

Resource

MARCH 2023 VOLUME 17

The journalism platform for all at Wageningen University & Research

Double the intake
of pulses

Elephant poo
becomes bench

It is possible:
vegetarian dogfood

Vici for
Rens Vliegenthart

Agroforestry
is success
on dairy farms

Omnia Hall of Fame
Make room for
women | p.14

Point of view:
Should WUR
break links with
Shell? p.6 & p.18

EN



Contents

NO 12 VOLUME 17



12

Disaster in Turkey and Syria affects WUR community too



20

Are algae the food of the future?



26

Student Jiska Taal is water board candidate

4 Students demand action after fatal accident

6 SSR-W celebrates 50 years in clubhouse

8 You win some, you lose some: 'I no longer enjoyed life'

22 Citizens measure air quality in Wageningen

28 The side job: Escape Room Wageningen game facilitator

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FOREWORD

Women on the wall

WUR's inclination — rightly or wrongly — not to get too far ahead of the pack when it comes to social change was in evidence when the Hall of Fame was revealed in Omnia. Thirty-three serious-looking men adorn the wall. And not a single woman. WUR turned out to have some reasons for this. For example, the people who had their portraits painted were mainly rectors and until now all the rectors have been male. Artistic style was another reason. There is one painting of a woman — of Mien Visser, Wageningen's first female professor, no less — but that didn't fit with the series stylistically according to the curators. Hanging up Visser's portrait despite this, or commissioning a new painting for the opening of Omnia, was a bridge too far. The good news is that a Hall of Fame working group especially set up for the purpose is now looking at how to include prominent women. As an investigation by *Resource* shows, there is plenty of choice (see page 14). WUR did get involved in the public debate about breaking links with the fossil-fuel industry, as Erasmus University and the University of Amsterdam are doing. Board President Sjoukje Heimovaara told *Resource* earlier that WUR does not see this as a good move at present. To find out what WUR colleagues think about that, see page 18. Unsurprisingly, opinions are divided but some interesting points are made and the issue is an important one.

Willem Andréé
Editor-in-chief





STORM

Dykes are stronger if they are covered in flowering plants, because the roots keep the soil in place. But how strong are such biodiverse dykes exactly? In the past three weeks, that was put to the test with a storm simulator. Each wave consists of 18,000 litres of Maas water pumped over this dyke near Wijchen. And it is indestructible, says WUR vegetation expert Nils van Rooijen. There was no wear and tear even after four days of 'storm' and 25 million litres of water. ^{RK}

Photo Nils van Rooijen



Professor X has been found

The mystery man in a portrait in Omnia turns out to be former rector magnificus Johannes Hendrikus Becking. The portrait in question has been on display in the portrait gallery opposite Faculty Club Novum since Omnia opened last autumn. But no one knew who he was. We put the question to our readers in the last issue of *Resource*. The answer is Johannes Hendrikus Becking, former professor of Forestry and rector magnificus of the Agricultural College during the 1955-1956 academic year. A reader managed to identify him with the aid of Google. RK

Friends of deceased student demand action

Friends of the WUR student Shreya Nair (18) who recently died in a traffic accident have had a private talk with the mayor. They asked him to do something about what they see as the dangerous crossing on Nijenoord Allee in Wageningen, close to the campus. Nair crossed this road on her bike and was hit by a minibus taxi.

Nair's fellow student Bram van de Kraats says, 'There are dangerous situations every day. It is a busy road that you have to cross to get to the university.' Another friend, Vicky Klein Gebbink, says the crossing is confusing. 'It's also a road that invites speeding.' Wageningen municipality has plans to widen the road (part of the More Accessible Wageningen programme) and install traffic lights, but the students feel this is taking too long. They call for more minor modifications that alert car drivers to the crossing or slow the cars down. Wageningen municipality says it is still waiting for 'possible recommendations by the police based on their analysis of the accident'. *Source: De Gelderlander / Job van Gasselt*

More plant-based food on the menu

With a master plan for a new perspective on the protein transition, WUR and its project partners are trying to secure 96 million euros from the National Growth Fund.

The plan, called Economically-Powered Protein Transition through Innovation in Chains (EPPIC), sketches a view of the future in which Dutch farmers are growing plant proteins on a large scale within six years. In this plan, consumers will double their consumption of pulses.

Implementation of the plan would help considerably towards achieving climate and nature objectives, would make money for farmers and would generate economic activity worth 2.6 billion

euros, according to calculations by Deloitte. This plan to speed up the protein transition fits well with the aims of the National Growth Fund, which seeks to strengthen the long-term 'national earning capacity' of the Netherlands. The fund has 20 billion euros to hand out between 2021 and 2025.

Farmers and consumers

For farmers, the emphasis is on increasing yields per hectare and improving disease resistance. For consumers, the focus is on changing what is on offer in supermarkets and on menus so consumers encounter plant-based proteins more often. Health aspects will also receive attention in the research.

The project is headed by Stacy Pyett, the WUR Proteins for Life programme manager. The formal applicant for the funding is the Ministry of Agriculture, Nature and Food Quality, one of the initiators of the project. This gives EPPIC the status of a departmental proposal. It is not certain whether the project will get the funding. There is competition from 26 other departmental proposals and 20 grant applications from 'field parties' (companies and science institutes).

The funding requested by these applicants totals 9.4 billion euros whereas only 4 billion euros are available for this round. The Cabinet will take a decision on the applications next summer. ME

6786

That was the amount in euros raised by the bake sale last week in The Spot. Students sold such Turkish delicacies as baklava and börek, with the proceeds going to AHBAP and AFAD, local aid organizations in Turkey. It was a huge success: most of the food had sold out by 1 o'clock and the students had to get cooking and baking again. LZ

Health minister to visit Ceres

Health minister Ernst Kuipers will visit WSV Ceres on 8 March.

Ceres and KSV Franciscus are organizing a joint event that evening aimed at getting young people in Wageningen interested in politics. It will start with an interview with Kuipers, followed by a debate between students who are standing for election to the Provincial Council. The event is open to all young people; you don't have to be a member of Ceres or KSV Franciscus. The organizers hope this will help increase young people's engagement with politics in Wageningen.

There is room for 500 people. If you register in advance, you can also submit a question, but you don't have to register to attend the event. LZ

Register via Instagram @wsvceres

Take a break on a bench made of poo

What could you do with the manure from elephants in Artis Zoo other than spread it over fields? Five Wageningen students made a bench from the material. And no, it doesn't stink or stain your clothes.

The animals in Artis produce a lot of poo between them, and none more so than the Asian elephants. The four elephants in Artis produce 300 kilos of dung daily. This is because they don't digest much of the plant material they eat. About half of what goes in at the front end as feed comes out at the back end as dung. The manure is normally spread on the land of a farmer in the Rotterdam area.

