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NOVEMBER 2023 VOLUME 18

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Instagram babies break sleep rules

Disagreement over glyphosate continues No more Idealis corridor representatives Dragonflies indicate biodiversity

Haarweg peeping Tom caught in the act

Marine Sciences has started The sea needs students | p.12



Contents

NO 5 VOLUME 18



Bluetongue 'Busy in the lab'



'Heeren XVII' Name is questioned



26

Carbon farming Compensation doesn't work

FOREWORD

Vote for WUR

Agricultural organizations are not happy about WUR getting involved in the debate about the future of farming. They voiced their criticism in a joint letter in which they responded to the vision document WUR recently published on agricultural policy in the future. In that vision document, Wageningen researchers identified six dilemmas that should form the basis for discussions about the future of farming — an attempt to help politicians, if you like. The agricultural organizations think that vision is too scientific and insufficiently hands-on. Which you could call a compliment.

Climate scientists, including WUR's Gert-Jan Nabuurs and Robbert Biesbroek, are also getting involved in politics. They sent a letter to the government setting out 'five key insights'. The scientists are 'fed up with the hesitant policy', according to the headline in *Trouw* newspaper, and so they decided to come up with their own solutions.

Gone are the days when WUR wanted to project the image of an institution focussing solely on science and education. It is no longer standing on the sideline, but is 'opening its big mouth', as one of our editors put it. Whatever your own views — can't be activist enough or should stick to research and education — WUR is clearly becoming more political in its public statements. So it's good to know there is now a group in Leeuwenborch studying the campaign fever WUR is getting involved in. Read all about it on page 22.

Willem Andrée

Editor-in-chief

- 4 Political debate at Ceres
- 5 Laughter and love in Room Service
- 11 Column: Guido on Omnia
- 28 Nature watching
- 29 Look! Music inspires Alicja

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Infrared light lets you see inside fruit. The Spectral Cabinet of researcher Puneet Mishra and his team does this fast and efficiently. The equipment was demonstrated last week at the Digital Innovation Expo in Impulse. The machine uses two infrared cameras to scan fruit. Software then turns the scans into data on sugar content, firmness and so on, data that is crucial for estimating the fruit's ripeness. And it does this for each apple, banana and mango individually. At present, such testing is done manually. RK

Read more about this topic on resource-online.nl



Ceres holds political debate

On Thursday 9 November, student society Ceres and the Wageningen Federation of Student Associations are jointly organizing an evening of politics in the run-up to the elections.

Outgoing minister Rob Jetten (Climate and Energy Policy) will open the evening. 'Then he'll get questions in the College Tour style from the event's chair and people in the room,' explains Ceres president Gijs van der Neut. The second part of the evening will consist of a debate between politicians representing various parties taking part in the Parliamentary elections. They include outgoing minister of Nature and Nitrogen Policy Christianne van der Wal-Zeggelink. The politics evening will be held in the Ceres club house from 19.00 to 22.30 and is open to everyone in Wageningen. You don't need to register in advance. LZ

Idealis stops corridor representative role

Student complexes no longer have corridor representatives. That role has been abolished by student accommodation provider Idealis. 'That setup no longer fitted with today's regulations.'

'It was getting more and more difficult to recruit corridor representatives,' says Idealis director Bart van As. 'In addition, their job of managing refunds for cleaning costs became unnecessary because that setup no longer fitted with today's regulations.'

In that setup, a deposit of 15 euros per month per tenant was added to the service charge, explains Van As. The corridor representative managed the account the deposits were paid into. 'That gave them some leverage with the other tenants: either you do your cleaning chores or you lose your deposit. But when 18 people pay 15 euros every month, that soon adds up. And we didn't know what was going on in the accounts. We have had the occasional case of fraud.' Van As expects Idealis tenants will now make arrangements among themselves to keep the student accommodation clean.

No change

Hoevestein tenant Querine van Rijn (21) says there has basically been no change since the role was abolished. 'We still have a corridor representative who manages the housekeeping account and draws up the cleaning rooster. People



Photo Mario Martens

on the corridor pay the same amount as before, only now to the housekeeping account. The payment is now voluntary in theory, but in practice everything is the same.'

Julie van den Boogaard (23) of Dijkgraaf has noticed a minor change since the abolition of corridor representatives. 'First we had one single corridor representative who both ordered groceries for the corridor and drew up the cleaning rooster. Now we've assigned those tasks to two people.' Housemates pay ten euros into the housekeeping account. 'We try to keep the place tidy, but of course it's still student housing..' LZ/MM

Haarweg peeping Tom caught in the act

A peeping Tom has been making the occupants of a student complex on Haarweg feel unsafe. Now the police have arrested the man in question. Community police officer Wiro Pillen: 'We got reports of a peeping Tom on Haarweg and at other locations. Based on the description, we soon figured out who it might be, namely someone who has a history of this sort of thing. We kept a watch on the places where he had been spotted until we were able to catch him in the act. Then we arrested him.' If the police suspected someone, why didn't they go to his home straight away? 'Because we caught him in the act, he is more likely to get help with his problem,' explains Pillen. 'Hopefully that will be an end to the case'. Although 'peeping' is officially a criminal act, it is not treated as a serious offence. Yet it can still have a big impact on victims, says Pillen. 'You really violate people's privacy.' LZ

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Over the next ten years, new first-year Bachelor students will be monitored in the Wageningen Student Cohort research project to track developments in their mental and physical health and see how that relates to diet and lifestyle. So far, 80 first-years have registered, says principal investigator Nicole de Roos (Human Nutrition and Health). 'We would like 200, so more registrations are welcome.' The researchers eventually plan to track 10,000 students. Lz

Room Service

Room Service, the annual festival held in student rooms, is due to take place on 2 November. The festival 'grounds' consist of ten student rooms, the BBLTHK and a church. It was not easy to find locations. Organizer Jes Kallen: 'First we contacted student houses that had been hosts before, but we didn't get enough participants. Then we asked more people via friends, and we also did some cold calling at houses. The programme is very diverse: there is comedy and there are more serious performances as well as a light-hearted one about love. The style is diverse too, from anti-establishment poetry with guitar accompaniment to a play about sexual frustration. Dan Tuffy will be coming to the house Onder de Magnolia. 'Hostess' Imme: 'He will be telling this amazing story in my room. But first I have to rejig my room so it can be used for the performance' FL

More info: www.wur.nl/nl/activiteit/ sg-roomservice-2023.htm

Parliament cuts loan rate for 'unlucky students'

A majority in the Dutch Parliament want students who fell under the loan system to pay less interest on their student debt. It is not yet clear how much less or as of when. The proposal to reduce the rate to zero didn't pass.

Many current and former students got an unpleasant surprise when the interest rate on their student loans increased from 0 to 0.46 per cent this year, and it is due to rise to 2.56 per cent next year. They missed out on the basic grant and so had to borrow more than previous generations of students, and now the rate was going up.

Various political parties were prepared to do something to help these 'unlucky students', as they are known. MP Pieter Omtzigt proposed reducing the rate and funding this by scaling back the tax discount for expats. The amendment he sub-



mitted, together with GroenLinks, PvdA, ChristenUnie and Volt, was supported by a majority of MPs.

Freeze

It is not yet clear what this means exactly for the students. According to Omtzigt, gradually scaling back the expat scheme will earn the Treasury 3 million euros in 2025, increasing to 194 million euros in 2029 and subsequent years. This gain will be used 'in its entirety' to reduce the interest rate paid by the 'unlucky' generation. But the new legislation doesn't say by how much or as of when.

A comfortable majority of MPs supported the GroenLinks motion calling on the government to freeze the rate for the 'unlucky students' at 0.46 per cent in 2024 pending the implementation of the new legislation. Demi Janssen, chair of the Dutch National Students' Association (ISO), is disappointed the zero per cent proposal didn't pass. 'Now the important thing is to make sure students are not left in the lurch and that they get financial security.' ISO thinks the rate should be frozen for now, even if that requires extra funding. HOP

More 'design thinking' after Dutch Design Week

WUR was in evidence in various ways at last week's Dutch Design Week (DDW) in Eindhoven. Gert Jan Veldwisch, who co-coordinated Wageningen's contribution, was pleasantly surprised by the dynamic generated by the event. 'You get different kinds of questions when you place your work in a design context.'

