’ **® TL**

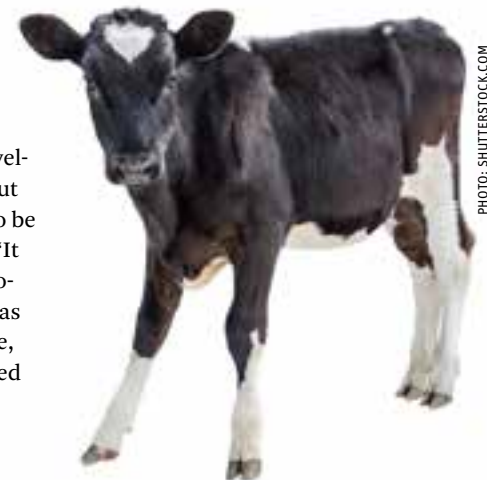


PHOTO: SHUTTERSTOCK.COM

TREE RINGS PREDICT THE FUTURE

Researchers at Wageningen University & Research and their project partners have found a method for predicting tree deaths due to drought. They published their results on 28 January in the scientific journal *Nature Communications*.

Trees expand outwards throughout their lives, with a new ring being formed each year. If conditions are favourable, the tree will grow fast and form a wide ring, whereas stress leads to less growth and accordingly a narrower ring. This lets scientists look back in time and analyse the tree's life history. In a major collaborative venture, associate professor of Forest Ecology and Forest Management Frank Sterck and professor of Vegetation, Forest and Landscape Ecology Koen Kramer studied the width of tree rings. They discovered that the resilience of trees after severe droughts is a key indicator for the likelihood of survival in future dry periods.

DECIDUOUS TREES AND CONIFERS

The relationship between resilience and the probability of survival turned out to be the same for deciduous trees and conifers all over the world. The authors were surprised. 'Coni-

fers produce a different kind of wood and are often found in colder, drier areas than deciduous trees,' says Sterck. 'We had therefore expected conifers to react differently to severe drought than deciduous trees.'

However, the scientists did find a difference in the way deciduous trees and conifers deal with drought. In both cases, there were two phases: resistance and recovery. In deciduous trees, it was the resistance that predicted their chances of survival. If a deciduous tree has a wide ring in a year of extreme drought, that indicates high resistance to drought and therefore a better chance of surviving another dry period. In conifers the recovery is the predictive factor: conifers with narrower rings after a dry year presumably took longer to recover and are more likely to die in a future drought.

HAND DRILL

Can we only estimate a tree's chance of surviving by felling it? 'Fortunately not,' laughs Sterck. 'We use a hand drill to extract a long, thin strip from the tree trunk, which we then polish to reveal the rings.' Removing a strip like that does not have an adverse effect on the tree. 'The tree can simply close that hole,' says Sterck. The new



PHOTO: SHUTTERSTOCK.COM

method gives forest managers a new tool: when thinning, they can select the trees with the smallest probability of surviving a drought and thus keep forests healthy. [NvtWH](#)

THE PROPOSITION

'Prevent suffering among pets with a welfare assessment'

Marijke Schop conducted experiments on animals in the course of her PhD research. In such experiments, the benefits resulting from the experiment are weighed up against the suffering caused to the lab animal. Schop thinks the same kind of assessment could save domestic pets a lot of suffering. So her proposition is: *Suffering of pet animals is avoided when welfare assessments are a prerequisite for veterinary treatments.*

'A welfare assessment is a standard element in animal experiments. You want to know whether the answers provided by such an experiment outweigh the impact on the animal's wellbeing. We don't do anything like

that with domestic pets. When pet owners go to the vet, the possible tests and treatments are presented to them, and the choice depends on your pet, you as its owner, and also (sadly) the costs. There is no objective welfare assessment like there is for lab animals.

I experienced it myself when my cats were ill. For one of them, euthanasia was postponed to wait for further test results, and for the other, palliative care was started so that it still had some quality of life. It is difficult for a pet owner to decide objectively when the treatment should stop. I experienced "quality of life" as a sliding scale: you see the animal slowly go downhill, but it does have good days too. I often hear people say in retrospect

– after their pet has been put down – "I should have done it earlier, really".

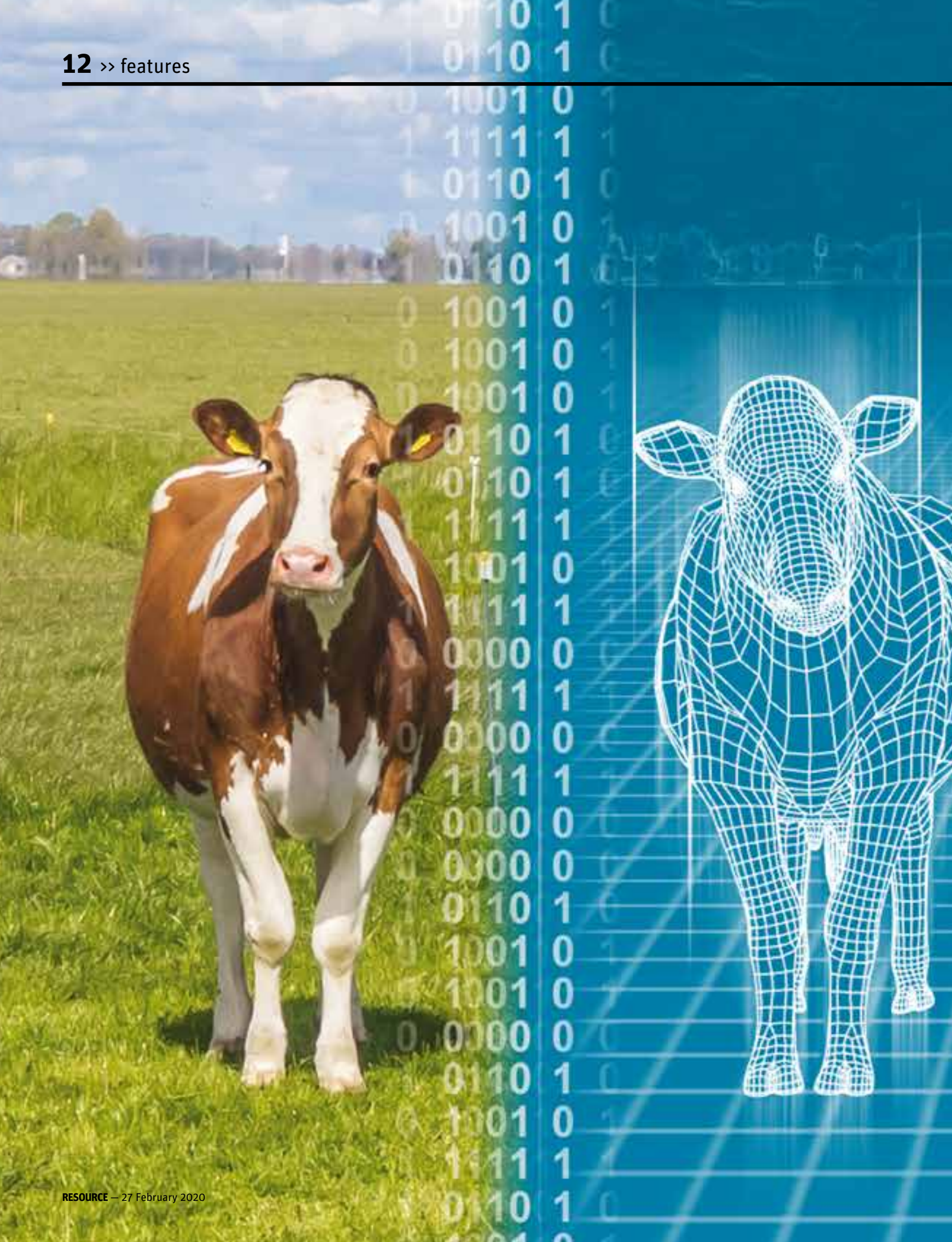
I think vets could use an objective welfare assessment tool to judge together with the

'I experienced quality of life as a sliding scale'

owner whether treatment is in the interests of the animal, and to give evidence for the decision. I think treatments are sometimes carried out that are not in the animal's best interests from the animal welfare angle.' [TL](#)



PhD candidates have to include a handful of propositions with their thesis. In this feature, they explain their most thought-provoking proposition. This time it's Marijke Schop, who got her PhD on 29 January for her study of digestion in pigs.