For their Master's in Metropolitan Analysis Design and Engineering, the students decided to look for an alternative application as there is already a surplus of manure in the Netherlands. The idea of turning the manure into a piece of furniture was basically copied from elsewhere, says Romée Lems. 'We got talking to someone from the Design Academy in Eindhoven who had made furniture from cow dung. He dried the



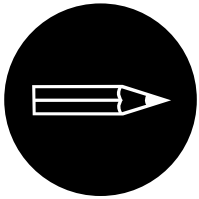
The WUR students on their poo bench. From the left: Romée Lems, Stijn van den Bergh, Antonia van der Grinten, Evelien Dekker and Lune Walder • Photo Artis

manure and pressed it in a heat press. So we tried doing the same with elephant dung.'

Still plastic

The result was disappointing at first. The sheet material was not sturdy enough or rainproof. But after contact with Circulus, a company that mixes fibres with plastic waste, they did eventually manage to

make a durable product. The poo bench contains 65 per cent manure. The prototype is now standing in the zoo. It is not yet clear whether more such benches will follow, says Lems. 'Artis would like to become completely circular. The wooden benches in the zoo now are made of pinewood from Sweden, but then again our bench contains plastic.' RK



The relationship between universities and companies such as Shell has been under pressure in recent weeks. Should universities break their links with Shell? WUR President Sjoukje Heimovaara said in an interview with Resource that she did not want to go that far, in part because WUR conducts research with Shell that addresses the climate challenge. The Wageningen branch of Scientists4Future disagrees and wrote a letter to the Executive Board explaining their position. An abridged version of the letter is shown below (see resource-online for the full version). See page 18 for the opinions of staff and students on this topic.

‘Inherent conflict of interest in accepting research funds from fossil-fuel companies’

‘The climate and biodiversity crises are perhaps the greatest threat to humankind and all other life on Earth. Wageningen University and Research holds a prominent position in this area of research, and since its mission is to improve the quality of life, WUR is also taking numerous initiatives to become more environmentally friendly and sustainable. In this trend of corporate responsibility, it is appropriate to develop guidelines for industrial alliances. We, Scientists4Future Wageningen, aim to co-create a clear and transparent system of third-party involvement in our research and education, in particular with respect to crisis-causing corporations.

As scientists we are constantly exposed to the best and most up-to-date scientific information, which gives us a responsibility to disseminate this information and warn the public about the severity and ramifications of these crises. It is crucial that we are impartial if we want our voices to be heard.

Therefore, we propose more stringent requirements for accepting funds from fossil-fuel companies and/or collaborating with them. Two requirements in relation to the climate crises must be fulfilled:

- The funding partner should no longer invest in future fossil-fuel extraction projects.
- In accordance with the Paris Agreement, the funding partner should reduce greenhouse gas emissions by 3 per cent each year relative to 2015, the year the Agreement was signed. This implies a 45 per cent reduction in emissions by 2030.

As members of Scientists4Future Wageningen, we brought our concerns to the Executive Board of Wageningen University and we hope to soon discuss this proposal with the Board.’

Geert Aarts, Martijn Duineveld, Susanne van Donk, Anne-Juul Welsink, Benedikt Haug, Jasper Eikelboom, Chloe Tavernier and Ignas Heitkönig



50 years of SSR-W clubhouse

From 25 February to 3 March, SSR-W is marking the 50th anniversary of its current clubhouse.

The student society moved into the premises on Generaal Foulkesweg after its previous home, Huize Torck, burned to the ground in 1972. Huize Torck was in Boterstraat, near the town hall. On Monday 6 March 1972, there were two fires, first in the town hall and then in the SSR-W building. The members in the clubhouse at the time and the occupants of the student flat on the top floor were able to get out via a fire escape installed only two weeks earlier. The fire brigade was still busy putting out the fire in the town hall and so Huize Torck could not be saved. LZ

Read more at www.resource-online.nl

Vici for Professor Rens Vliegenthart

Study about framing discontent

The angry citizen is a household term. There is a lot of discontent in society, which politicians exploit. Populism reigns supreme. But how does that work, exactly? How do politicians deploy the language of discontent and to what effect? That's what Professor Rens Vliegenthart will investigate over the next five years.

The central concept in the study is 'discontent framing'. 'That is a communication style used by politicians to put citizens' dissatisfaction into words,' explains Vliegenthart. 'One element of it is the

'It is often thought that angry citizens cause polarization. But is that really the case?'

use of populist rhetoric, us-and-them polarities and agitation against the elite. It's all about how

you use language to present issues and position yourself.'

'A second element is saying malicious things about others,' he continues. 'A third is using disinformation or fake news or accusing someone else of doing so. Discontent framing involves one or more of these elements. I want to understand what that looks like, which politicians do it and whether it varies from one issue to another in the way it affects citizens and political decision-making.'

One of the ways in which Vliegenthart and his team are going to tackle their subject is to analyse large quantities of speech by politicians. 'Manually, but also using digital methods. We will be looking at three arenas: social media, traditional media and the political arena of party programmes, parliamentary questions and



Rens Vliegenthart • Photo Duncan de Fey

debates. We are talking about hundreds of thousands of utterances here. So it's number-crunching big time. We will also conduct surveys and experiments.'

Climate change

Vliegenthart will be zooming in on three themes: climate change, Covid-19 and immigration. He sees these topics as typical polarization material used by politicians. But what is the scale of that polarization? 'It is often thought that angry citizens cause polarization. That the Netherlands is practically going up in flames because of discontent. But is that really the case? I want to get past the

assumptions; I want to measure it.'

The study will produce scientific articles and a few dissertations. But Vliegenthart also wants to write a book for a wider audience and develop teaching materials for secondary schools. 'And not just for schools, but preferably for vocational colleges, where this knowledge might be even more sorely needed. Of course I also want to confront the politicians themselves with the consequences of a particular communication style.' RK

[You win some & you lose some]

A failed experiment, a rejected article: in academia such things tend to be labelled failures. As for talking about it? Not done! But in this feature, WUR co-workers do just that. Because failure can be useful. In this instalment, we hear from Koen Manusama, who quit his PhD research at the Human Nutrition and Health chair group after two and a half years.

Text Milou van der Horst ♦ Illustration Stijn Schreven

'It was nothing to do with the project, because I enjoyed contributing to the healthcare practice. I was investigating the effect of a lifestyle intervention on fatigue after colorectal cancer. But my way of working was different to that of my colleagues. I was more long-term oriented. For me, for example, recruiting research participants was a high priority, while colleagues were more inclined to trust that we would find them and to focus on giving me feedback on spelling mistakes in my emails. In the end, tensions sometimes ran high. I tried to adapt and I followed a coaching programme. And we talked about it together, but even that was difficult. Conflict is not a bad thing in itself. It's part of life and you learn from it, but it did drain me and eventually I ran out of energy.