Various Wageningen projects, both well-known and less familiar, were showcased at DDW. Sigrid Wertheim-Heck, for example, repeated the Great Food Dilemma, the food experiment she carried out at the Lowlands festival. 'Space farmer' Wieger Wamelink's

'There is definitely room in our Master's programmes for more on design theory'

work was part of the *Spacefarming: the Future of Food* exhibition at Evoluon. And artist Arne Hendriks presented a project inspired by his time as artist in residence at WUR (in 2021), which he worked on with Wageningen emeritus professor of Philosophy Cor van der Weele.

WUR was also represented via 4TU Design United, the design collaborative venture of the four Dutch technical universities. They organized dialogue sessions that attracted a lot of technical scientists interested in doing more with design, says Veldwisch. 'You get very different questions when you examine your field of work in a design context. That is incredibly inspiring.'

Designs

Professor of Landscape Architecture Sandra Lenzholzer is already leading



The WUR project Plant Pixel was exhibited during Dutch Design Week. Inspired by cliffs, it is a concept for combining greenery and urban buildings. Plant Pixel is a project run by Professor Sandra Lenzholzer and PhD candidate Maricruz Solera Jimenez. • Photo *Resource*

a WUR initiative to set up a community of scientific 'design thinkers'. Veldwisch: 'There are quite a few WUR studies that apply design thinking, but they are usually problem-driven. The design process is not always explicit.' The same applies in teaching, he thinks. 'WUR now has the Engineering Doctorate (EngD), which is geared to design. But there is definitely room in our Master's programmes for more on design theory and methodology.'

If you want to find out more, the Wageningen design thinkers who took part in Dutch Design Week are organizing a Design Dialogue in Impulse during lunchtime on 13 November. This will be a kind of summary of their DDW contributions. And at lunchtime on 28 November, they will be organizing a meeting about design thinking and the education at Wageningen. If you want to get involved, you can contact Gert Jan Veldwisch. ME

Design thinking is a method for tackling issues that assigns a key role to the design of concrete solutions. This approach often leads to a redefinition of the problem. If the design is intended to bring about social change, it is termed 'social design'. A wellknown example from Wageningen is the WUR study of the Netherlands in 2120: a country designed to allow room for climate change, urbanization, biodiversity, rising sea levels, extreme weather and increased food production.

Disagreement over glyphosate continues

The EU has still not made a decision about glyphosate, the active ingredient in a number of herbicides. A crucial ballot in mid-October did not get enough votes, either for or against. At WUR, opinions are also divided.

There has been a ban on the use of glyphosate by consumers since 2017. The question is whether the EU should also ban the chemical for agriculture. The European food authority EFSA does not think the ban is necessary and recommends renewing authorization for another ten years. However, a crucial vote about the ban in mid-October did not get the required qualified majority, either for or against. Now the appeals board of the Standing Committee on Plants, Animals, Food and Feed (SCoPAFF) has been saddled with the controversial issue. If again there is no majority representing at least 65 per cent of the EU population, it will be up to the European Commission to decide.

No consensus

The Netherlands abstained, despite a motion from Parliament asking caretaker minister Adema to vote against renewal. His decision came from 'weighing up scientific recommendations and concerns within society', he said.

But the scientific recommendations are not unanimous. At WUR too, there is only consensus about the principle that use should be reduced as much as possible. Opinions are divided about the definition of that: what use is acceptable, and up to when?

Richard Harrison (director of the Plant Sciences Group) and Pieter de Wolf (farming researcher) are against a total ban for fear that the alternatives are worse. 'We understand the concerns around glyphosate and think they must be investigated carefully. However, we fear that a blanket European ban will backfire, for people and the environment, and for soil organisms and the climate. And we sincerely wonder if everyone is sufficiently aware of this,' they wrote in an opinion article in de Volkskrant newspaper. That view is also echoed in the scientific perspective that Harrison drafted for the Dutch Parliament. 'A complete ban (...) will make growers

'We fear that a blanket European ban will backfire'

switch to other existing chemical alternatives, which are agriculturally less effective and will

therefore be used more intensively. This achieves the opposite of what we want as a society, which is for less pesticide to be used?

Precautionary

Violette Geissen (professor of Soil Physics and Land Management) called a renewal 'not a good idea' back in 2017. She is still very critical and claims the renewal 'contradicts the precautionary principle'. She says important exposure routes and risks are not included in the EU assessment. Geissen also discovered early this year that glyphosate is the substance most commonly found, and in the largest amounts, in the Dutch samples of the SPRINT study. The study looks at ten European countries, plus Argentina, and measures what pesticide residues are found in the environment, animals and people and in what quantities. In her scientific reflection for the Dutch Parliament she argued that 'the risk glyphosate poses to human health and ecosystems cannot be estimated and therefore the precautionary principle should apply.

The EU must make a decision by 14 December at the latest; the European approval of glyphosate expires on 15 December 2023. ME



Quite apart from the European debate, Agriculture minister Piet Adema wants to ban glyphosate as of 2025 anyway for spraying grassland, catch crops and green manure • Photo Shutterstock

[Live&Learn]

A botched experiment, a rejected paper: such things are soon labelled as failures in the academic world. As for talking about them – not the done thing! But that's just what WUR scientists do in this column. Because failure has its uses. This time, we hear from Alan Pauls, a PhD candidate at the Laboratory of Genetics. Text and illustration Stiin Schroupp

Genetics. Text and illustration Stijn Schreven

'At the start of my PhD, my supervisor asked me to take over the work of a technical assistant from our LettuceKnow consortium, a collaboration between Utrecht University and a few departments at WUR. Having just finished my Master's, it felt like a completely different league. I was hyping it up in my head. As a PhD, you have to be independent, I thought, so I said to myself: whatever problem comes up, I'll solve it by myself.

One Friday, researchers from Utrecht were going to come to launch an experiment together. We wanted to grow lettuce in a climate chamber. The special thing about this room was the cameras in the ceiling, which could take pictures of all the plants. On the day before the get-together, I checked that everything was in order and took some test photos of an empty table. I noticed that the image was tilted. Why was that? And how could I solve it? I had never worked with those cameras before. I kept trying to fix the problem, until closing time, but to no avail. And the people from Utrecht were coming the next

day! They would be disappointed, and I would be disappointed. My supervisor was sure to fire me. At no point did it occur to me to call a colleague, or my supervisor, or the people from Utrecht. After a sleepless night, I got up early to go to the climate chamber, where I was on the verge of tears when Unifarm manager Gerrit passed

'I was on the verge of tears in the climate chamber'

by. He said: "Alan, I think you need some help." I told him about the cameras. "Oh, that's easy." The cameras were not welded to a fixed point, as I thought. In two minutes, the problem was solved. The biggest lesson: the moment you get stuck with something, ask someone. Independence is not about doing everything by yourself. It's being in charge of what you know and don't know, and where to get that information. Research is collaboration. That was the worst day of my PhD, but the best learning experience. It completely changed my PhD experience.'

Instagram babies break sleep rules

After seeing an American study that showed many of the babies in Instagram pictures were not sleeping in accordance with the safety guidelines, Floortje Kanits was curious to know if that was also the case in the Netherlands.

Kanits got a PhD in Nutrition and Health at the end of September for her research on the prevention of cot deaths. 'What we read and see plays a big part in determining what we think of as normal. For example, if we see lots of pictures of babies sleeping in a certain position on social media, we will start to think that's normal even if it is not in accordance with the guidelines. But those guidelines — the baby should sleep on its back in a baby sleeping bag in its own empty cot — were drawn up to reduce the risk of cot death.'

'Only six photos of babies sleeping satisfied all the guidelines'

Kanits collected the 200 most recent Instagram photos for 22 Dutch hashtags and 10 Instagram accounts belonging to large Dutch companies and

platforms targeting the parents of babies and young children. 'I had a total of 562 unique photos — and only six satisfied all the sleep guidelines. That is less than two per cent. America scored nearly four times better with 7.5 per cent.'