WUR is investing four million euros on self-learning models

A digital twins baby boom

Digital twins are turning up all over the place: in the car industry, the transport sector and the construction business. And now WUR is expecting its first digital twins for use in tomato greenhouses, in nutrition apps and on farms. So what is a digital twin and what does it have to offer us?

text Tessa Louwerens *illustrations* Paul Gerlach, Shutterstock

‘Houston, we have a problem.’ With sweat drops on his forehead, astronaut Ken Mattingly, played by Gary Sinisi, is trying to find the right starting sequence. It’s a nerve-wracking scene in the film *Apollo 13*. A couple of oxygen tanks exploded soon after the spaceship was launched in 1970. The replica of Apollo 13 that NASA had built played an important role in the rescue mission because the engineers were able to test all the possible solutions from the ground without any danger of harming the astronauts on board.

The replica of Apollo 13 is an example of a digital twin. Such replicas are popping up all over the place these days, and WUR is going to work with them too. But what exactly is a digital twin? ‘It is a virtual replica of an individual object or system in the real world,’ says Dick de Ridder, professor of Bio-informatics. ‘It makes use of various technologies such as 3D simulations, big data analysis, sensors and artificial intelligence.’ The digital twin forms a bridge between the physical and the digital worlds.

De Ridder coordinates the investment theme Digital Twins, in which WUR is investing nearly four million euros for three projects (see insets). ‘We have selected projects that could have a big scientific and social

impact,’ says Willem Jan Knibbe, co-coordinator and head of the Wageningen Data Competence Center (WDCC), which researches whether there is a place for Digital Twins in the university’s data-driven research.

LIVING ORGANISMS

Up to now, digital twins have mainly been used in industries such as transport and construction. Manufacturers can first test complex objects such as aeroplane engines, cars, trains, oil rigs and wind turbines digitally before producing them. Steps are already being taken towards simulations of buildings, factories and even cities: researchers are currently working

YOUR VIRTUAL YOU

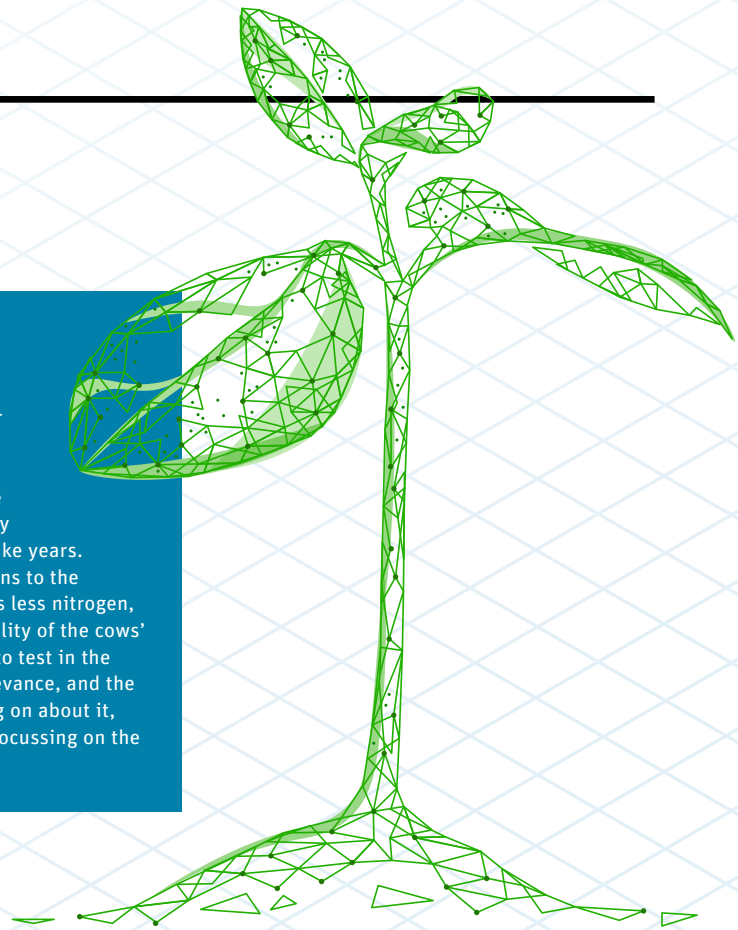
Imagine that your doctor had a digital copy of you on the computer and could test treatments on it. Sounds futuristic, but this scenario is not all that far off. There are already virtual hearts beating on PCs, and realistic computer models of other organs too. Universities, hospitals and companies around the world, including the Netherlands, are working within the European research consortium CompBioMed on the project Virtual Humans, to make the first digital human.



THE DIGITAL FARMER

Agrosystems Research researcher Thomas Been and his team of economists and animal, soil, environmental and data scientists are building the digital farm of the future. They base the digital farm on real-time information from a real farm. Been: 'Think: drones flying over the fields, satellite data, and sensors in the soil.' The researchers' goal is to develop a dashboard that provides a digital replica of the farm so that you can see what is going on at a glance. Been thinks this will be of interest to both crop and livestock farmers. 'A farmer can see at once

whether more fertilizer is needed, for instance, or whether it is time to move the cows to a different field.' It is of interest to researchers too. 'With this we can calculate scenarios and carry out trials that would normally take years. To see, for example, what happens to the protein content of grass if it gets less nitrogen, and what that means for the quality of the cows' feed. These things are not easy to test in the field.' Because of its current relevance, and the social and political debate going on about it, the researchers are starting by focussing on the nitrogen cycle.



on a digital twin of the British city of Newcastle, for instance, with the aim of helping the city to respond promptly and adequately to flooding.

A car is one thing, but a living organism or ecosystem is something else again. 'Because such an unbelievably large number of factors play a role, it is a lot more complicated to make a digital twin of living things,' says Knibbe. 'But thanks to the new sensor technologies, the internet of things, and the possibility of storing and analysing large quantities of data, it is coming a bit closer.'

'We'll be able to test a tomato variety that doesn't even exist yet'

SELF-LEARNING

This is still largely unexplored territory for WUR, says Knibbe. 'When scientists want to predict what will happen, they usually use models to do so. The fact is that many systems, such as the climate, are incredibly complex. So a model is never more than an approximation of the reality, and therefore factually incorrect.' One way of improving on that is to tweak the model after a trial run, to make it more accurate. But what if the model could correct itself? De Ridder: 'Imagine

you have a field and you want to know the soil temperature there. You can use a model for the average field, based perhaps on the ambient temperature. But a model only shows you what might happen, not what actually happens. You can also put sensors in a specific field that measure the actual temperature.'


And that pinpoints an important difference between an 'ordinary' model simulation and a digital twin. The latter is continuously fed with real-time data so that the model grows with the reality and shows what is happening at that moment. And the digital twin is based on data from that particular field, rather than a collection of data from different fields. Knibbe sees a lot more potential. 'The best thing would be to make a digital twin that is self-learning. It can then do things like compare the latest sensor information with the predictions of the model. If the soil is warmer than the model predicts, the model can correct itself. Then it is no longer people but computers themselves that make the algorithms for the model.'

That is food for thought. 'We need to ask ourselves how far we want to go. Do we want digital twins to make their own decisions, for example? We are already seeing a trend for farmers to spend more time at their computers than in their barns. Will they soon be totally redundant? Or will the technology only take over certain tasks, so that the work can be organized differently? Within the project there is an "inclusiveness" group that ponders this social impact and ethical implications.'

USEFUL TECHNOLOGY

Besides the ethical considerations, there are also still some technical hurdles to be cleared. 'To make a digital twin as good as possible, data and models that are unconnected at the moment will be combined,' says Knibbe. 'If that works, a digital twin of this kind can provide more, and more far-reaching, insights than the individual model simulations.' But it's not so easy to combine these models, he thinks. 'Just like a chain, a digital twin is as strong as its weakest link. So if something is missing, or the data set is imprecise, that has a big impact on its reliability. So we've got people from several disciplines working together, which is also strengthening the sense of community.'

'On the digital farm we can carry out trials that would otherwise take years'

De Ridder agrees. 'It is a marvellous concept with a lot of potential. The challenge is to collect enough high-quality data to be able to create something useful. It has got to be more than a technical novelty. There are plans for building a digital twin, but part of the next three years will be spent on finding out what its added value is in our scientific field.' 