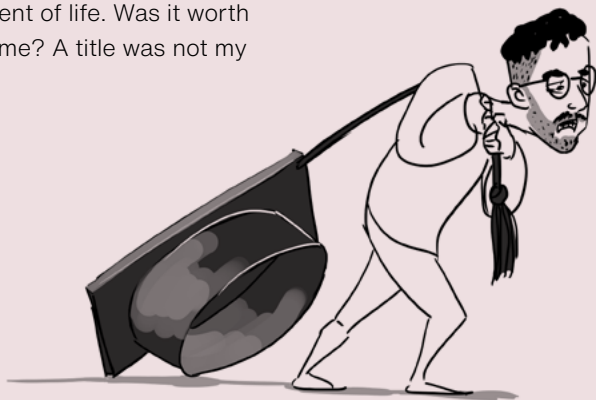
When you're doing a PhD, you examine yourself and go through some deep dips. But you shouldn't lose yourself along the way. I eventually lost my motivation, self-confidence and enjoyment of life. Was it worth that to me? A title was not my

priority: what I wanted most was to do research and help people. After one and a half years full of doubt, I decided to quit. That was when I didn't manage

'I had lost my motivation, self-confidence and enjoyment of life. Was it worth that to me?'

to write an article for which I had postponed my holiday. The decision felt – and still feels like a relief, mostly. But a little part of me felt it to be a massive failure: I didn't finish. And I am worried about what doors I may have closed. What next?

At the moment, I am still recovering from what's happened over the past period and I'm partly working on the project and partly on creating a PhD support position. Having tasks to complete again and the removal of pressure thanks to having dropped the PhD project has made me happier.'



Only some dykes suitable for solar panels

If you cover dykes with solar panels, you don't have to use up valuable farmland for this purpose. But not all dykes are suitable, shows the TNO project 'Solar Panel Dykes', in which WUR was also involved.

In the project, four different setups for solar panels were investigated in actual practice, namely on dykes in Zeeland (Ritthem) and the Flevopolder (Zeewolde). In two setups, the solar panels were suspended above the ground. In the other two setups, the panels were on the dyke surface, which consisted either of grass or paving. All setups performed satisfactorily in terms of energy generation. But the best setup for the dyke itself is one where panels are placed on a paved surface.

'The turf under the panels suffered a lot of damage'

That is because hammering in foundation piles can make the dyke less safe. Furthermore, when placed on top of grass, solar panels cause severe deterioration in the grass cover, which also adversely affects dyke safety.

Sunlight

WUR grass expert Jan Rinze van der Schoot was involved in the study. 'It soon became clear with the dykes covered in grass that the turf under the panels suffered a lot of damage. Only 10 per cent of the sunlight reached the grass under the panels, which is much too dark for grass to grow.' Solar panels incorporated in the surface of a paved dyke seem the most promising option, but they too have issues. Van der Schoot: 'There were surveillance cameras in place during the project. We didn't see any vandalism, but security is obviously still a risk.' PK



Photo unsplash.com/Ben Hanson

Meat substitute as basis for vegetarian dogfood

Shear cell technology is used in Wageningen to turn vegetable proteins into meat substitutes with a fibrous structure. It seems these same meat substitutes make a good basis for vegetarian dogfood.

Ariane Wehrmaker discovered this during her PhD research in the Food Process Engineering chair group. Vegetable proteins plus some water and salt form the basis of the meat substitutes. The same recipe works for tinned vegetarian dogfood. At least, as long as the shelf life can be extended, for example through sterilization. Wehrmaker studied whether meat substitutes made using shear cell technology can withstand that heat process without loss of texture or nutrients.

Simulating stomach

‘The study showed that the sterilization process does not adversely affect the fibrous structure of the vegetarian meat,’ says the PhD candidate. The heat did cause the amino acids in the

food to break down to some extent, but Wehrmaker does not see that as a problem. ‘The concentration of amino acids in the end product is still higher than that of the dogfood currently on the market.’ The researchers do not yet

The effect of eating this food over a long period needs to be investigated

Wehrmaker has not yet tested the food on animals but she has looked at whether the meat substitute can be digested by dogs. In the lab, she simulated the digestive system of dogs in a bottle: she put in chemicals to lower the PH value and digestive enzymes from dogs’ stomachs to replicate the situation in a real stomach. Then Wehrmaker monitored how the enzymes in the artificial digestive system digested

know whether the breakdown products themselves are harmful to dogs. In particular, the effect of eating them over a long period needs to be investigated.

the vegetarian dogfood. That turned out to go quite smoothly. ‘It is comparable to the digestion of commercial dogfood,’ says the PhD candidate.

Healthy for dogs

The PhD research shows that the shear-cell meat substitutes could be suitable for dogs too. But there is still some way to go before the dogfood can be sold in pet shops. For example, it doesn’t contain enough vitamins and minerals. ‘Like with other dogfood, we need to add a ready-made mix of vitamins and minerals,’ says Wehrmaker. That will be the next step in the research.

It is often claimed that a vegetarian diet is not healthy for dogs as descendants of the carnivorous wolf, but that is not correct, says Guido Bosch, assistant professor of Animal Nutrition and Wehrmaker’s co-supervisor. ‘Dogs need nutrients, not ingredients,’ he explains. It doesn’t matter whether those nutrients come from animals or plants. Wehrmaker is confident dogs can survive on a vegetarian diet. Her own dog is occasionally allowed to sample her lab creations, and she will continue her work at an animal feed company after she completes her PhD.

Pet food trends

Dog owners are increasingly looking for sustainable options for dogfood. ‘Trends in pet food tend to follow human food trends with a lag of two to five years,’ says Bosch. He expects that more companies will start producing vegetarian pet food in response to the increasing demand for such products. ‘We need to boost our knowledge now so the industry is able to make good, healthy products in the future. That way, we avoid a situation in which people start putting together food for their pets in their own kitchen without the necessary know-how, however good their intentions might be.’ NVTWH

Looking for agroforestry options for dairy farmers

Farmers and researchers are co-creating designs to show how agroforestry can be implemented successfully on dairy farms.

Combining agroforestry with dairy farming is relatively unexplored territory. 'This project seeks practical starting points for dairy farmers in the three northern provinces who are considering integrating agroforestry into their farming systems,' says research coordinator Heleen van Kernebeek of Wageningen Livestock Research. The project is a public-private partnership that includes the farmers' association LTO Noord and the provinces of Friesland and Drenthe. During

workshops, farmers and researchers co-create designs for agroforestry on dairy farms. Van Kernebeek is full of praise for the atmosphere. 'Together with the participating farmers, we are on a roll now. Every step forward raises 10 new questions. That is a fascinating and enjoyable process.'