Cuddly toy

As Kanits points out, 'This does not mean most people who share their baby photos are not keeping to the recommendations. But you can imagine that if your social media only shows photos of babies lying on their stomach or with a cuddly toy in their bed, it won't occur to you this is actually unsafe.' DV



Biodiversity: THE DRAGONFLY AS INDICATOR

The dragonfly is a good species to get an indication of the biodiversity of ditches and ponds. This is what biologist Tim Termaat argues in his thesis *Trending Dragonflies*, for which he will receive his PhD next week.

Termaat, who has loved dragonflies since he was a boy, believes the European Union should also take dragonflies as an indicator of the state of biodiversity, in addition to breeding birds and butterflies. His fascination with dragonflies started when he was 14 and became a member of the Dutch Youth Association for Nature Studies. It eventually resulted in a thesis in Wageningen. 'The great thing about dragonflies is that all these different species have their own requirements for their habitat. So eventually you can predict which one you will find in a certain place.'

And Termaat says that this is why they are good indicators. 'They can be found in many different freshwater systems and are highly sensitive to water quality and the structure of the vegetation and, for species in flowing water, the sediment on the ground. This freshwater environment is not covered by birds and butterflies. It is a significant gap in how we currently monitor biodiversity.'

This is not about dragonflies as we think of them. 'They are not very interesting ecologically in the flying stage,' says Termaat. 'Dragonflies live underwater as larvae for most of their life. Depending on the species, this is one or more years. After they turn into a flying insect, they only live for a few weeks. They are primarily water creatures.'

To serve as indicator, many observations are needed. And that was the issue



Photo Shutterstock

until recently. 'Most observations of dragonflies are not collected in a standardized way,' explains Termaat. 'So you can't always use them to deduce trends.' That is why he developed a method for deducing reliable trends from all these separate observations.

Not positive

The trend appears positive. Between 1990 and 2015, more than half of the species of dragonflies in Europe saw an increase in their population. None of the 99 species examined (69 per cent of the total number) declined. But there is a catch. Termaat: 'The increase was mainly because many species respond positively to climate change. Dragonflies originated in the tropics and many prefer warm conditions.'

Global warming has even increased the number of species in the Netherlands. They are mainly species from France and Spain, with a focal point around the Mediterranean or even in Africa. Species that prefer cold conditions in Northern Europe in particular should be having a harder time. 'This is true,' says Termaat, 'although we have only been seeing this in the past few decades. There is a lag in the response.'

'No matter how mobile dragonflies are, they can't keep up with the speed of global warming'

According to Termaat, analysis of the data shows something even more worrying. 'No matter how mobile dragonflies are, they can't keep up with the speed of global warming. This is known as the climate debt. We won't see the true effects of global warming until further down the line.' RK

PhD theses in a nutshell

Tiny invader

The small hive beetle poses a threat to beekeepers. The little creature uses the bee as a host and feeds on honey, honeycomb and pollen. But it pupates outside the hive. Bram Cornelissen studied that pupation and how the beetles spread. The young beetle finds its hosts using smell. The bigger the bee population, the more the beetle is attracted to it. Once in the hive, the beetle stays there. Cornelissen also modelled the effect of global warming on the way the beetle spreads. Conclusion: bad news for beekeepers. The beetles are set to do better and better in our region in future.

To the Skies and Underground Bram Cornelissen
Supervisors Joop van
Loon and Peter Neumann (Bern)

Virus divides

Multipartite plant viruses package their genome in separate virus particles, each of which is necessary for an infection. The relative quantity of each virus particle (the genome formula) is variable. This is thought to offer the advantage of making the virus more flexible. Dieke Boezen used different techniques to study the variation in the genome formulae of a number of plant viruses. It turned out that the formula didn't depend on which species of plant hosted the virus, but on the environment where the host plant was growing. Boezen thinks the composition of the soil and the soil bacteria play a role in this. *The ecology of multipartite plant viruses* **Dieke Boezen < Supervisor René van der Vlugt**

Drugs in the water

VVia sewers, a lot of medical drugs get into nature, where they disturb aquatic life. Plenty is known about deadly doses of these drugs, but what are the effects of long-term exposure to them in non-lethal quantities? Nandini Vasantha Raman, from India, made the first attempt to chart this for substances such as diclofenac (a painkiller) and fluoxetine (an antidepressant). The effects vary. Sometimes phytoplankton even grows better if there is diclofenac in the water. That is because the substance does more harm to pests like parasitic fungi than to the phytoplankton. And different drugs have different effects, even when they are closely related. Which makes it extremely difficult to develop ecotoxicological tests.

The hidden impact Nandini Vasantha Raman ◀ Supervisors Miquel Lürling and Lisette de Senerpont Domis (Twente)

THE PROPOSITION

Here, PhD candidates explain the most thought-provoking proposition in their thesis. This time it's Eva Huet, who received her PhD on 6 September for her study on how risks influence farming in southern Mali.



'Efficiency is overrated in our society'

'In modern society, we often prioritize efficiency in our actions. We rarely ask ourselves why we always feel the need to rush through tasks without wasting time and energy. Why not take our time instead? Why can't we liberate ourselves from the constant pursuit of many predefined goals? Before and during my PhD research, I had the experience of working in different countries where I encountered different working styles. Initially, I could get frustrated when tasks sometimes took longer and required going back and forth many times before being completed. But I gradually realized that with more time allowed, people are more likely to come up with creative

solutions and have greater flexibility to address unforeseen problems. Reflecting on my experience, I think that in modern societies we sometimes become overly goal-oriented in getting things done. By focusing too much on efficiency, we often overlook the value of taking time and being open to reflection during the process to sharpen our objectives. Slowing down gives us the opportunity to absorb all the available information, fosters creativity and flexibility, allows us to learn from the thoughts of others, and may lead to the discovery of something initially considered unimportant.' NF

COLUMN

Heart attack

Last week I went to Omnia on our campus as a participant, a speaker, an opponent at a PhD ceremony, and for a lunch appointment. How lovely that our campus now boasts a pleasant, light and modern building where we can receive international speakers and hold other events. And although I do have good memories of my visits to the Aula too,

'In the right light, the puddle below Omnia looks just like a splendid smooth concrete surface you could park on'

let's be honest: in comparison to the grandeur of Utrecht University's Academy building or Leiden's Senate Chamber, our good old Aula on

the Foulkesweg did have a bit of a crematorium vibe. Give me a newbuild! Omnia is a wonderful addition to our campus, and for those few occasions when you want to invite a foreign visitor to lunch, it is nice that you no longer have to go off to Campus Plaza for a sandwich in a plastic box. But sadly things can go wrong in Omnia too. Up to now not a single group I've joined there has been complete at the start of the event: one third of the guests trickle in late. I've seen limping grandparents trekking across the campus only to arrive in the grip of a minor heart attack just too late to see their grandchild receive their degree. Why on earth can't we park next to the building? Yes, dear WUR mate, I can hear you thinking: 'But can't you just park in P1?' Of course you can. You can park in Weesp too, if you're going to the theatre in Amsterdam. But



Guido Camps

practical it is not. And I can hear the greens of WUR in my head: 'But we're a sustainable campus and we don't want dirty, petrol-guzzling cars on our beautiful Bornsesteeg!' To them I say: I'm talking about the families and others guests from outside Wageningen who think they're coming to a nice celebration in Omnia and are then treated to a survival quest across the campus, their party outfits getting smirched with swan poo and mud. The architect seems to have had a mean sense of humour too, because in the right light, the pointless dull grey puddle below Omnia looks like a splendid smooth concrete surface that you could park on. But Guido, you recalcitrant columnist, you must think in solutions, not problems - as you are always telling your ACT groups! Agreed, so here's my solution. I've asked a local contractor what it would cost to fill up that pathetic puddle below Omnia with con-

crete, and for 50K euros we could get grandmas and grandpas to the graduation on time. So I would like to ask for your support via this QR code.