PERSONAL DIETARY ADVICE

Lydia Afman, a researcher at Human Nutrition, is working with her team of biologists, toxicologists, economists and consumer science researchers on an app for personal dietary advice. The app takes into account things like blood sugar, blood fat levels after a meal, and factors such as behaviour and personal preferences, including vegetarianism and religious convictions. In the first stage, the researchers predict how different people respond to fat in a meal. 'Whether you are a man or a woman, your age, or whether you have just had some exercise: all of this has an influence,' says Afman. The researchers already have data from nearly 500 people with overweight.

They want to use this data to build an app that will give personalized advice and help people make healthy decisions about what to eat. Afman: 'Because it takes personal preferences into account, people are more likely to actually follow the recommendations. Ultimately we want to work towards an app based on a digital twin of the user. With these individual data, the app can predict things like how high the person's blood fat levels will go after a meal, and can adjust its dietary advice accordingly.'

THE 3D TOMATO

Researcher Jochem Evers of the Plant Sciences Group and his team of social scientists, economists and environmental scientists are collaborating on a virtual tomato greenhouse. 'Unlike conventional crop models, this digital twin model is continuously updated with what is going on in the greenhouse at that moment,' says Evers. 'The model becomes more and more accurate as a result.'

With these data, the researchers can create a 3D model of the greenhouse and the plants, and can make predictions about the tomato greenhouse in the real world. Evers: 'We can predict growth, for instance, and based on that, we can adjust the automatic lighting,

humidity and temperature so that growth is optimal.'


To some extent, this is possible with existing simulation models. But Evers thinks bigger.

'What would be really exciting would be if we could use the digital twin to calculate certain scenarios for which we can't easily run an experiment. For example, to see what happens if you use a different kind of glass in the greenhouse, or a new tomato variety, perhaps one that doesn't even exist yet.'





SHEEP ON CAMPUS

Last Friday, shepherds Thomas Vossen and Marjel Neeffjes (helped by border collie Kate) herded a flock of 60 sheep to a field in the Eng area to graze the winter grass there. The shortest route from the farm of grazing company Grebbeveld Schapen & Zo — where the sheep normally live — and the Eng was through the campus. If you missed the flock, they will be returning via the same route next week.  RK, photo Guy Ackermans



Landscape according to Lenzholzer

The climate is changing, the energy transition is knocking at the door, and the new e-mobility is on the rise. Cities and countryside are undergoing far-reaching changes. Professor of Landscape Architecture Sanda Lenzholzer wants to tackle it all integrally. 'Because it is all interconnected.'

text Roelof Kleis photo Guy Ackermans

Sanda Lenzholzer is the new chairholder at Landscape Architecture. She is the first woman professor in this subject area in the Netherlands. 'That is extraordinary: there are a lot of women students, who often get the best grades too. But in the world of design agencies in landscape architecture and urban planning, it is still mainly men who are in charge. We need a change of culture.' Lenzholzer has been knocking around Wageningen for quite a while. After obtaining degrees in Germany and the UK, she worked at several design agencies before deciding in 2004 to pursue an academic career.

Why go back to academia?

'I was looking for more depth. In some design agencies you mainly do project management. The actual designing, the creative process, only takes up 10 per cent of your time. There is no time for pondering, for critical reflection and depth. To be honest, I was starting to get a bit bored. It is not the same everywhere, though. At Mecanoo, I did a lot of design research and I find that very interesting. I wanted to go into that in greater depth.'

In Wageningen you developed into an expert on the urban microclimate? How did you come to focus on that theme?

'During my time at design agencies I designed a lot of public spaces. A design for a city square went wrong because nobody thought about the local wind situation. Once the design had already been implemented, I had to make adjustments that meant the whole design concept got lost. In practice, nobody gave any thought to microclimates at that time. So I thought: something's wrong here. That was one of the triggers for me. And it was also clear to me that climate adaptation was going to become a major theme. And nobody in the Netherlands was doing anything on it back then.'

Is climate change a blessing for your profession?

'A blessing because it creates urgency? No. There are so many themes other than climate change that landscape architects need to address. The energy transition, the circular economy, new autonomous mobility, demographic developments, etc. And it's all interconnected. We've got so much on our plates

that we must all do our research through integral design. As a landscape architect, I don't need climate change to do something meaningful for this society.'

'I'm not jumping to the conclusion that it is all far too complex'

Research through design is the crux of your approach. What is that, actually?

'It is a design process in which you alternate between designing and thoroughly researching the design. You create several options for a design and then test them. That helps you arrive at improvements and after a few such steps, you get an optimal outcome. The term





‘As a landscape architect I don’t need climate change to do something meaningful for this society’

has existed for some time, but here in Wageningen it’s about Research with a capital R, meaning scientific testing. I’ve shaped it within Landscape Architecture through my publications, together with colleagues.’

What does that research consist of?

‘There are many ways of doing it: using computer simulation you can make reasonable predictions, you can consult focus groups of users or citizens, or you can get experts from the field to reflect. Within ESG (Environmental Sciences Group, ed.) we are now working on setting up a visualization lab, in which you can use virtual reality to move around a designed landscape or space and simulate all kinds of things, such as smell and temperature.’

How are you going to go about your professorship?

‘I am not going to focus exclusively on the urban climate, but on all public space in cities.

All those issues I listed earlier are at work at the same time. If we tackle them all separately, there will be construction work going on in the cities for the next 20 years. And you don’t want that. So we need to find an integral approach and synergy. With the chair group and our colleagues in spatial planning, I also want to focus on the major transitions in rural areas, such as the energy transition and circular agriculture, because they call for major interventions too.’

Isn’t that extremely ambitious?

‘Yes, but you don’t have to work everything out to the last detail to know whether you are on the right track. You can get quite a long way using rules of thumb. You need to involve a lot of experts and sometimes you’ll discover conflicts between themes. But conflicts can often lead to innovation. I’m not jumping to the conclusion that it is all far too complex. I’m too much of a designer and an optimist for that.’ **📍**