Woody crops

The aim of the project is to gain insights into the added value of perennial woody crops for a dairy farm, for example for supplying feed, keeping the cows cool in hot weather, or capturing and storing nitrogen. Another important aspect is the earning potential of agroforestry.

Van Kernebeek has found the participating dairy farmers eager to explore new possibilities. 'Although of course, like us, they still have plenty of questions about the practical feasibility,' she says. 'We can find answers to some of the questions by delving deeper into the literature. We also hope in due course to find answers through experiments at the Dairy Campus in Leeuwarden and on participating dairy farms.'

Incidentally, the researcher stresses, there is still room for a few more participants. Interested dairy farmers in Friesland, Groningen or Drenthe can go to the Livestock Research website to sign up. ME

THE PROPOSITION

For PhD candidates, their theses propositions are an opportunity to publicly express their professional and personal convictions about science and society. In this feature, they explain their most thought-provoking proposition. This time, a proposition from Hanan Tadele Dessalegn, who received her PhD on 21 February for research in Water Resources Management.



'For a successful PhD trajectory, emotion management is needed more than intelligence'

'Of course intelligence and technical expertise are important to succeed in the PhD programme, but I think emotion management is a crucial factor. As PhD candidates we often encounter unexpected challenges, like experiments which do not go as planned, data analysis difficulties or rejection from academic journals. Emotion management is essential to succeed in the PhD, and stay motivated and focused on our own research goals.

Moreover as a PhD candidate we need to communicate with peers, supervisors and stakeholders in a clear and concise manner. The ability to understand and manage our own emotions as well as the emotions of others is important in effective communication and interpersonal relationships. Emotional intelli-

gence is essential for building positive relationships and addressing conflicts that may arise during the process. I am a mother of two; both of my kids were born during the PhD process. As a scholarship PhD you don't get childcare subsidy so I had to take on another job. My PhD of 36 hours, 28 hours extra work and taking care of the house and the kids was really too much. I'm glad I managed to do it. I'm happy my husband is supportive; it wouldn't have been possible without him. I have the kind of mentality that says I shouldn't give up, even though it is stressful and hard. The example I'm setting for my kids is really important. That was my inspiration. I had to finish and show them that even though things are challenging, it can be done.' CJ

Emails

Period 4 has started. If – like me – you both teach and coordinate a course, you've got a lot of organizing to do. You have to update the material and the study guide, consult with timetablers to get suitable rooms, find enough student assistants, set up Brightspace, organize the exam, and so on. But this is not even the most time-consuming aspect of the job.

That is actually the emails you get all day long from students who are hoping for an immediate reply. If you don't respond quickly enough, they will send a reminder – 'didn't you receive my email yesterday?' – and you've got even more mail. If you answer too curtly, you will get told off in the evaluation, and student evaluations

'As a lecturer, you get emails all day long from students hoping for an immediate reply'

influence your career. So it's best to email a friendly reply straightaway, no matter how busy you are. The flow of emails gets going long before the start of the course. Students who don't read the study guide have elementary questions ('Hi, are there mandatory lectures and practicals, or is it mostly self-study and

deadlines?'). After the registration deadline, the flowery excuses start coming in ('I was still pondering what was the most efficient way to plan my study programme and the deadline slipped my mind, unfortunately'). Or they want to deregister, and when you say that teachers can't do that for students, you get free advice ('it must be technically possible if you really want to'). Next come excuses for absence ('I lost my public transport pass and it costs me 40 euros return to come to class'), or practical problems ('my laptop gives an error message the moment I want to start it up. I can try my mother's, but she won't be back till tonight'). Submitting group assignments via Brightspace is problematic too ('due to a misunderstanding, we all thought someone else had submitted it'). Then, as a reward, they bombard your inbox ('to be on the safe side, here it is by email, see attachment'). Fortunately, it's a great consolation that you don't face these problems alone. This student shows solidarity: 'I'm going skiing and will miss the first two weeks of the course as a result. How shall we solve that?'

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Sjoukje Osinga

Sjoukje Osinga (55) is a university lecturer in Information Technology. She sings alto in the Wageningen chamber choir Musica Vocale, has three sons at university and enjoys bird-watching in the Binnenveldse Hooilanden with her husband.

Earthquakes in Turkey and Syria affect the WUR community too

‘THERE IS A LOT OF GRIEF AND TRAUMA TO DEAL WITH’

Bedir Tekinerdogan is the chair-holding professor of Applied Information Science. But for now, after the earthquakes in Turkey and Syria, he is above all a son-in-law, brother-in-law, cousin and uncle. The disaster hit his home area, where many relatives still live. Text Marieke Enter

A few flashes of memory are all Tekinerdogan retains from his earliest childhood in Turkey. But he was only four when the family followed his father to the Netherlands. Before that, they lived in a village near Besni, in the Adiyaman region – less than 80 kilometres from the epicentre of two devastating earthquakes in early February. He used to visit the area regularly, and was last there in the Christmas holidays, visiting his in-laws. His uncles and aunts, his wife’s parents,

her sisters and their families all live there. Or rather, used to live there.

Tekinerdogan was up early that particular morning so he soon saw the news reports about the quake. Worried, he WhatsApped the family in Turkey to ask if they were all right. Yes, we are fine, they reported one by one. ‘At first I was relieved: ah, they are unharmed and it’s all okay,’ Tekinerdogan said. ‘Only later, when they sent photos of their totally destroyed homes, did I realize that all was not well at all. And that “fine” is a relative term in such a massive disaster. That in this context it meant: “we have

lost everything and the suffering here is indescribable, but we are still alive”.’

Dystopian

Tekinerdogan’s family were lucky. When the ground began to shake, they were able to reach the ground floor in time to escape outside, or they were lucky enough to live in a building that remained standing. What followed were dystopian days, in Tekinerdogan’s words. No gas, no electricity, no drinking water. Sleeping in the car at night. No emergency services yet (‘this disaster is really too big for one country’). And devastation and misery everywhere. The children are particularly badly traumatized, says the professor. ‘My sister-in-law told me that her 12-year-old daughter cried non-stop for days. Her 8-year-old brother, by contrast, did not utter a word for four days. The problem

Bake sale fundraiser

Istanbul-born Çilga Buse Kızılay, a Master’s student in Urban Environmental Management, organized a bake sale at The Spot in Orion last week with five other Turkish students, featuring traditional Turkish dishes such as börek and baklava. ‘Istanbul is a long way from the earthquake zone. But everyone knows people affected by the earthquake,’ she says.