Guido Camps (39) is a vet and a researcher at Human Nutrition and OnePlanet. He also enjoys baking, beekeeping and unusual animals.

New Bachelor's in Marine Sciences already in full swing

THE SEA NEEDS STUDENTS

Recruitment for the new Bachelor's degree in Marine Sciences has topped all expectations. The first cohort of students started this September. *Resource* dived in and joined them on an excursion to Burgers' ZOO. Text Luuk Zegers and Dagmar Fehrmann • Photos Eric Scholten

t least 100 students are seated in the lecture theatre at the Safari Meetings Centre in Burgers' Zoo in Arnhem. You would never guess from the eagerness with which they question Max Janse, the curator of Burgers' Ocean, that most of them were out on the town last night. 'Does the aquarium follow the lunar cycle?' 'How do you prevent the sharks from eating all the fish?' 'Where do you get live rock from?' 'What happens if parasites get into the aquarium?'

Janse has just given a lecture on the management of closed ecosystems such as the coral reef aquarium. 'In a natural coral reef you find up to 1000 species of fish,' he says. 'In our coral reef we have about 50. Each species has a function. If the algae grow too fast, we release doctor fish. Terrific grazers, only you don't want too many of them because then they start killing each other.' He gives a second example: 'When the glass anemone took over the coral, we put butterflyfish to work. But besides eating the anemone, they also ate the coral, which is exactly what we don't want. It took four months to catch them again. So we're always looking for a balance.' It takes quite a bit of creativity to develop a tropical coral reef in Arnhem. And what about simulating tides, currents and moonlight? 'Or the chemical composition of the water,' adds Janse. 'Which substances does it contain and in what concentrations? That's one of the biggest challenges for me, because I'm a biologist, not a chemist.' When Burgers' Ocean opened in the year 2000, Janse and his colleagues looked to nature for solutions. 'We thought: once we understand how it works there, we can apply that here.' But that approach doesn't work these days. 'Nature is not doing well enough for that. Waters are warming up and coral is bleaching. If we were to simulate today's natural conditions, our

coral reef would be half-dead.' He pauses and glances around the room. 'That's why we need your help: to study the complex problems in the field of marine sciences and come up with solutions to them.'

Holistic

And that is exactly why the new Bachelor's degree has been launched, say course coordinators Rosa van der Ven and Celine van Bijsterveldt. Van der Ven coordinates the Introduction to Marine Science course and has been involved in developing the new degree programme for years. Van Bijsterveldt coordinates Marine Ecology and teaches several courses. 'Problems in the marine domain are too complex to be solved using a single discipline,' says Van der Ven. 'They call for a holistic, interdisciplinary approach.'

She gives the example of a case that students are working on in this period. 'The coral around islands is in decline. Looking at it purely as a marine biologist



Students have plenty to see in the Burgers'Zoo tunnel aquarium.

'IF WE SIMULATED TODAY'S NATURAL CONDITIONS, OUR CORAL REEF WOULD BE HALF-DEAD'

you'd say: put in artificial reefs so that you give the coral the chance to grow back. But it's not that simple, because new reef attracts a lot of fish, so fishers think that's where they need to be. The result is overfishing. We teach students to look at the bigger picture from day one. Why did the reef deteriorate? How can we work with all the stakeholders to ensure that the reef recovers? By ensuring, for instance, that besides coral restoration, you work with fishers to explore the options for sustainable future-proof fisheries.'

The popularity of the new degree programme means the teachers need some improvisation skills, says Van Bijsterveldt. 'We knew last year that there was a lot of interest, but in the first week of this academic year we realized we had more students than we had expected. So we had to adjust the timetable and we are having to do quite a lot of fine-tuning as we go along.' But although it's hectic, it's enjoyable too, she says. 'Especially when I can see that students make the right connections and ask good questions. I see that during excursions especially, because then they get input from outside, which brings the lecture material to life.'

Shark tank

After Janse's lecture, guides show the students around in groups. Burgers' Zoo guide Peter takes his group through the dark aquarium and points out various species of fish and corals. 'There's a sea urchin,' he says. 'Can they swim?' asks a student. 'No, but they do have a kind of sucker on their underside with which they can propel themselves along,' the guide answers. 'And over there are some pipefish, members of the seahorse family.'



So now it is time to take a look behind the scenes at the aquarium. The guide opens a 'secret' door with a staircase behind it. 'You can already smell the saltwater,' comments a student as he steps out of the dark public area of the aquarium into the lit stairwell. Guide Peter turns around at the top of the stairs. 'It goes without saying perhaps, but please don't touch anything: any change can be disastrous for the balance in the ecosystem.' He opens the door and the students enter an area located a few metres above the coral aquarium. They peer down over the railing into the water. High in the water hang dozens of lamps. Janse explains how the lamps simulate a diurnal rhythm, and why that is important



A peep behind the scenes: this is what the coral aquarium looks like from above.

for aquarium dwellers, and then they embark on a tour of different filter systems, the quarantine room (which also gets used as a coral and animal hospital and a nursery for leopard shark eggs, for instance), and a lookout point above a giant shark tank. 'This tank is 33 by 17 metres, six and a half metres deep, and holds three million litres of water,' he tells the students. A student asks why one of the sharks has been separated from the rest. 'He's a bit too pushy so we've separated them for a while to protect the females.'

Sea cows

A bit later, the group moves on into a totally different world: the mangrove swamp. After a good look at the plants, sea cows and fiddler crabs that inhabit this water, the tour is over. Student Eline Gelderen (21) hangs back a while. She and her group are working on an assignment: to make a short video - a 'knowledge clip' about mangrove restoration. 'On Bonaire there are fewer and fewer mangroves and they are shifting towards the sea, which has a big impact on the 'services' the ecosystem supplies, such as water purification, fish farming, CO2 sequestration and so on. In our video we explain what the problems are and what's the best way to restore the mangroves.' In this way, the students are working in groups on different case studies in the marine domain. 'In week 6six there's a film festival in which we watch each other's

'I SAW IT AS A SIGN THAT THIS DEGREE WOULD BE RUN FOR THE FIRST TIME THIS YEAR'

videos and pick a winner.' Gelderen initially came to Wageningen to do a degree in Biology. 'But it was too science-oriented for me, so I took a gap year. And in that year, I heard about this new Bachelor's programme. It appealed to me because it combines different disciplines. We get lectures about the deep sea, river mouths, the North and South Poles, and socio-ecological systems. We learn about policy, law, marine economics, ecology and genetics. That combination of the natural and the social sciences prompted me to make the switch. We deal with topics that are often in the news. We had already heard about the problems facing fisheries in our lectures, but on an excursion to Den Oever we talked to the fishers themselves. That makes an impression on you.'

Meanwhile, student Jasper Dhont (18) and his group are working on a case study about diving tourism in Raja Ampat, Indonesia. 'That is one of the most biodiverse marine locations on Earth,' says Dhont. 'In the last two decades, diving tourism has increased tremendously there. In combination with global warming and more pollution, it has been destructive for the coral reef.' His group is looking at whether ecological conservation and economic development can go hand in hand. 'We've held lots of discussions so we can research what the problem is, what the drivers of change can be, and how we can manage solutions.'

Monitoring whales

International students are finding the new degree programme too: 16 of the 108 Marine Sciences students come from abroad. Saba Hajek Groenendijk (19) is one of them: she is Peruvian with Dutch roots. 'Peru is very biodiverse and that is largely due to the Humboldt Current, a cold ocean current off the coast. Our



Students and their guides in the zoo's mangrove section.

'PROBLEMS IN THE MARINE DOMAIN CALL FOR A HOLISTIC, INTERDISCIPLINARY APPROACH'

'ON AN EXCURSION TO DEN OEVER, WE TALKED TO FISHERS THEMSELVES. THAT MAKES AN IMPRESSION ON YOU'

anchovy fishery is famous too. I was already interested in that sort of thing when I was little.'