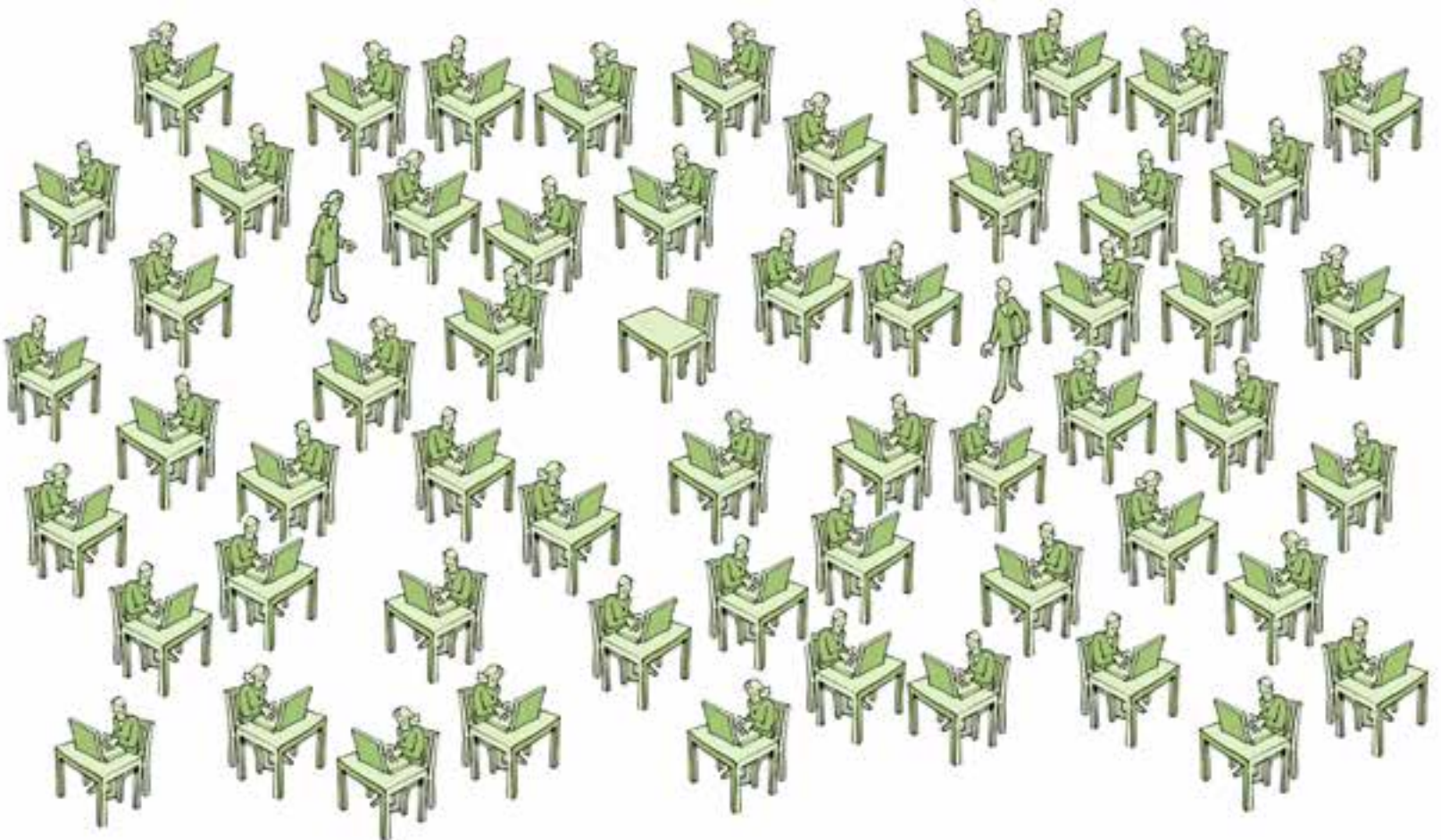
THE UNFINISHED CAMPUS

The microclimate on the campus is not that great, according to Sanda Lenzholzer. It was planned in a period when no one gave any thought to microclimates. ‘There aren’t enough places that provide shelter. The campus is one big green sheet with colossal buildings on it.’ What the campus lacks, in Lenzholzer’s view, is avenues of trees and pleasant outdoor spaces. The campus’s aura could use a ‘boost’ too. ‘Most of the buildings are large hermetic forts dotted around a windy, bare, flat field. And that field is our events location for the AID. That’s not a good idea! An events location should be on the edge of a town. Actually what should stand here is an inviting building, which suggests what we are doing and that we are creative. It could be the location for the visualization lab, design studios, fablabs and an exhibition hall, for example. That would give the campus a strong appeal.’

MyWURSTspace?

A new office design concept is being introduced to solve the space shortage on campus and facilitate cooperation. But myWURspace also spells the end of having a desk of your own. The Open and Transparent Work (OTW) environment on the fourth floor of Atlas showcases the idea. Are staff eager for it?

text Tessa Louwerens *illustration* Henk van Ruitenbeek



Margaret Bosveld



Lab technician at Food Chemistry

'I don't think it's realistic to appoint more staff – without having enough workstations for them – and then switch to MyWURspace. Ten years ago, I was on the buildings committee of the Joint Works Council, and we did some research on the flexible workplace. It will cost a lot of money to implement myWURspace well, and I wonder whether that is cheaper than a new building. What is more, the way we work here is not like a big administrative office, for example, where they are positive about this concept. Many of us need lab space, an office, and places to meet with students. I am not in favour of flexible working, but I think it should be made possible if a department or research group wants it. **I've heard a lot of people saying they don't like it. What annoys me is that people dismiss them as inflexible and old-fashioned.** I hope the WUR Council will study this properly and come up with a solid report that weighs up the pros and cons.'

Nico Bondt



Researcher and project manager at Wageningen Economic Research

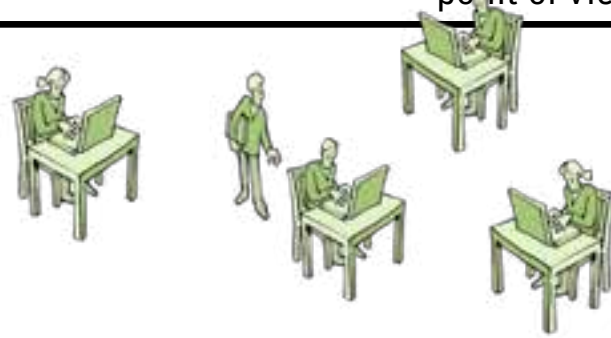
'The introduction of this new way of working (OTW) met with a lot of resistance from staff at Wageningen Economic Research, but ultimately the discussion was only about how and not about whether it would happen. It was approached with care and a lot of thought went into it. The office in Atlas is attractive and some of our colleagues think it's fantastic. **But I'm not sure the goals – more cooperation and better communication – have been reached. People mainly aim for peace and quiet.** The idea is that people move around in the different zones, depending what kind of work they need to do. In practice I notice that people still pretty much have fixed places, and sometimes they come to work extra early so they can occupy a quiet spot for the rest of the day. Working at home might be the solution for them. But in that regard, WUR is in two minds: people should work "any time, any place", but working from home is discouraged. For me personally, it's annoying when I want to make a phone call without being disturbed, and I need my computer for it. The suitable places for that are usually occupied.'

Wieke Pot



Lecturer and researcher in Public Administration and Policy

'During my career as an interim manager, I have worked in various places and I have seen positive examples of flexible workplaces. In those cases, there were more workstations than staff, and lots of different kinds of spaces to work in, including enough rooms you could withdraw into. But usually it means fewer workstations and a noisier working environment. **For researchers and teachers it is especially important that they have a place where they can concentrate, see their students and keep up with their literature.**



I don't think flexible working necessarily means more interaction. In fact I think the opposite is more likely to happen. And that worries me, especially for the rather individually minded university professions. I think myWURspace is going to mean a big fall in productivity.'

Yuca Waarts



Senior researcher on sustainable chain development

'We've been working with OTW at Wageningen Economic Research in Atlas since June 2019. The different zones work well. What I think is a pity is that my team members are now scattered all over the place. I've lost my herd. If we want to talk to each other we have to make arrangements for it. On the other hand, I have found a new herd. Because you do find that people still look for a place of "their own". **I'm happy with it now. But I can understand that some people feel very lost. I felt that at the start too.** This concept doesn't work for everybody and it doesn't necessarily lead to more cooperation either. You do sit close together, but you don't want to disturb each other too much. The work has become more individualistic compared to when there were three of us sharing a room.'

Sjaak Wolfert



Senior Scientist, Wageningen Economic Research

'**Coming from the Leeuwenborch, I've already been enjoying working on the fourth floor of Atlas, where OTW has been introduced, for some time. It's a pleasant, open and transparent space that invites cooperation.** I'm involved in a lot of international projects and I hold regular consultations through conference calls. In the past I often used to find it difficult to find a place to do that. Here there are several rooms where you can link your laptop to a television screen with USB. There are silent zones and focus rooms where I can work on proposals and reviews, and places where I can sit with guests. I can understand why some people are negative. I think it's because the concept has been badly implemented in many places, and that is counterproductive. But here it was well thought-through and there is enough space for everyone. In an ideal world, perhaps we would all have had a room of our own where we could put our personal effects, as well as enough facilities for meetings, video conferences and so on. But there is a shortage of space at WUR and we shall have to make efficient use of our space. To all the people who are doubtful, I'd say do come and have a look at our office.'

How farmers got to grips with social media

Farmers are using Twitter and Facebook as new instruments for influencing public and political opinion, says the Wageningen researcher Tim Stevens. He analysed the debate on animal welfare conducted on social media by animal activists and farmers.

text Albert Sikkema photo Rob Engelaar / Hollandse Hoogte

Tim Stevens, who is soon to receive his PhD in the Strategic Communication and Public Administration and Policy chair groups, analysed the discussions about Dutch food production on social media between 2011 and 2015. The main topic of these discussions was livestock farming. Animal rights activist groups such as Wakker Dier raised issues such as overfed chickens and 'factory farming' with its 'megabarns', chiefly targeting supermarkets or politicians. When they denounce these 'powers that be', they generally get a lot of support on social media. But in 2013 a direct conflict suddenly blew up on social media between Wakker Dier and farmers, says Stevens. The subject of controversy was the now banned calving jack that farmers used when delivering calves. Wakker Dier wrote an open letter to the then State Secretary of Economic Affairs Sharon Dijksma, saying the jack, a symbol of factory farming, should be banned, and that the government should enforce the law. The farmers felt under attack and reacted on social media by saying that the calving jack saved lives, and sharing photos and stories about their successes in using it. The discussion died down after a few days.