In the year and a half she has been living in Wageningen, Kızılay got to know only one other Turkish student. ‘Until the earthquake. Since then, I have got to know more than 60 other Wageningen residents with a Turkish background who are helping with the bake sale. We met through the tragedy.’

The proceeds will go towards helping the victims. But there is another side to the bake sale too. ‘It is a Turkish tradition to eat together,’ says Kızılay. ‘We want to share that with the Wageningen community. In addition, it is an opportunity for Turkish students to get together. It is tough being so far from home when such a massive disaster takes place there. You don’t feel quite so alone if you can share your worries and fears with others who are feeling the same way.’ LZ

Would you like to help the benefit bakers?

Donate via WURTurkishSociety on Facebook or Instagram.

is not just material, but also mental. Nobody knows what to do next. There is a lot of grief and trauma to deal with.' The family are safe now; they were able to go to acquaintances on Turkey's southern coast. And what about Tekinerdogan himself; how is he doing? 'Mentally I feel strong, although I did take about three days off in that first week. As a chair holder, I am normally on the go all day, but my mind really wasn't on my work then. I wanted to make time to help people, to call and reassure them and ask what they need. The human dimension had to be the priority now. That was a good decision, and helpful for my wife, who was extremely upset. It is quite something when your nearest

and dearest are going through something so unimaginably terrible.'

Adopted country – home country

The professor feels supported by the tremendous response from the Netherlands. From expressions of sympathy from WUR colleagues and students to the nearly 90 million euros raised by the national 555 fundraising campaign. 'I am proud of that. My adopted country taking care of my home country, that warms my heart.' This disaster puts life in a new perspective, Tekinerdogan believes. 'I'm crying inside, but at the same time I accept that suffering and grief are part of life - maybe even sent to try us. You can be very despairing or you can fight it, but that doesn't help. This disaster



Bedir Tekinerdogan
chair-holding professor of
Applied Information Science

proves that you should cherish good fortune and be grateful for what you have - it can be gone in a flash. My philosophy in life has always been that human beings are vulnerable. I've never been keen on the so-called self-made types who think they're the centre of the world. Just do your best, be a good person and do something of value for the world. It is not about money or status and there is more to life than material things. The really important things in life are not things.' ■

'THE REALLY IMPORTANT THINGS IN LIFE ARE NOT THINGS'



The situation after the earthquake in the Turkish city of Iskenderun • Photo FreelanceJournalist/Shutterstock.com

The women's hall of fame

Imagine a WUR hall of fame for women only. What would that look like? We gave it a go, as an International Women's Day Special.

Text Roelof Kleis • Photo Guy Ackermans

The photo gallery on the following pages is a nod to the discussion about the 'wall of men' in Omnia. This portrait gallery opposite the Faculty Club is made up exclusively of men. That can be explained by the dearth of professional portraits of WUR women. But we do have photos of them. Who belongs in a women's hall of fame, then? Any selection is somewhat arbitrary. The men's hall of fame includes rectors and professors, renowned or otherwise, from WUR's early history. But there hasn't been a female rector yet, and WUR's early history didn't feature any women in the highest academic echelons. The first woman professor in Wageningen only appeared on the scene in 1952, 34 years after the founding of the National Agricultural College. The honour went to professor of Agricultural Home Economics Mien Visser. As president of the Dutch Association of Rural Women, Visser helped develop an academic course in Domestic Science at Wageningen. A year later, she also became the new degree programme's first professor, a position she held for almost a quarter of a century until her sudden death in 1977.

'Belligerent miss'

So Visser became the first woman professor at Wageningen in 1952. But it really

should have been Lucy van Dorp a full 30 years earlier. An economist and legal expert, Van Dorp was nominated to become professor of Political Economy, Statistics and Dutch Agrarian Law in 1921. This would have given Wageningen the first female chair-holding professor in the Netherlands. However, the then agriculture minister Van IJsselsteyn put a stop to this: he didn't want a 'belligerent miss' becoming a professor. Van Dorp had been an active advocate of women's suffrage. Visser was the first woman professor in Wageningen, but not the first woman in a high-level academic job. That was Julia Gouwentak, who was appointed lecturer in Plant Anatomy soon after the war ended in 1945. Gouwentak started as an assistant in the Laboratory of Botany in 1929. In 1938, she married her boss, professor of Botany Eildert Reinders. She went on to succeed her (much older) husband as professor in 1956. Her

appointment didn't go unopposed – the process took over a year and required two appointment committees. Her opponents took the view 'that Mrs Reinders' attitude kills all enthusiasm for botany'. But in the end, Gouwentak was given the benefit of the doubt.

Attempted murder

But her professorship is not Julia Gouwentak's only claim to fame. She was the first – and happily so far the only – Wageningen professor to be the victim of attempted murder. A Bulgarian political refugee studying in Wageningen shot Gouwentak, who was walking down the street with her husband, with a revolver on 2 January 1960. The forestry student was frustrated at not getting an exemption for the course Gouwentak was teaching. The professor – notorious for her uncompromising nature – was not badly wounded, but the story made all

'The emancipation of women is not yet complete in the scientific community in the Netherlands'

Sibergina Wagenaar, 1954



From the left: Bernardijn ten Zeldam-Hartelust, Eltjen Krijthe, Lucy van Dorp and Neeltje Krijthe.

the Dutch newspapers.

Like its male counterpart, the alternative women's hall of fame on the next page only includes professors. But that wouldn't have to be the sole criterion. The first female Wageningen graduate would not be out of place in a hall of fame either. That was Frida Eversmann. She studied Agricultural Chemistry at the National College of Agriculture and Horticulture in Wageningen, the predecessor of the Agricultural College. She obtained her degree in 1919 (one year after the Agricultural College opened!). And she did so while working at the same institute. In the early years of the Agricultural College, very few women graduated from Wageningen. 'There were some,' says Margreet van der Burg, lead author of the book *Vrouwen, Wageningen en de Wereld* (Women, Wageningen and the World), 'but they could only sit in on classes because they hadn't got the requisite secondary or grammar school education.'