After finishing secondary school Groenendijk had a gap year and worked as a volunteer on a whale-monitoring project in the north of Peru and Ecuador. 'They look at the migration patterns of whales between Ecuador, Peru and Chile. You can use that data to decide on the best location for a marine reserve between those three countries.' After her gap year, Groenendijk wanted to go to university in the Netherlands. 'When I read that this degree programme would be run for the first time this year, I saw that as a sign.'

Groenendijk thinks the broad scope of the programme might come as a bit of a

shock to some students. 'Besides marine biology and ecology, it's also about relations between humans and nature, socio-economic challenges, and the law. It's a lot, but it's good to approach problems from different perspectives.' Groenendijk dreams of working on the Galapagos islands after graduating. 'Or on that whale-monitoring project again.' But she's cautious at this point. 'We've only just started on the degree. I'm curious to see how I feel at the end of it.' ■





Photo Guy Ackermans

BLUETONGUE: TIME FOR PHARMACEUTICAL INDUSTRY TO STEP UP

The bluetongue virus is spreading fast on Dutch sheep and cattle farms. Why is there no drug or vaccination against it? And how is WUR impacted by this livestock disease? 'All suspected cases have to be confirmed by our laboratory.' Text Anne van Kessel

he livestock disease bluetongue is back and has been confirmed on nearly 1500 farms in the Netherlands. Another 700 farms have reported suspected infections based on symptoms shown by their animals. The virus seems to be spreading faster than it did during the first outbreak from 2006 to 2008. How does the virus spread and why is there still no vaccine?

What kind of disease is bluetongue?

Bluetongue is a viral disease affecting ruminants such as sheep, cattle and goats. But it can also affect camelids such as camels and lamas, and giraffes and okapis can suffer too. Sheep can fall especially sick. They become feverish and lame, and their mucus membranes often get damaged. Their tongues swell up and sometimes turn blue. The death rate among sheep is between 20 and 50 per cent. 'We don't have precise figures, unfortunately,' says Melle Holwerda, head of the National Reference Laboratory for Vector-borne and Zoonotic Viral Animal Diseases, at Wageningen Bioveterinary Research. 'It's difficult because animals that were not tested before they died are not included in the official figures.' There is still no drug against this disease. All vets can do is prescribe anti-inflammatories and painkillers, but they often have little effect. 'The only thing livestock farmers can offer is tender loving care,' says Holwerda. 'And if necessary, euthanasia to release an animal from its suffering.'

Where does the virus occur?

Bluetongue is endemic in regions with a mediterranean climate such as countries around the Mediterranean Sea and some countries in Africa and Asia. In regions with a moderate climate there are incidental outbreaks. The last time that happened in the Netherlands was from 2006 to 2008. Holwerda: 'Then the outbreak started in South Limburg and affected 400 farms.' Thanks to a vaccine and the development of natural immunity among the animals, the virus disappeared from the country again in 2008. 'This time the outbreak started in the centre of the country and has probably affected more than 2000 farms already.'

How does the virus spread?

The bluetongue virus enters its host via a biting midge: the tiny fly that drives camp-



'AS TO THE ORIGINS OF THE VIRUS, WE'RE COMPLETELY IN THE DARK'



'Sheep can fall especially sick. They become feverish and lame and their mucus membranes often get damaged. Their tongues swell up and sometimes go blue. There is still no drug against it' • Photo *Resource*

ers mad in Scotland and Scandinavia. The disease is not a zoonosis and cannot transfer from sheep to humans or from midge to humans, Holwerda emphasizes. There are more than 30 subtypes, or serotypes, of the virus. The 2006-2008 outbreak was of serotype 8. The current outbreak is of serotype 3, which was previously found in Italy, says Holwerda. 'But that was a different variant to the one we're seeing here now. As far as origins are concerned, we're completely in the dark.'

How is WUR impacted?

No bluetongue has been found at WUR so far, nor among animals at the university's extramural locations, says Menno van Maanen, operations manager at the Animal Sciences Group. The main effect of the epidemic at the moment is that Wageningen Bioveterinary Research is doing more analyses than usual. Holwerda: 'All suspected cases have to be confirmed by our laboratory.'

Why isn't there a vaccine?

In 2008, the outbreak of serotype 8 was stopped with a newly developed vaccine. 'That vaccine doesn't offer any protection against type 3 because the serotypes are so different,' says Holwerda. 'There are vaccines in African countries but my colleagues and I question their safety.' Those vaccines are made from deactivated live virus. The idea is that animals vaccinated with them become immune to the pathogen. 'Not much research has been done on the safety and effect of these vaccines, so we can't use them. Because if they don't work well, they could actually contribute to the spread of the disease.'

According to Holwerda, it's time for the pharmaceutical industry in the Netherlands to step up. 'If they have any potential vaccines on their shelves, I would very much like to collaborate on testing them. If they work and prove safe, then it's up to the government to speed up the approval of a vaccine.' He thinks this could take months or even a year.

Busy in the lab

'It's very busy here in the lab,' says Melle Holwerda, head of the National Reference Library for Vector-borne and Zoonotic Viral Diseases at Wageningen Bioveterinary Research (WBR). 'Every day we get 150 to 200 samples from all over the country to do a PCR test on. Up to now, only the samples from Limburg haven't tested positive at all. In the rest of the country, the disease is everywhere.' People are coming to help from all the departments at WBR. 'It's nice to see help coming from all quarters. You need all the helping hands you can get to deal with all the samples.'

What can livestock farmers do right now?

The colder it gets, the less active midges become. 'And yet we have seen before that midges can survive a harsh winter, by sheltering in a warm barn, for example.' And livestock farmers might be able to do something about that. 'The most important thing is ventilation. Midges can't cope with a cold wind; they literally get blown away,' says Holwerda. But farmers won't be able to wipe out all infections this way. 'We won't be rid of this quickly.' ■

Can a study association have the same name as a colonial company board?

Heeren XVII, the name of the study association for the Agrotechnology Bachelor's and the Biosystems Engineering Master's, has a link with colonialism and is not gender inclusive, says inclusion project group DARE. They called for a change of name, but that has not happened yet.



he The debate about names that refer to the Netherlands' colonial past has now reached Wageningen. What exactly is the situation? The name Heeren XVII was chosen in 1965 because Agrotechnology was the 17th degree programme in Wageningen and at that time all the students were male ('Heeren' means 'gentlemen'). The name also referred to the Dutch East India Company board, which had the same name. Until recently, the study association mentioned that link on its website.

Earlier this year, DARE sent a letter to the study association board. It said the name Heeren XVII 'can have an excluding effect for students who don't identify with the male gender or who feel uncomfortable with the link to colonialism'.

Fernando Gabriel (27), a Biosystems Engineering Master's student and involved in DARE, says, 'While the East India Company deserves historical acknowledgement, times have changed. What we used to praise doesn't deserve praise anymore. Having a study association named after the "successful" East India Company board implies praising the colonialist exploitation of the East India Company.' Gabriel thinks everyone should feel welcome in a study association. He knows people who feel uncomfortable with the current name. Yet he also realizes changing the name is a sensitive issue for others. 'People who feel connected to the association don't associate the name with colonialism or sexism, but with a group where they made friends and have good times. I would not say the members are necessarily colonial-minded, but the name still is. There are students from Indonesia who may disagree with the name completely. I see changing the name as a historical responsibility, a way of saying: we are open to everyone.'

Unfortunate link

The study association also finds the link between its name and the East India Company board unfortunate, says chair Marjon van Overveld. 'Even before we got the letter, our association board had been debating this connection. Until recently, our website said our name was a reference to the East India Company board, but we don't want to be associated with a colonial entity. That's why we updated the website and deleted that text. Then we got the letter from DARE, which showed there are people who'd prefer the association to have a different name.'

But changing the name is a sensitive issue for members, says Van Overveld. 'We've spent the past 58 years building up something we're proud of. If you tell someone at a trade fair or careers fair that you are in Heeren XVII, you get a positive response. Alumni still feel a connection with us years after graduating. Our name mainly has positive connotations for them and us. As a society we have built up our own history and given the name Heeren XVII new meanings. If we changed our name, we would be undermining our own history.'