About 10 days later, a young farmer started a new Facebook page called 'Anti-Wakker-Dier', condemning the campaign against the calving jack. The page got 10,000 likes within one day,

and regional leaders of the Christian Democrat party CDA fell in line with the campaign. That got the online conflict into the daily papers. Wakker Dier quickly came in for criticism from farmers who used Twitter and Face-

'Farmers have learned that they can frame the news on social media'

book to express themselves collectively. Many more of these kinds of conflicts followed later. 'They often don't last long,' says Stevens, 'but they simmer and then flare up again as soon as there is another incident.'

ALL AGAINST ALL

These 'all against all' conflicts, in which two large groups accuse each other on social media, have their own typical dynamics, says the PhD student. In the first phase, animal activists problematize a certain farm practice and ask politicians to take action. In the second phase, farmers mobilize opposition, framing themselves as food providers. And in the third phase, the Secretary of State announces a

political decision, after which the conflict dies out.

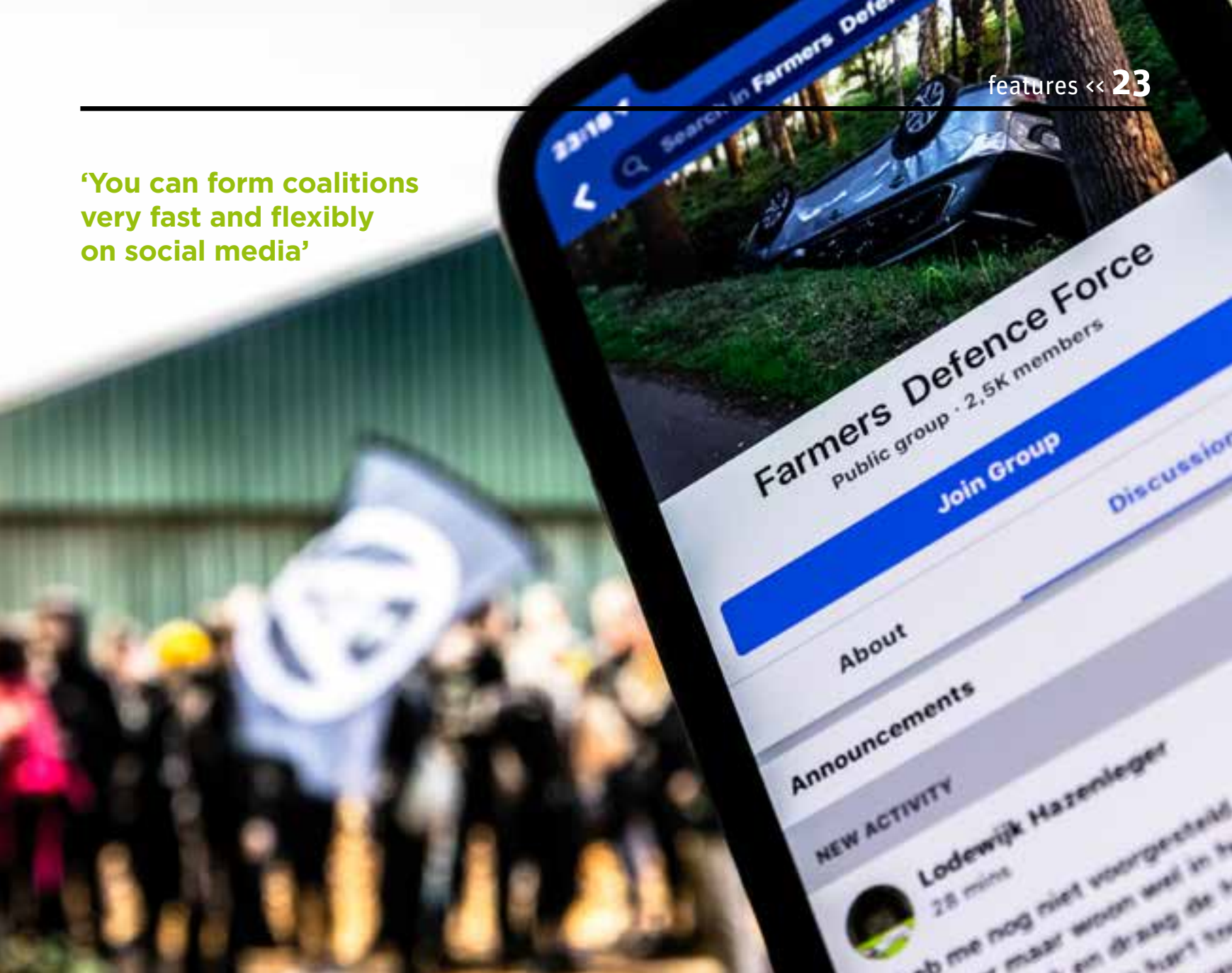
'What was special about the conflict about the calving jack was that the two parties had different views but used the same framing,' says Stevens. Both Wakker Dier and the farmers claim to love animals very much and to want increased animal welfare. They base their arguments on the same values and both say that we need to look at the facts and not react emotionally. Also, both parties start from the principle that whatever is natural is also good for animals. 'But then activists and farmers have very different ideas about what the facts are, and what is natural.'

Because both parties argue for welfare, there was no question of choosing between different interests or values, says Stevens. Instead, the credibility of both parties was under fire: 'Who cares about animals the most? That caused the discussion to get very emotional.'

OOSTVAARDERSPLASSEN

That they had almost the same ideas about welfare was clear a few years later, when animal activists and farmers united on social media against the ecological nature management practised in the Oostvaardersplassen nature reserve, causing cattle and horses to starve. 'That is social media too,' says Stevens. 'As a participant, you can take different stands

‘You can form coalitions very fast and flexibly on social media’



in different discussions, and form coalitions very fast and flexibly.’

These insights were applied in the organization of the broad farmers’ protest that suddenly emerged last year. ‘The farmers are still mainly on the defensive on social media,’ says the researcher. ‘The animal activist groups are behind most of the hypes about food production. But the farmers have now learned that they must be very quick to explain and frame news about food, and that they can influence the public debate about food by the way they frame things.’

FARMERS MOBILIZE

What is more, they have learned to organize themselves fast and better via social media, says Stevens. ‘They can make arrangements for demonstrations and whip up anger in closed Facebook groups and on WhatsApp, so they can quickly express themselves collectively.’ Wakker Dier had already learned to play

that game, but now the farmers are seizing the opportunity to create a strong identity on social media. It is still often a matter of spontaneous campaigns and reactions, but there are now also groups of farmers who want to develop a proactive agenda on social media. Just like Wakker Dier, groups like Boer Burger Tweet and Team Agro NL are working on the strategic use of social media to make the discussion about food go their way. The consequences are evident, says Stevens. ‘For years, farmers played a small role in the media and in the image of food. The regular media were city-based, and the farmers were in the countryside. Using social media makes it easier for farmers to participate in the public debate. They can get their points on the agenda and address politicians directly on social media: are you going to do something? That creates a new dynamic.’ 

‘CALF LOVE’ AND OTHER EMOTIONS

Emotions play an ambiguous role in discussions on social media, says Tim Stevens. Participants try to discredit each other by saying those on the other side are reacting emotionally and therefore failing to provide rational arguments for their standpoint. But meanwhile, says Stevens, all the parties make use of emotional arguments or values in their discussions on social media. Women farmers present themselves as caring mothers and use the slogan ‘calf love’ to emphasize how well they look after the animals. Welfare activists share heart-rending pictures of animals and claim to be the ones who really care about them. It’s logical that such emotions are present, says Stevens. ‘You only take action if you feel something is valuable. Emotions are the driver of human behaviour.’

50 shades of green

Wageningen is bursting with green clubs, associations and activist groups. In fact, it's so green you can hardly see the wood for the trees. Here's a guide to stop you getting lost.

text Luuk Zegers illustration Yvonne Kroese

GREEN FINGERS

If you like to grow your own food, you can do so at the **Creative Garden Wageningen @ de Hoge Born and Wageningen Student Farm**. These initiatives let you have a vegetable garden together with others, growing vegetables, mushrooms, flowers and herbs. It's a chance to put what you learn on your degree course into practice, but mainly it's a fun way of gardening and eating together.

The **Boerengroep** foundation offers internships at sustainable and innovative farms. It also organizes the Farm Experience Internship every summer, in which you can work at sustainable agrarian enterprises, from organic farms to food forests.

Do you like walking and cleaning up? Then you should join the monthly litter-collecting walk organized by **Wageningen Schoon**. Or would you rather help with nature and landscape management in and around Wageningen? Then you could join **Mooi Wageningen's** planting campaigns.