Progressive alternative

The first female PhD student was the Frisian Sibergina Wagenaar in 1954. She obtained her PhD on a study of photo-

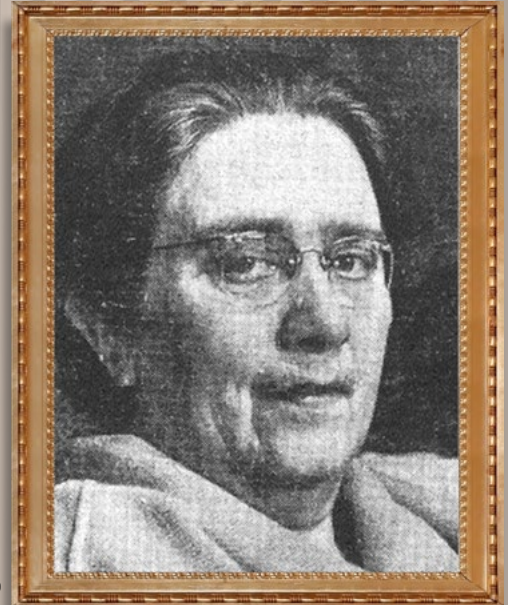
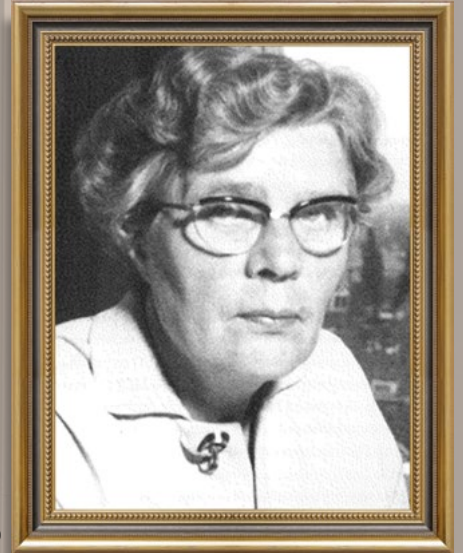
synthesis in spinach and other plants. Her thesis ended with the proposition: 'The emancipation of women is not yet complete in the scientific community in the Netherlands'. She certainly hit the nail on the head there. It took another 20 years before the number of women with Wageningen PhDs reached 10. But even this, according to Van der Burg, does not mean that there were no female PhD holders at the Agricultural College in its early years. 'It's just that they didn't do their PhDs here.' Her book features many more women who deserve a place in a hall of fame. Like Bernardijn ten Zeldam-Hartelust, the first female president of the College Council in 1973. In 1979, she was also the first woman and feminist to deliver a speech at the opening of the academic year. It was of course about the unequal position of women at the Agricultural College.

And why shouldn't the twin sisters Eltjen and Neeltje Krijthe have a place in the hall of fame? They graduated as hor-

ticalists in 1934 and then worked at the Agricultural College. During the war, they hid Jewish people in their home, the farm De Wolfswaard in the floodplains, which still exists. They were caught in the act, taken prisoner and deported to concentration camps in Germany. Eltjen Krijthe did not survive the camp. Both received the Yad Vashem award in 1973 for non-Jews who saved Jews from persecution. And what about the first international professor, the Greek Clio Presvelou (Home Economics, 1978)? Or the first female honorary doctor in 1978, the renowned Danish academic Ester Bosrup? The Hall of Fame Working Group, tasked with developing a more progressive alternative to the wall of men, has its work cut out for it.

This article was based partly on information from Margreet van der Burg.







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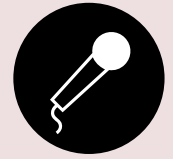


21

HALL OF FAME FOR WOMEN

A wall of female WUR professors as an alternative – or addition – to the current hall of fame.

1. Edith Feskens, Nutrition (2008-present)
2. Geertje Lycklama à Nijeholt, Emancipation and Women's Studies (1979-1984)
3. Mien Visser, Agricultural Home Economics (1952-1977)
4. Anke Niehof, Sociology of Consumers and Households (1993-2013)
5. Katrien Termeer, Public Administration and Policy (2015-present)
6. Wija van Staveren, Nutrition and Ageing (1988-2004)
7. Ivonne Rietjens, Toxicology (2000-present)
8. Tinka Murk, Marine Animal Ecology (2015-present)
9. Ariena van Bruggen, Biological Farming Systems (1999-2009)
10. Francine Govers, Phytopathology (2008-present)
11. Clio Presvelou, Home Economics (1978-1989)
12. Imke de Boer, Animal Production Systems (2011-present)
13. Louise Fresco, Plant Production Systems (1990-1997)
14. Cornelia Gouwentak, Botany (1956-1967)
15. Lucie Timmermans, Animal Sciences (1980-1995)
16. Akke van der Zijpp, Animal Production Systems (2000-2010)
17. Grietje Zeeman, New Sanitation (2012-2016)
18. Carolien Kroeze, Environmental Systems Analysis (2010-present)
19. Christa Heyting, Generative and Somatic Cell Genetics (1989-2007)
20. Louise Vet, Evolutionary Ecology (1997-2019)
21. Liesje Mommer, Plant Ecology (2015-present)
22. Rachel Creamer, Soil Biology and Biological Soil Quality (2016-present)



SHOULD WUR BREAK WITH SHELL?

Naturalis Museum did it, the University of Amsterdam wants to do it, and Erasmus University is thinking about doing it: cutting ties with Shell. But WUR thinks that's not the way to go, stated Board President Sjoukje Heimovaara in *Resource* recently. What do other WUR folk think about it?

Text *Resource* editors • Illustration Marly Hendricks



Sjoukje Heimovaara

Board President of
Wageningen University &
Research

(From *Resource* #11); 'I see the dark side of the fossil industry too. But we are now working with Shell on projects for developing biobased substitutes for fossil materials. That is relevant research. I don't want to end that collaboration. Doing so might make a good impression in the short term, but it won't do anything to solve the big problem of climate change in the long term. What we assess case by case is whether a collaboration contributes to our strategic goals, such as stopping climate change, helping secure a fair and healthy food supply, and protecting nature and the planet. (...) We are facing very major transformations (...) which are multifaceted. So we should mobilize everyone we can to move in the right direction.' WA



Rob Manders

Business analyst in the Facility
Management Department

'Every euro WUR brings in from Shell can't be invested in fossil fuels. Shell is doing some good things. Critics call it greenwashing, but I can't see what is wrong with Shell's investments in sustainable projects.