Discussion

After DARE's letter, a discussion was organized with invitations sent to representatives of DARE and Heeren XVII, the programme team for the Agrotechnology Bachelor's and the Biosystems Engineering Master's, and Dutch and international students (both Heeren XVII members and non-members). 'We came to a joint decision to hold a survey among all the students, whether or not they are members, to find out their views on changing the name,' says Van Overveld. Heeren XVII, DARE and the study programme team drew up a questionnaire that was sent to all Agrotechnology and Biosystems Engineering students at the end of the last academic year. The response was 52 per cent. In answer to the question whether people would feel

'What we used to praise doesn't deserve praise anymore'

'If we changed our name, we would be undermining our own history' *more* welcome with a different name for the society, 8 per cent said 'yes' and 81 per cent 'no'. When asked whether people would feel *less* welcome with a different name, 67 per cent said 'yes' and 19 per cent 'no'. A total of 9 per cent of the respondents thought it was a good idea to change the name Heeren XVII, and 85 per cent thought it wasn't a good idea. None of the respondents said they were personally offended by the name Heeren XVII.

What next?

'We discussed the survey results with the programme team and DARE and concluded it would not be desirable to change the name at this point,' says Van Overveld. 'Then we shared the results with our members at the General Meeting of Members, and jointly decided not to change the name.'

'However,' continues Van Overveld, 'as a board we note that nine per cent of the respondents would prefer a different name. We can't reach those students because the survey was anonymous. We are now calling on all students of Agro-

technology and Biosystems Engineering to talk to us as the board or to our confidential counsellor and contribute ideas on how to make sure everyone feels welcome at our study association.' At DARE, Gabriel hopes the debate about the association's name and its East India Company connections will continue. 'I'm not an advocate of cancelling everything that we feel ashamed of. Quite the opposite, we should be transparent and open. Instead of removing the name's colonial link from the website, as Heeren XVII did recently, it is better to publicly acknowledge that link and explain how you aren't happy about that but are still keeping the name for other reasons.'

Gabriel hopes all current and future members will be told about this aspect of the name. 'And that Heeren XVII organizes documentary evenings about the colonies, for instance, in addition to the activities geared to having fun or networking. The university is a place to become better human beings in every aspect. It is a place to ask questions, even when that's painful.'■



Photo Heeren XVII

CAMPAIGN FEVER: Five pointers

With three weeks to go until the Dutch parliamentary elections, the political campaigning is reaching boiling point. The Strategic Communication chair group is observing closely with a view to understanding the role of social media in the decision which way to vote. For those interested in campaign-watching, Professor Rens Vliegenthart suggests five things to pay attention to. Text Marieke Enter • Illustration Shutterstock

> ight now, the Strategic Communication chair group is all about the Wageningen Parliamentary Elections Study, as chairholder Rens Vliegenthart calls it informally. 'Not an official project name, mind you, but what we're doing at the moment boils down to that,' he says. Elections are a key element in both the Vici grant that Vliegenthart got early this year and the ERC grant that Sanne Kruikemeier (professor of Digital Society and Media) came to Wageningen with last year. After the cabinet fell, they decided to pool those grants to conduct a large panel study of the current election campaign.

> For this study, a fixed group of about 2000 Dutch people who are eligible to vote are questioned every two weeks. Some questions stay the same, to monitor whether and how voting choices change over time, and whether those shifts are related to the media people use. 'And then we also include some questions or little experiments for other projects, to do with political influencers, for instance, or polarization or misinformation,' explains Vliegenthart. A large data donation project is also being run during these final weeks of the campaign. For this, a number of people from the survey panel send in the political information they come across a couple of times a day. This can range from TikTok challenges to WhatsApp messages and adverts or reports in traditional media. 'Those data give us an insight into how they arrive at their voting decision,' says Vliegenthart. Resource asked him for five pointers for WUR would-be campaign-watchers to pay attention to.

Microtargeting in your timeline 'In 2021 we studied for the first time how political parties steer their advertising on social media. GroenLinks (the Green Left) proved to be pretty good at reaching their

own voters; the PvdA (the Labour Party) was fairly successful in targeting supporters of GroenLinks and D66 (a centrist party). But generally speaking, the microtargeting was not too impressive. On my own Facebook timeline, for example, I got adverts in that period that varied from Forum for Democracy to the Party for the Animals – opposite ends of the political spectrum. That suggests that the selection processes were still very crude back then. We are interested to see whether parties are now more capable of reaching particular voters, and which groups those are.'



Soundbites and WhatsApp

'We are familiar with soundbites from parliamentary or television debates that start leading a life of their own. At moments like that, the campaign teams

are always on the lookout for nice quotes to use. It's likely that WhatsApp groups are also important for spreading that sort of political message. They are an important source of information, especially for young people. Those groups are not easy for us to monitor as researchers, but we explicitly ask our survey panel for examples.'



Artificial intelligence

'AI probably doesn't play a big role in this campaign. The BBB (the Farmers' and Citizens' Movement) used ChatGPT to write its manifesto, but that's all. I would

expect only incidental use of deepfakes, at most. In the United States, that kind of campaigning activity is usually aimed at putting off voters of the other party, but in the Dutch multi-party system that approach is not efficient at all. Here, politicians really have to show what they themselves have to offer. They won't get anywhere with only negative campaigning.'



Duels and cynicism 'We know from past experience that a duel can be advantageous for both parties involved. Say the biggest challengers of these elections, Omtzigt

and Timmermans, manage a neck-and-neck race, that could work against a party like the VVD (rightwing party). Historically that party is in danger of serious losses anyway, just like the CDA (the Christian Democrats) after the Balkenende cabinet and the PvdA after Kok's cabinet. I'm interested to see whether that mechanism will kick in again now, particularly given how people are calling for change. In our study we can clearly see that people have become very, very cynical about politics and politicians. There is still a lot of confidence in democracy as such, but the Dutch have become a lot more cynical about the government and Parliament. If that is reflected in the voting, these elections could hold some surprises.'

'People have become very, very cynical about politics and politicians'



The tone: polarizing or reconciliatory?

preferences and media consumption, as well as about how voters see people

who vote for other parties. We do that using a kind of thermometer, which we repeat periodically. So far there are clearly distinguishable left-wing and rightwing blocs and a bit of a centrist bloc. Their thinking is exactly what you would expect: the further to the left voters are, the more they deplore the right, and vice versa. We also look at attitudes to particular issues. Climate change and immigration/ asylum seekers are the two divisive issues so far. Of course, the Israel-Palestine conflict might feature now too. The dynamics around those subjects in the last phase of the campaign are interesting. What do the political parties emphasize, what do the media highlight, what's the tone – and what will the effect be on voting behaviour? We hope we can find out how that works through our study.'

'There was a festival-like atmosphere'

WAGENINGEN'S ACTIVISM BUBBLE

Campaigns such as the A12 motorway blockades led by Extinction Rebellion (XR) in protest against fossil fuel subsidies are repeatedly in the news. There is opposition to these illegal protests too: RTL News held an opinion poll in which 80 per cent of respondents were against this form of protest. There are Wageningen students involved in these campaigns. How are they experiencing the protests and why are they joining in? Text Femke van den Dries

'By protesting I try to exercise some influence'

Kreeft (not his real name)

student, activist and organizer

'An important trigger for me to become an activist was the WUR dialogue sessions Let's Explore, which were held in Omnia at the beginning of this year to discuss the university's collaboration with fossil fuel-based companies. You could feel so much tension and frustration about this subject among the students and staff in the room. I felt it myself and I wanted to do something about it. Since then I've been an active member of End Fossil Occupy and XR Wageningen.