GOOD TASTE

For those who enjoy tasty sustainable food, there is more than enough to do. Interested in plant-based food? Join the brand new **Vegan Association Wageningen**. As well as dinners and cooking workshops, there are quizzes, lectures, film evenings and outings. Or go along to the fortnightly vegan café in **Ppauw** eco village.

Prefer to set to work in your own kitchen? Cook with local seasonal produce by signing up for the vegetable box from **Wageningen Environmental Platform**. Have you cooked up a storm with it, and now it's more than you can eat? Share it through the **Foodsharing Wageningen** Facebook group: you can leave the leftovers in the fridge at **THUIS**. This Wageningen community living room is also the place to be for other activities, lectures and workshops.

TIME FOR ACTION

Got ideas for making the university greener? Pop into **Green Office** and **Wageningen Environmental Platform** in Forum C239.

They will help you put your initiative into practice. Or approach the student council party **S&I** (Sustainability & Internationalization). As a student council party, they can submit proposals to WUR's Executive Board.

And of course you can also join an activist group like **Extinction Rebellion**. Besides demonstrations and climate marches, they organize discussions and talks about the direction the university is going in.

Or are you more the type for mixing work with pleasure? The first **Globus** on 13 June might be your thing: a sustainable festival organized by WUR students. All profits will go towards conserving the rainforest in Costa Rica. In the student societies, it is the **DuurCos** (sustainability committees) which inspire members during sustainability weeks and figure out how the societies can go greener.



SOUL FOOD

How can we run the world in an environmentally friendly and socially fair way? Organizations like **OtherWise** and **Rurale Universiteit Wageningen (RUW)** ask questions, stimulate dialogue and help you look at the world with a critical eye.

Boerengroep does that too, but then with a focus on agriculture. Boerengroep's theme for 2020 is agriculture and climate change. Boerengroep is also behind **Inspringtheater**, an improvisation theatre group that raises serious issues in a light-hearted fashion.

If Jane Goodall is your hero, take a look at the **Future for Nature Academy**, where you can meet young nature conservationists from all over the world.

And then there is **RENEW: Restoration Network Wageningen**, where everything revolves around one thing: restoring ecosystems. How do you do that, actually? By bringing people together, developing educational programmes and going on excursions to ecosystem restoration projects.



STILL FINDING IT HARD TO CHOOSE?

Keep an eye on the communication channels of the **Green Active Network Wageningen** and go to one of their parties, which bring different groups together.

Or join in one of the **Regreenings**: *the* initiation ritual for getting to know the green organizations.

IN OTHER NEWS

BIG NEWS (1)

The family of viruses continues to expand. Scientists at Berkeley have discovered a new class of phages (bacterium-destroying viruses) that have four times as much DNA on average. The biggest have 15 times more DNA. The various groups of giant phages have been named using words for 'big' in the languages of the study's co-authors, which is why we now have the Whopperphage (US), Biggiephage (Australia), Judaphage (China) and Jabbarphage (Saudi Arabia).

BIG NEWS (2)

But it gets weirder. The DNA in the giant phages codes for various proteins that play a role in the cellular processes that we call 'life'. The giant phages are therefore a kind of intermediate form between viruses (non-living) and unicellular organisms like bacteria and archaea (living): a missing link in the tree of life.

SNAIL

A new kind of land snail has been named after Swedish climate activist Greta Thunberg. The snail, *Craspedotropis gretathunbergae*, was discovered by a 'citizen scientist' during an expedition in Brunei. Why Thunberg? The snail belongs to a group of land snails that are sensitive to drought, extreme temperatures and land degradation. Very appropriate for a climate activist.

PROSTHESIS

The dimensions of paralympic athletes' blades have no effect on their speed, say researchers from the University of Colorado. That negates the argument for a recently introduced rule that imposes a maximum length on blades. Longer blades may increase your stride length but you also take fewer strides, and the two effects cancel each other out.



PHOTO: DAVE SMITH 1965 / SHUTTERSTOCK.COM

Student wins a year's tuition fees with plan for 'potato fish'

MSc student of Food Technology Nicolas Curubeto (27), from Argentina, won the Avebe Student Challenge in collaboration with two students from Hanze University of Applied Sciences in Groningen. The assignment: design the potato plant of the future. The prize: a year's tuition fees.

'We had to come up with a plan to make the potato plant more sustainable and with ways to fully valorize the potato,' says Curubeto. 'Avebe is already known for that, but they want to improve the valorization in the coming years.'

PLANT-BASED

The students in Curubeto's group 'Ave-to-be' focused on the transition to a more plant-based diet. 'The demand for plant-based products is rising, so one of the things we did was to explore the potential of potatoes as a protein crop. Soy is a crop that is high in protein; almost 40 per cent of the soybean is protein. The potato contains only about two per cent protein. But we found out that, per acre, the amount of protein is similar. That is because you can produce far more kilos of potatoes per hectare than kilos of soybeans. Which means that, if you can extract this potato protein smartly, you can see the potato as a protein crop.' Avebe already produces potato pro-

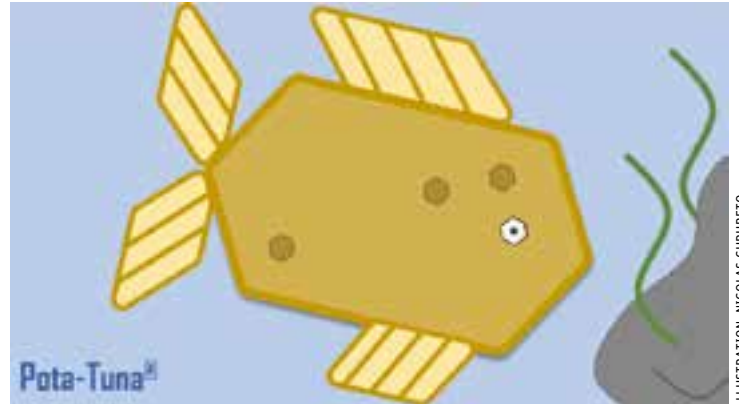


ILLUSTRATION: NICOLAS CURUBETO

▲ Pota-Tuna, the potato fish.

tein. By critically looking at potato science, Curubeto's group found a way to increase the amount of protein extracted from potatoes, as well as finding new possibilities for extracting healthy fats (omega 3 and 6) and amino acids, which can be used as flavour enhancers or food supplements. 'This can be achieved by switching to a more innovative filtration system.'

POTATO FISH

Then the students combined their findings in an idea for a new product: the potato fish. 'Fish is rich in proteins and healthy fats like omega 3 and 6. Since we can extract those from potatoes, it is possible to create a plant-based product that resembles fish in terms of its nutritional value. We can use the amino acids as a fla-

avour enhancer, to make it taste like fish as well.'

Curubeto's group also looked at how the water and energy consumption of the potato plant could be minimized. 'In the course Sustainability in Food and Bio-Processing, I learned about drying food products. The potato consists of 70 per cent water. By using a drying technique that captures water instead of releasing it into the atmosphere, this water can be used in other processes in the same factory.' The jury praised the integrated approach of Curubeto's team. All team members received one year's European tuition fees (2083 euros). 'The prize money will go to my family. They supported me so I can study here; this is a way I can thank them.' **LZ**

STUDENT CHALLENGE VISIT TO CHINA CANCELLED

The plan for participants in the Urban Greenhouse Challenge to pay a site visit to China will not go ahead because of the coronavirus. Instead, there will be an alternative programme in the Netherlands in early April.

Student teams taking part in the Urban Greenhouse Challenge have to come up with a design for professional food production in the Chinese city of Dongguan. The intention was to send a delegation with one or two students from

each team to the city in February to collect data and talk to stakeholders. The visit had already been postponed in January because of the coronavirus outbreak. Now it is definitely not going ahead. **LZ**

NEW: THE VEGAN STUDENT ASSOCIATION

There is a new association in town for everyone interested in a plant-based diet: the Vegan Student Association (VSA). 'It's all about good food and good company.'

Luc Roefs (26), a BSc student of Business and Consumer Sciences, heard that Groningen had launched a student association for vegans. 'During class, I mentioned to a friend that it would be nice to have a similar association in Wageningen. Following that, nothing much happened, but during a potluck dinner in Thuis, someone else had the same idea. So the three of us got together to discuss the possibilities.' The three students reached out to other vegan student associations.