As a business analyst, I am all for taking things one step at a time. Then you can evaluate and see how well something works. You can't turn Shell into a green organization overnight. We also still need fossil fuels and materials to produce renewable energy. How do you think wind turbines and solar panels are made? We are in the midst of a transition and we've got to pull out all the stops. Every euro for a good cause is worth having.' LZ



Brigitte Wear

Master's student of Climate Studies

'WUR's cosy links with fossil fuel companies are unsettling. It makes for a contradictory public image: the slogan is "for quality of life" and WUR actively presents itself as the planet's most sustainable university. WUR also carries out research on climate justice and ethical transitions away from fossil fuels. For fossil fuel companies, the money spent on "green" research at WUR and other research institutes is negligible and distorts the full picture. These companies still run on the exploitation of natural resources and people, especially people of the Global South and people of colour. By accepting and welcoming the influence of fossil fuel companies, WUR plays a knowing role in greenwashing, becomes complicit in a widespread public image scam, and plays a part in delaying climate action.' CJ

Have your say: debate and symposium

- WUR is organizing a debate with the Executive Board and Scientists4Future Wageningen for students and staff on whether we should break links with the fossil-fuel industry. 14 March from 12:00 to 13:30 in Omnia
- Scientists4Future Wageningen is organizing a symposium on 'observing, understanding and problematizing the relationships between Dutch universities and Big Oil'. With Vatan Hüzeir and Brigitte Wear. 16 March from 15:00 to 18:00 in Gaia



Peter Boogaard

Special professor of Environmental Health & Human Biomonitoring

'I worked for Shell for over 30 years. Since then I have taken early retirement, but one day a week I still do research at WUR as a special professor – facilitated by Shell, as my former employer. I am not ashamed of that. Nor do I take the criticism of academic links with Shell personally. Perhaps it makes a difference that the research I am involved in is not closely related to the oil business but is on something nobody is really against: how to reduce the use of laboratory animals in research into chemicals. The legal requirements entail using a lot of animals: around 2000 to 2500 laboratory animals for each substance. We are trying to develop an alternative with which we can get results that are more relevant to humans without using laboratory animals.

Burning is the worst thing you can do with petroleum. But fuels are not the only things made from petroleum. Other things like the brake fluid and lubricating oil your electric car needs are produced from it too. And so are lots of other indispensable products. We really won't get rid of petroleum for some years to come.

People are mistaken if they think boycotting Shell will speed up the energy transition. On the contrary: at the sector level, European companies such as BP and Shell are actually pioneers. Even if a larger proportion of their investments still goes to fossil fuels it does not change the fact that they invest vast amounts of money in sustainability. Incidentally, even the much laxer US companies like ExxonMobil and Chevron are minor players compared to state oil companies like Saudi Aramco or Qatar Petroleum - they have no shareholders to answer to. The way Shell is now being singled out is largely due to ignorance about such things.' ME



Sanne Vermeij

Student Council President
(her personal opinion)

'In the Student Council, opinions on this proposition are very divided, which is why I am speaking in a personal capacity.

I understand where the proposition is coming from and that people question collaborations with a company like Shell that makes money in the fossil industry. But I still don't think it is the best choice to cut all ties. If you can explore alternatives to fossil fuels in collaboration with this kind of company, and work towards a more sustainable energy supply, that has to be a good thing. When doing so, it is important not to let a powerful company like Shell influence the outcomes of research. But I don't think it solves anything to bury your head in the sand, ignore Shell and let them carry on the way they are now.' LZ



Susanne van Donk

Researcher at Wageningen Marine Research

'I am against collaborating with companies that continue to invest heavily in new or existing fossil sources and make sky-high profits from this, but don't use them to invest substantially in renewable sources. Collaborating with an industry that we know to be destructive damages the credibility of science. It also enables companies to polish up their image without actually changing. This legitimizes the companies responsible for the climate problem. Everyone agrees that collaborating with Phillip Morris to fight lung cancer is not an option. So why is collaborating with Shell to tackle CO₂ emissions perfectly normal?' CJ



Algae are an excellent source of protein for humans, but

ALGAE SMOOTHIES AREN'T VERY NICE

There is green gold flowing through a network of tubes in the AlgaeParc in Wageningen: algae. Rich in fats and proteins, they could be a useful addition to our diet. Especially when we have 10 billion mouths to feed in 30 years' time. Are algae the food of the future?

Text Nicole van 't Wout Hofland • Photo shutterstock

The potential of algae as a useful raw material for things like biofuels has been touted for decades, but practical applications have been a long time coming. There are some small-scale developments, however. In supermarkets, for example, you can find burgers made of algae and bakeries are selling bread 'salted' with saltwater algae. 'Algae farming has come of age in the last five years,' says Maria Barbosa, professor of Bioprocess Engineering. The technology for growing algae is developing rapidly, while scientists have learned more and more

'I expect food made from algae will be commonplace within five to ten years'

Big companies invest when they see a product has a chance of success'

about how to manipulate algae by making modifications to their DNA, for instance. The general public have an important role too: consumers and industry are becoming increasingly conscious of the environmental impact of their choices, and the demand for sustainable products is rising. 'And that includes food made from algae,' says Barbosa.

In Europe, we grow 60,000 tons of algae a year. That is not enough to enable us to include algae in our diet on a large scale. This view is shared by the European Commission, which ruled last November that the cultivation and use of algae should be seriously expanded. The Commission wants to boost the use of algae with new scholarships, subsidies and research programmes. 'The European Commission is already subsidizing large algae farms, so production is on the rise,' says Barbosa. 'Because the Commission expects demand for algae in Europe to grow substantially in the coming years.'

Relief

An increase in algae farming not only supplies more food, but also has a positive effect on the environment. Algae capture carbon dioxide from the air and use nitrogen and phosphorus from seawater. They also need very little soil to grow on. Microalgae such as chlorella and spirulina grow well in a closed culture system such as long tubes. 'An advantage of a closed system like that is that water and nutrients, such as nitrogen and phosphorus, can be reused and do not leak into the soil,' says Barbosa.



Such tubes are also stackable, so a small area yields a lot of algae. For example, one hectare of algae provides enough protein each year to feed about 1000 people. By comparison, a hectare of soya provides enough protein for 50 people in the same time. ‘These are rough estimates,’ cautions Barbosa. ‘They’re based on certain assumptions, but this example does illustrate the potential of algae farming.’

But this doesn’t mean that we can disregard traditional high-protein crops such as soya, lentils and peas and just drink algae smoothies in future. ‘Because algae are not that tasty,’ says Barbosa. So rather than seeking to develop products made entirely of algae, the researchers aim at enriching products with a supplement of powdered algae. As soon as farmed algae reach the right size, they are harvested and dried to make powder. ‘In dried form they are a lot more compact, which saves a lot of weight and space during transport,’ says Barbosa.

Chance of success

The aim in the Netherlands is for 60 per cent of the proteins we eat to come from plant sources by 2030. In combination with traditional protein-rich crops,

algae could help us do that. Algae farming is expected to gain momentum now that more subsidies are available. And that means more product development by scientists at universities and small companies. ‘That is attractive to industry,’ says Barbosa. ‘Big companies invest when they see that a product has a good chance of success.’ When will we be seeing large quantities of algae in supermarkets? Barbosa thinks we won’t have to wait long for that. ‘I expect that food made from algae will be commonplace within five to ten years.’ ■

Algae as a jack-of-all-trades

Algae are useful for more than food. Scientists are also studying the scope for sourcing pharmaceutical compounds, edible vaccines and oil from algae. Algae oil is a good substitute for fish and palm oil. Palm oil is currently used in food, cosmetics and deodorant, for example, and is the basis of biodiesel. Applications of algae are still in their infancy. It is difficult to get algae to build up stocks of oil, for example: they stop growing if they produce a lot of it. Although researchers are working hard to develop these kinds of applications of algae, it will take longer than developing uses of algae as food.