'Before the blockade marathon that started in September, there were already monthly one-day blockades on the A12. I went there several times and I got arrested then too. That was different from the blockade marathon, where you were only detained. The group was smaller then and the police had a different attitude towards the demonstrators. At times they behaved in a very patronizing and intimidating way. For example, I had painted my face to avoid being recognizable on photos, and when I walked past a row of police someone said, 'Your mother



would be proud of you with that make-up on'. They also had their truncheons at the ready from the start and there was unrest in the group because of the rough way fellow demonstrators were handled. 'I am a very privileged person and until then had never been very troubled by the way things are done I our democracy. It's only now that I'm very involved in climate activism that I see that it's not so democratic at all, even when a different issue is at stake. By protesting I try to exercise some influence after all. The A12 blockade has been stopped but we are always working on new campaigns, like the Rabobank campaign. We went to Utrecht to block the entrances to the Rabobank with the message: Stop destroying, start compensating. Change won't come of its own accord, nor will it come through the people who are now in power. You've got to make it happen."

'l didn't expect it to be so enjoyable'

Tycho Thiel

a student of Forest and Nature Conservation

'The A12 blockade was the first activist protest I've been to. It was not at all what I expected. I had always looked up to activists and the image I had of them was quite hard-line. But they turned out to be a very sweet and empathic group, and you only realize that when you really spend time with them. Risking getting arrested together for a cause you all support feels very special. The first time I went there it was a hot day. There were people in swimming trunks dancing in the jets of water from the water cannons. Others were playing cards or sleeping. There was a cheerful and relaxed atmosphere, almost like a festival. I hadn't expected it to be so enjoyable.

'I was arrested but it wasn't scary. It felt quite normal. We were taken to the ADO football stadium in The



Hague, where someone got on the bus to tell us which law we had broken, after which we could go. Members of XR were waiting for us with soup and snacks. Some people even went back to the A12 and got arrested again. I can understand people who think the protests are a bit extreme, but it's more extreme that the government turns a blind eye to the amount of damage these companies do. Maybe you just need to be in a bubble in which a lot of people understand why you are taking action. There is a bubble like that in Wageningen.'

'Joining such a peaceful protest is very inspiring for me'

Arquimedes Escrig Garcia

a student of Resilient Agriculture from Spain

'A philosophy professor once said that if we really wanted something to change, we should block a motorway. Several of my housemates and friends were going to the A12 blockades, so I thought, now's my chance. It may be a Dutch issue, while I'm from Spain, but it's about more than fossil subsidies: it's about the climate. And I wasn't the only non-Dutch person on the motorway, so there are obviously other internationals who think the same way.

'I'm quite surprised that so many people criticize the protests. The second time I was on the A12, motorbikes and trucks turned up, making a lot of noise. They proved to be demonstrating against the protest. There were opponents of the protest around the ADO stadium in The Hague too, where you were taken after arrest.



'XR prepares for the blockades very thoroughly and provides clear information about the risks for non-Dutch activists. You can be taken to the immigration service if you are arrested. But because they also told us the chances that are small, I went there feeling fairly relaxed. You mustn't let yourself be put off by the police; you feel really supported by the group. I'm glad I went: joining in such a peaceful protest is very inspiring for me.'

'Carbon farming to compensate for CO₂ emissions doesn't work'

An illusion is shattered. Carbon farming does not have the potential to compensate for CO₂ emissions that many people are hoping for, says soil biologist Gabriel Moinet. But he hasn't stopped recommending the methods for storing more carbon in the soil. 'It's still important to look after the soil properly.' Text Tanja Speek • Photo Shutterstock

arbon farming is gaining popularity as a method of capturing CO₂ from the atmosphere in the soil, as forests can do above the ground. And just as companies can compensate for their CO₂ emissions by planting trees, they can also do so by buying certificates with which farmers can then invest in a farming system that sequesters more CO₂. But according to soil biologist Gabriel Moinet, this method is much less promising than many people imagine. He and his colleagues recently published an article about this in *Global Change Biology*.

First of all, how do you capture carbon in the soil?

'Carbon in the soil is found in both living and dead organic matter. Plants use CO_2 for photosynthesis: they grow, and form roots and residues in the soil, which is food for the soil life. It's all rich in carbon, meaning the C atoms from that CO_2 . The plants die off and become in turn food for more soil life. That's how you capture carbon, and particles are also released as CO_2 through the breakdown of plants and soil life, thus closing the cycle.

Methods of increasing carbon sequestration in the soil include adding manure or growing crops on your fields in winter as well as summer. You can reduce carbon runoff with techniques that are often used in agro-ecology, like farming crops without ploughing.'

But this won't work for compensating for emissions, you say.

'The carbon in the soil always finds a certain equilibrium. It enters the soil and leaves it again through breakdown processes. And if more goes in, there's more to break down. You are always reaching a new equilibrium. In a carbon-poor environment, the gains when you first start storing carbon can be very big, but that extra sequestration soon slows down once a new equilibrium has been reached. The potential is much smaller than many people imagine. And it is only a fraction of global emissions.'

Where does that misunderstanding come from?

'I think it's because estimates of how much carbon a soil can store don't take into account those limits created by a new equilibrium. And researchers also thought that more carbon in the soil always increased crop yields, because as matter containing carbon is broken down, nutrients are released that plants need for their growth. But it turns out that is not necessarily the case. There are severely exhausted agricultural soils in Africa, for example, which only contain half a per cent of carbon. If you can increase that to one and a half per cent, you'll see an increase in the yield from a field. The

'I think the idea of carbon farming is mainly an opportunity for big companies to carry on with their emissions'



'In a carbon-poor soil, the gains when you first start storing carbon can be very big, but that extra sequestration soon slows down once a new equilibrium has been reached. The potential is much smaller than many people imagine.' • Photo Shutterstock

ultimate win-win situation. But there are lots of examples where it doesn't work like that.'

Such as?

'Sometimes the yield from a plot of land goes down, temporarily at least, if you add carbon. It can take years before that added carbon results in better soils and yields. And then there's another tricky issue: climate justice. Can you ask an African farmer who only grows enough for household needs, and who has done very little to cause climate change, to accept lower yields for a few years for the sake of carbon storage? He can get a better harvest much faster by applying artificial fertilizer.'

Are scientists beginning to realize that carbon farming doesn't work well enough?

'It varies. People often react as though they understand, but sometimes they still want to carry on trying to get paid carbon farming off the ground. I think the idea of carbon farming mainly gives big companies an opportunity to carry on with their emissions. It's a telling sign that Shell is one of the biggest buyers of carbon farming certificates. The challenge of keeping climate change within limits is enormous. That increases the pressure to seize every possibility there is. Every carbon atom counts.'

And if you convert agricultural land into natural systems? Are there opportunities there?

'Sadly, no. Systems like tropical rain forests actually have relatively little carbon in the soils, because it is converted into new plants so quickly. There are systems with a lot of carbon in the soil, but they can't cope with much more carbon: an equilibrium has already been reached. Maybe former peat bogs could store relatively large amounts of carbon if you return them to their natural state. But even there, although there are benefits for biodiversity, the benefits for the climate are relatively meagre.'

Is this bad news for agroecological farming too?

'Certainly not. The methods that are good for carbon sequestration will always be very important for soil management. It's just that maximum carbon sequestration shouldn't be the goal. There are other issues concerning the soil, like emissions of nitrous oxide, another greenhouse gas, biodiversity, and water retention capacity. What is more, tipping points are still a danger. It could be that as temperatures rise, soils and ecosystems suddenly start emitting more CO₂. Our knowledge about the resilience of soils is still inadequate.' ■

WAGENINGEN GETS 'ROTTERDAM' NATURE FILMS

It is quite rare for cinemas to show nature documentaries, so a whole weekend full of nature films is downright exceptional. The Heerenstraat Theater will be doing just that from 9 to 12 November with the Wageningen Wildlife Film Festival, showcasing nine documentaries. This is actually an offshoot of the Wildlife Film Festival Rotterdam, which takes place a week earlier.