'Together, we came up with a mission. We strive to create a community for students interested in a plant-based diet and to provide an atmosphere in which veganism is easier and more fun. In the end, it's all about good food and good company.'

QUIZZES, COOKING WORKSHOPS, MOVIE NIGHTS

VSA Wageningen now has 37 members, who can attend dinners as well as quizzes, cooking workshops, lectures, movie nights and trips. 'For example, we are planning to visit Veggie World, the largest vegetable exhibition in the Netherlands.'

All the activities are open to everyone, says Roefs. Even to carnivores? 'Certainly! We don't want



PHOTO: VEGAN STUDENT ASSOCIATION WAGENINGEN

Group photo taken at the first VSA-event.



to be judgemental. Anyone interested in vegetable-based food is welcome, meat-eaters included.'

Ⓡ LZ

MEANWHILE IN... MEXICO

'There are peaceful ways to make your voice heard'

On Valentine's Day, there were large protests in various Mexican cities against violence against women. During the protests, buildings were vandalized and there were clashes with the police. WUR student Flavio Díaz Mirón Rodríguez shares his views on the protests and the high level of violence against women in Mexico.

'I don't think the main problem in Mexico is violence against women. I think the real problem is organized crime, low levels of education and low levels of policing, which results in violence against everyone, including women. If we only focus on the female side, it won't solve anything.'

I totally disagree with the vandalism of the protestors. They break windows and daub graffiti on private and public buildings. I think there are peaceful ways to make your voice heard. Some protester groups don't allow men to participate in their protests. They don't want men to help them, but they do want us to change.



Flavio Díaz Miron Ródriguez (31), an Urban Environmental Management MSc student, reflects on the current situation in his home country.

In big cities there is less of a macho culture because of the protests, social media and discussions on TV shows.



PHOTO: PACIFIC PRESS / SHUTTERSTOCK.COM

Before, talking about macho culture would be taboo, but now it's becoming more and more normal to discuss this. People are starting to question the macho role, the macho culture and inequality in Mexico.

The violence in Mexico affects me on a personal and psychological level. It makes me a bit sad that this is happening in my home country, and that it's been happening for so long. Sometimes, the sheer impact of Mexico's negative image is really overwhelming. When I talk about my home country with international friends, I always hear that the general image of Mexico is of a very violent place. Shows like Netflix's *Narcos* don't help Mexico's image either. It feels like people are a bit paranoid about going to Mexico. Ⓡ EM

YOU ON CAMPUS

Tamara Fikke (23, MSc in Biotechnology) is getting ready for her first ballroom dancing competition. 'With those lovely long dresses and the graceful dancing, I feel just like a princess at the ball.'

Tamara has been doing Ballroom and Latin dancing for six years, but only started dancing with the Wageningen Ballroom Dancing Association (WuBDA) this year. 'In March we are going to Rotterdam for a weekend, to a competition for all the student ballroom dancing associations in the country.' This will be Tamara's first time: 'I don't have high expectations, except that it will be fun.'

Tamara explains that you usually have to do three dances per competition category. There are several rounds of one to two minutes. 'Then the music starts playing and you decide for yourself when you start.' She and her dancing partner are working in particular on

their technique. 'How do you come on to the dance floor, how do you go off? That sort of thing. And you have to make sure the jury notices you. Present yourself. So dance near the jury and get noticed by starting in an empty space and of course, making a nice bow at the end.'

'It is quite a dangerous sport, now I come to think about it'

Tamara has never fallen while dancing. 'Luckily my partners always catch me in time. But if the floor is slippery, it can happen that suddenly someone is lying on the floor. Tamara bursts out laughing. 'It is quite a dangerous sport, actually, now I come to think



about it.' And she cheerfully recounts stories of not just falls but also numerous ankle injuries, heels landing on your toes, and even shoes flying across the dance floor. Dancing helps Tamara deal with stress. She is working on her thesis and can now take a short break in Radix. 'I am doing two specializations, because I couldn't choose.' That means taking an extra year over her Master's, but that is not a problem for her. 'The only thing I don't like so much is that I'll have to do a second thesis once this one is finished.' But even that will be perfectly alright, says cheerful Tamara. 'Luckily, there is a holiday in between.' **IC**

The end of an era

Once your Master's is in the bag, a whole era ends. Blogger Donatella Gasparro has long been ready to end her student status. But what's waiting at the end of this marathon?

Being a graduate comes with many things beyond the title MSc after your name. I gave it some thought and it suddenly felt like once your student status expires, the world drags you out of privileges and comfortable bubbles. Take WUR, for instance: they kick you out of Outlook in two months. I am not ready for that. So much of what I did in these years is in OneDrive, so many contacts in my mailbox, so many appointments in MyCalendar – and all the study material in Blackboard and Brightspace! And the student privileges of hous-

ing, of discounts at shows and museums and other places. Suddenly you're expected to have a good salary, a real house, a sorted-out present and a plan for the future. Sure.

PLAN FOR THE FUTURE

It's easy to have plans for the future when you train to be, say, a baker. Bakery school finishes, you

'So I end up opening random job vacancies every day'

become a baker. Straightforward. But what happens when you finish a multi-disciplinary programme with a system-wide approach? You do not become a multidisciplinary

expert in system-wide approaches. The world is not ready for that. Researcher? Consultant? Teacher? Supply chain manager? Project manager? Policy advisor? Wow, so many opportunities! Wonderful! But which direction do I go in? That's how I end up opening random vacancies every day. 'Oh, this looks interesting, I even meet the requirements!' But I never apply because, hey, I actually don't want to move to, say, Bonn.

MARATHON

It's the first time I have finished something without knowing for sure what's coming next. I finished secondary school and went straight to university: I knew I wanted to study agriculture. I finished my Bachelor's and set sail to the Netherlands: I knew I wanted

BLOG



Donatella Gasparro is a Master's student in Organic Agriculture

to study Agroecology. It feels like I've been running a marathon for many years and now that the end is near I am not sure what I've been running towards. But I know what I've been running through: scenic roads shaded by trees, gentle plains with occasional hills, fertile fields in bloom and amazing runners by my side. I don't know where the journey is bringing me, but it surely was a marathon worth running. **IC**

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.

Blessing in disguise

'I was doing a minor on Climate Change and Natural Disasters in New Zealand when I needed to get more points for the Honours Programme I was taking as well. I decided to do that by doing an internship in South Asia. But I had no idea what or how until I heard about IFSCA during a lecture. IFSCA is a Massey University project in Indonesia, which helps farmers set up a sustainable agricultural business. When I spoke to the teacher after class, he was very enthusiastic and it was sorted straightaway, really: I could go there and do my internship in Agricultural Development.'


DISASTER

Two weeks later, Lombok was struck by an earthquake that destroyed a lot of houses. Many farmers fled and the research centre was damaged. It was touch and go whether the project would continue. 'There were a number of aftershocks, but I got the go-ahead just before I left for Indonesia. I boarded the plane with great relief.

When I arrived, I saw the devastation caused by the earthquake. On ground where houses once stood, there were now heaps of bricks. The harvest was destroyed and many farmers had lost their investments. Many of them had fled and were afraid to come back.

CONSTRUCTION KITS

The government sent teams to all the villages, to help rebuild the houses together with the villagers. They had to use new techniques. Their old building method was not good or sturdy enough. The government gave people money and construction kits for rebuilding their houses. The IFSCA project where I was doing my internship had always been involved with the farmers and after the earthquake, the farmers could appeal to the project for help with rebuilding the villages. The people at IFSCA helped the villagers to restore everything as fast as possible. The aid was

small-scale and in this case that worked better than large-scale aid because it was very specifically channelled to the farmers. That was very efficient. That is what my research was about in the end: methods of recovery after an earthquake. The change of plan was a bit of a silver lining for me, because I was already doing a minor on natural disasters. This internship was going to focus on agriculture, and now – through an accident of fate – I could combine the two.'  AdH



THE WORKS

Who? Mirjam van Hemmen (21)
What? BSc Landscape Architecture and Spatial Planning (BLP); research internship, MSc Climate Studies (MCL)
Where? Lombok, Indonesia

Do you too have a nice story about your internship or thesis research abroad?