The Rotterdam event has been going since 2015 and invariably attracts big crowds. 'The Cinerama is always packed,' says Sebastiaan Grosscurt. The Forest and Nature Conservation alumnus leads the Q&A sessions after each screening. According to Grosscurt, the Rotterdam organization had wanted an offshoot of the festival in Wageningen for some time. He decided to put that idea into practice. Grosscurt says the Heerenstraat Theater will be screening the 'most breath-taking films' from the selection in Rotterdam. During the four days, nine films will be shown twice each. As an extra, each day there will be a Q&A session after one of the films. Three of those sessions will include Wageningen scientists, namely Patrick Jansen, Laurens Ganzeveld and Gibbs Kuguru. Ganzeveld (Meteorology and Air Quality)

'The ice is 3.5 kilometres thick at the top of the Greenland ice cap'



Still from the film *Into the Ice*. Glaciologist Alun Hubbard descends into a moulin (glacier mill) on Greenland. • Photo Lars H. Ostenfeld (*Into the Ice* director)

will answer questions about the film Into the Ice. The film follows the work of glaciologists who study the effect of climate change on the Greenland icecap. Ganzeveld himself researches the exchange of climate-active gases between the ice and the atmosphere and was involved in the major polar expedition MOSAIC in 2019. Although it should be noted that expedition was about sea ice. Into the Ice is about the land ice on Greenland. Ganzeveld spent a month on Greenland in 2009 to carry out measurements on that land ice. 'That was at the Summit Station, at the top of the Greenland ice sheet, where the ice is 3.5 kilometres thick. That ice is so heavy it pushes the ground hundreds of metres downwards. The bottom layer is 100,000 years old.'

800,000 years

Ganzeveld does a lot of teaching on the dynamics of glaciers. 'About how glaciers can respond strongly in the climate system to climate change: because of feedback mechanisms, glaciers can grow fast but equally they can break up fast. The higher up a glacier is, the faster it grows because the air is colder higher up. Until the glacier is at such altitudes that there is almost no moisture in the sky and so no snow is created.'

'That is the case in Antarctica,' continues Ganzeveld. 'It is so cold that almost no snow falls. As a result, the ice on Antarctica reacts much more slowly to climate change. And that relative lack of dynamism means the ice is much older. The oldest layer dates back 800,000 years.' Incidentally, Ganzeveld cannot say what *Into the Ice* itself will be showing. 'I haven't yet seen the film.' RK

Wageningen Wildlife Film Festival, 9-12 November, Heerenstraat Theater.



You see the most fabulous-looking people and the coolest outfits around the Wageningen campus. In this feature, we shine the spotlight on one of them every two weeks. This time, Alicja Jelenska (25), a Master's student of Food Safety.



'My fashion style is often based on 70s and 80s music. In the morning, I listen to particular artists and they influence my decision about what I'm going to wear that day. Today it was Elton John and Joan Jett, so this outfit is a mixture of those two. I also have a mannequin I got from Emmaus that I painted to look like David Bowie and he gets the final word on my outfits. So this one was approved. I like to shop in vintage stores and thrift stores. You usually find more special stuff in the bigger cities than the smaller ones. Utrecht is the nearest city with really nice clothes. When I go to a big city like Berlin, I'll make a list of all the good, cheap places to find second-hand clothing. I sometimes find nice clothes or accessories in Emmaus in Wageningen too. I like clothes with interesting patterns and colours. Sometimes a fun accessory like a patterned tie or suspenders can put the finishing touch to an outfit.

When I was a teenager, I wore nothing but purple. Then as a Bachelor's student I went through a phase of wearing only black-and-white striped shirts. I used to be too shy to wear anything more colourful or with other patterns. But around two years ago I finally went for it, and this is the result. Sometimes the patterns clash, but I don't mind. I like it when my clothes look vibrant.' IB You encounter all the flavours of the world in our WUR community. Sriram Jallu, a student of Geo-Information Science from India, shares one of his favourite dishes with us.



Flavours of WUR

Hyderabadi chicken dum biryani

'This is a typical dish from Hyderabad, where I am from. It is an easy recipe, and you don't have to be a top chef to manage it. The tradition is never to eat it with cutlery: that's considered a sin! You must eat it with your hands.'

- Chop the cinnamon sticks, mint leaves, coriander and green chillies. Mix them with all the spices (except the black cumin) and add them to the yoghurt. Marinate the chicken in this yoghurt mixture. Let it sit for at least one hour. Set some cinnamon, bay leaves, coriander and cardamom aside for the rice.
- **2** Wash the rice and soak it for 20 minutes.
- Boil 800ml water for 400g rice. Add some salt, the bay leaves, coriander, the chopped cinnamon sticks, the black cumin and a few cardamom pods. Now add the rice. Take the rice from the stove when it is about 75% done.
- **4** Sear the chicken in a pot with oil and cover it evenly with the rice.
- **5** Cover the pot with aluminium foil and place it on a low heat for 30 minutes.
- 6 Let the dish rest for 10 minutes before removing the foil. Enjoy!

Ingredients (for 4 people):

- 700g chicken breast and drumsticks
- 400g basmati rice
- 150g Greek yoghurt
- green chillies (to taste)
- 3 stems fresh coriander
- 3 stems mint leaves
- 5 bay leaves3 sticks cinnamon
- 8 green cardamom pods
- 3 tsp. ginger garlic paste
- 1 tsp. turmeric
- 1 tsp. black cumin (for the rice)
- 1 tsp. biryani masala
- 1.5 tsp. cumin powder
- 1.5 tsp. garam masala1.5 tsp. red chilli
- powder
- 3 tsp. any oil
- salt (to taste)



Sriram Jallu from India

Which dish reminds you of home? Share it with *Resource* so we can all enjoy it! resource@wur.nl



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IN MEMORIAM

CEES KARSSEN

It was with great sadness that we received the news that former rector magnificus Cees Karssen has died at the age of 86. Karssen started work at Wageningen Agricultural College in 1969 as an assistant professor of Plant Physiology, and went on to become a full professor in 1984. His research topics included the physiology of seeds, the hormonal regulation of germination, and seed technology. He achieved international renown in his field. One of Professor Karssen's outstanding qualities was the way he could manage critical situations so as to minimize the extent to which institutional development got in people's way. The obvious example is of course his period as rector magnificus from 1993 to 2000

He spearheaded the collaboration with the DLO agricultural research institutes which paved the way for the formation of today's institution: Wageningen University & Research. He played an unforgettable role in the development of the Wageningen Graduate Schools, as well as in the internationalization of our institute. We send our condolences to Cees's nearest and dearest, wishing them strength to bear their loss.

On behalf of WUR, Arthur Mol, Rector magnificus, Wageningen University & Research

Colophon

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

Contact Questions and comments for the editors: resource@wur.nl | www.resource-online.nl

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Subscription A subscription to the magazine for one academic year costs 59 euros (135 euros if abroad). Cancellations before 1 August.

ISSN 1389-7756

Publisher Corporate Communications & Marketing, Wageningen University & Research





[SERIOUSLY?] Kooky news





WUR GOES FOR MEAT SUBSTITUTE SUBSTITUTES

Meat substitutes do not appear to be the key to success when it comes to eating less animal protein and more plant protein. But meat substitute substitutes do seem to offer a solution. A new WUR institute will research this over the next 10 years with substantial start-up funding.

ood Process Engineering PhD candidate Ingrid Plant is disappointed. She recently completed her PhD where she got close to the structure of meat with ingredients that fit perfectly in a vegetarian diet. And which are also affordable. But during her PhD, more and more studies appeared that show consumers are not embracing meat substitutes in large numbers. 'I felt like I was flogging a dead horse.' Plant warned her supervisor, who after 'burying her head in the sand' for a long time also admitted that a dead horse was being flogged. 'We went to the Executive Board with a solid proposal to start working on meat substitute substitutes. That soon got the ball rolling. It also fits perfectly within the protein transition, of course.'

Funders were found quickly, and despite having to foot the bill for the nine per cent salary increase at WU and an end-of-year bonus at WR, WUR was also prepared to chip in. The research will be housed in a new insti-

The research will be housed in a new institute tute – From WUR To Fork – to be launched in January. Plant is now in the middle of preparations for her new workplace,

the Food Forest on Droevendaalseweg. 'There will be loads of nut trees and space will be available to experiment will all kinds of vegetables. We want to see if we can use the meat substitute substitutes to lure people away from meat. I expect the first results within a year.'