Email resource@wur.nl



Announcements

Student Council 2020/2021 election – electoral register

In preparation for the Student Council 2020/2021 election, scheduled for 25-28 May 2020, the Student Council Election Committee is publishing the electoral register on 27 February 2020. All students who are registered as a regular WU student on the reference date, 24 February 2020, are entitled to vote and can stand for election, and should be included on the electoral register. They are requested to verify that they have been registered correctly by checking whether they have received an email on 27 February to inform them about their voting rights or by checking the electoral register, which is available from 27 February through to 5 March at the Student Council secretariat, Droevendaalsesteeg 4 (Room B.103), PO Box 9101, 6700 HB Wageningen. Any person concerned

may lodge a notice of objection to the electoral register up to and including 5 March 2020 with the Secretary of the Student Council Election Committee, Hermijn Speelman, Droevendaalsesteeg 4 (Room B.103), PO Box 9101, 6700 HB Wageningen or secretariat.sc@wur.nl.

Student Council 2019/2020 - changed membership

Student Council member Domenico Renders (S&I) has resigned from the Student Council with effect from 15 February 2020. According to the Student Council regulations, the Council will appoint as a successor the candidate who, according to the results of the last election (May 2019), is the first to qualify. Qizhi Ren (S&I) is the first to qualify and will be appointed a member of the Student Council from 1 March 2020. A copy of the Student Council's decision will be available for inspection at the office of the Secretary of the Student

Council. Any person concerned may lodge a notice of objection to this decision up to and including 5 March 2020 with the Secretary of the Student Council Election Committee, Hermijn Speelman, Droevendaalsesteeg 4 (Room B.103), PO Box 9101, 6700 HB Wageningen or secretariat.sc@wur.nl.

Capita Selecta: Economic Perspectives for a Circular Food System

Curious about what is needed to shift to a circular food system? In this new course, you can explore the role of the economy in the transition towards a circular food system (3 ECTS, period 5). For more information, send an email to evelien.deolde@wur.nl.

Forum Library exhibition *Woven Geometry*, Paulien van Asperen

Paulien van Asperen is a WUR researcher in the Field Crops business unit in Lelystad. To relax from her busy job, she took up the inspiring

craft of weaving. Her woven blankets and shawls, tapestry and other woven objects are now on display until 5 June. Paulien was awarded the prize for best individual work for her work *Overgangen in zwart-wit* at last year's National Weaving Conference Day in Barneveld. Are you an artistic scientist or a scientific artist yourself? WUR Library offers students and staff a unique opportunity to share their work with a wider audience. Please contact monique.braakhuis@wur.nl.

Toastmasters Wageningen

Do you want to improve your public speaking skills in an engaging and supportive environment? Then try Toastmasters Wageningen. Toastmasters is an organization with clubs all over the world. Our club is for students and non-students alike. With our practical approach you can get rid of your fear of public speaking and improve your improvisation skills. We meet every



MCB-51403: Commodity Futures & Options Markets

Always wondered about what is happening at the trading floor of exchanges like the ones in Amsterdam, Paris, Frankfurt, London and Chicago? Wondered about how (agribusiness) companies manage their risks and improve their financial performance using commodity futures and options markets? Wondered about how it would be if you were trading commodity futures in Amsterdam, Frankfurt and Paris?

The *Marketing & Consumer Behavior Group* organises a unique course that will introduce students to commodity futures and options markets. Students will develop an understanding of the markets and how they work, gain knowledge about the theory behind futures and options markets, identify their economic functions, and develop an analytical capability to evaluate their economic usefulness. This course is taught by Prof. dr ir. Joost M.E. Pennings (*Marketing & Consumer Behavior Group*, Wageningen University & Research). There are only 40 seats available. If you are interested in taking this course (3 Credits) please register with Ellen Vossen at MCB (Room 5029, De Leeuwenborch, e-mail: Ellen.Vossen@wur.nl, tel. 0317-483385). You can pick up the materials in Room 5029. Lecturers are in period 5. Prerequisites: None.

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second and fourth Monday of the month at StartHub. Feel free to give it a try and bring a friend along! Find out more at toastmasters.nl/en/tm-clubs/wageningen.

Agenda

Thursday 27 February to 12 March SHOWING AT MOVIE W

The Invisible Life of Euridice
Gusmão: Brazilian drama about sisters, their inextricable bond and their search for happiness. *Honeyland*: Macedonian documentary about the equilibrium between people and nature. *La Cordillera de los Suenos*: documentary about Chile, past and present. *Little Joe*: British horror film about new flower. *Sibel*: strong feminist film from Turkey about a young woman's struggle in a traditional, patriarchal society. Venue: Wilhelminaweg 3A, Wageningen. €6.50/€8.50. moviev.

28 and 29 February,
4 and 5 March, 19:30

PANTARIJN THEATRE GROUP PERFORMS WAGENINGEN FOREVER, FOREVER WAGENINGEN

A musical play to celebrate the anniversary of the Wageningen secondary school. The audience is taken on a journey through Wageningen and its history, which of course includes the university. Venue: Pantarijn, Hollandseweg 11, Wageningen. Tickets (€8.00) from Kniphorst or via spelgroepantarijn@gmail.com.

Saturday 29 February, 20:00 ANNIVERSARY CONCERT 'HEROES' BY STUDENT ORCHESTRA DE ONTZETTING

De Ontzetting will celebrate its 35th anniversary with a spectacular concert. Heroes from the past and present will be remembered in a programme that includes *Hymn to the Fallen* by John Williams. De Ontzetting's own heroes, in the form of

the former-members orchestra, will also perform two heroic pieces.

Venue: Junushoff Theatre, Wageningen. The concert hall will open at 19:15. Admission: €7.50, students: €5.00. www.ontzetting.wur.nl

Tuesday 10 March, 20:00 STUDIUM GENERALE: DRAW LIKE REMBRANDT IN TWO HOURS

Rembrandt is one of the world's most renowned artists. Under the guidance of the Rembrandt expert Nina Rave, we will experience hands-on what it means to draw from life and without preconceived ideas. In this interactive lecture organized by Studium Generale in cooperation with the Rembrandt House Museum, you will develop insights into Rembrandt's drawing techniques and his approach to capturing life as he saw it. Bring your sketch books, paper and pencils and practice how to draw like Rembrandt, in two hours. Venue: The Spot, Orion.

Thursday 26 March, 12:30-17:30 POSTDOC EVENT AT KEYGENE, WAGENINGEN

Doing a postdoc in industry? That is certainly not common, but it is exciting. Doing research and working on your career within an innovation-oriented company may well open your eyes to working in industry. And innovation-driven scientists, like the ones at research company KeyGene, often enthusiastically welcome postdocs to the team. Wageningen-based KeyGene is organizing an on-site and online postdoc event on 26 March. The invited speaker is Anna Goedhart, National Marie Curie Contact Point for industry in the Netherlands. KeyGene's CEO Arjen van Tunen will talk about the postdoc programme at KeyGene, which currently has six postdocs. Full programme and (free) registration: www.keygene.com/postdocevent2020

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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>>TYPICAL DUTCH



ILLUSTRATION: HENK VAN RUITENBEEK

The Animal Ambulance

I sometimes get the impression that the Dutch health service cuts a few corners. I expected something similar when it came to medical care for animals. However, I was in for a pleasant surprise!

Last summer, I was cycling home when I saw a weird small object lying in the middle of the backyard path. I stopped to look and, to my surprise, found a little baby bird lying on the ground. The chick was still alive but could not fly; it had probably fallen out of the nest. I began to worry, as the chick was vulnerable to the neighbourhood's cats, so I quickly left my bike at home and asked for help. Although I have experience with puppies, I have no caring experience whatsoever with birds. While I tried to find the nest to see if we could return it, my boyfriend put the bird inside a small box with towels to keep it warm. We did not know what to do next, so we asked a Belgian friend for an emergency number for a vet, and she suggested calling the 'Animal Ambulance' (Dierenambulance). We called them, explained the situation, and they asked us for our address. Fifteen minutes later, the animal ambulance came by. The vets checked the baby bird and asked us to heat some water; fortunately, they told us that the chick still had a chance of surviving. After we had shown them where we had found it, they prepared it for the trip and took it away. I would not have imagined seeing a huge ambulance coming for a tiny bird. In my country, it might be seen as a bit extravagant. So far, I have the impression that Dutch people care a lot about animals, particularly birds! **📍 Ixchel Gilbert Sandoval, PhD candidate in the department of Toxicology, from Mexico**

'A huge ambulance for a tiny bird might be seen as a bit extravagant in my country'

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.