Heusinkveld sensor shows pollution from wood-burning stoves

Wageningen residents measure air quality

Burning wood wrecks air quality. But how do you prove that? Thanks to meteorologist Bert Heusinkveld, Wageningen now has the best measuring network for fine particulate matter in the world.

Photo Guy Ackermans

Log fires and wood-burning stoves are so cosy. They give us a kind of primal feeling. Civilization began with the discovery of fire, but that cosy feeling comes at a price. Burning wood pollutes the air with nitrogen oxides, soot and fine particles. And in no small quantities. According to research by the National Institute for Public Health and the Environment (RIVM), wood-burning stoves in the Netherlands emit more particulate matter than all the traffic combined.

If your neighbours' wood-burning stove or log fire affects your health, there's not much you can do about it. Burning wood is allowed, and data is scarce on the pollution it causes. But that's about to change in Wageningen. The Wageningen Air Quality Monitoring Network, set up in recent weeks, measures the particulate matter in the air at the neighbourhood level. The man behind this citizen science project is WUR meteorologist Bert Heusinkveld. He designed a new device specially for it: the Heusinkveld sensor. 'The best citizen science sensor in the world,' in his own words.

Do-it-yourself

Heusinkveld got involved in the wood-burning issue through Platform Duurzaam Wageningen (Sustainability

Platform Wageningen), who invited him to give a talk in the library last autumn on the city's air quality. 'I expressed my wish then to start a citizens' measurement network. It turned out that Duurzaam Wageningen wanted the same thing. We wondered whether it was possible to measure air quality with a simple sensor?' There are such sensors, but the problem is that they are not very good, says Heusinkveld. They are definitely not up to demonstrating the pollution caused by burning wood. 'People burn wood when it's cold, and that is often when it's foggy too. The existing sensors stop working well at a humidity level of 70 per cent. So that's no good to

you. I wanted a good sensor with which you can go on measuring even at high humidity levels.'

So Heusinkveld started tinkering himself – although 'tinkering' doesn't do justice to the device he designed. The instrument is a state-of-the-art piece of measuring equipment, packaged in a 3D-printed, durable and weatherproof box. It has to be hung up outdoors near



Text Roelof Kleis

Sensor Community

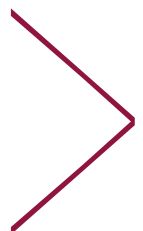
The data from the Wageningen measurement network are published on the Sensor Community website, a global platform for environmental measurements by citizens. RIVM uses the Dutch measurements for its own project Samen Meten (Measuring Together). WUR will install three meters of its own: two on campus and one at the Veenkampen measuring station in the Binnenveld. The neighbourhood with the most wood-burning stoves is Sahara on Wageningse Berg, where there are lots of detached houses. The area with the fewest wood-burning stoves is the Nude, a neighbourhood with many flats without the space for a stove. The Wageningen monitoring network is a joint initiative of WUR, Platform Duurzaam Wageningen, Stadslab and the municipality of Wageningen.



is simple: heat the air. ‘Condensation forms on the particulate matter and that makes the sensor go on the blink. If you heat the air, the water evaporates. The heat is given off by the electronics that read the sensor. I estimate that I can still get measurements at up to nearly 100 per cent humidity with this. So you gain a lot of measuring capacity.’ Another big plus is the measurement range. The sensor not only measures particulate matter in densities of PM10, PM4 and PM2.5, but also PM1. PM stands for particulate matter, or the mass density of fine particles. The number indicates the maximum size in micrometres. The PM1 density level is significant, as it penetrates the lungs the deepest. Heusinkveld: ‘The coarser particles don’t get beyond the nose and throat. But particulate matter of one to five micrometres penetrates deep into the lungs. And

the house the power cable is three metres long. A small antenna transmits the data via the home’s Wi-Fi network. Thanks to a municipal grant of 2500 euros, the device costs the 70 participants in the citizens’ measurement network only 30 euros. Heusinkveld is rather amazed by the great interest in

his project. ‘I was quite blown away by it. This gives us the densest network in the world in one fell swoop. And there is even a waiting list.’ The most innovative aspect of the design is that the device goes on working even at high humidity levels. The solution Heusinkveld came up with





The Heusinkveld sensor in a 3D-printed, durable and weatherproof box • Photo Guy Ackermans

‘Fine particles of one to five micrometres penetrate deep into the lungs’

below PM₁ it really enters the alveoli. Soot particles are so small that we can’t even measure them with this sensor. That’s on the scale of ultrafine dust.’

Sneaky

Heusinkveld knows what it means to be affected by particulate matter. ‘I also have a personal drive to do this work. As a child, I suffered from asthmatic bronchitis. I don’t anymore. But I have experienced it as an adult when, after a cosy evening around a log fire, I coughed and spluttered all night long. I had inhaled smoke. Air quality standards are often about average values that mustn’t be exceeded. But that ignores the peaks to which people are exposed.’

Actually, there are no safe values when it comes to particulate matter, says Heusinkveld. People who are sensitive to smoke are often told not to go outdoors on days when woodfires are in use. But that completely ignores the fact that

wood smoke is harmful to everyone, even if you don’t have a cough or other symptoms. It sneaks up on you surreptitiously.’

Heusinkveld’s meter measures particulate matter accurately. But how do you establish a link with wood burning? Heusinkveld: ‘The device also measures the level of volatile organic hydrocarbons and nitrogen oxides in the air. Not precisely, but it does give you a rough idea. Combining these measurements helps you estimate whether the particulate matter comes from wood burning or from traffic. You can also tell by the shape of the signal itself. My sensor gives a signal every 145 seconds. Wood burning doesn’t produce a nice, smooth line,

but a spiky signal; each passing puff of smoke creates a spike.’

Substantiating complaints

The measurement network enables Heusinkveld (and everyone else, see inset on the Sensor Community) to get a detailed picture of the air quality in Wageningen. ‘So you can tell from the data which are the clean neighbourhoods and which are the dirty ones, where there are sources of particulate matter and where there are none. I will soon be able to see from the multi-year data whether the widening of the Nijenoord Allee has an impact. And do those wood-burning stoves make the pollution worse? Of course, I don’t know which households have wood-burning stoves. I can’t see through the front door. But with enough observations, theoretically you could even locate a source.’

There are more than a million wood-burning stoves and fireplaces in the Netherlands. Most of them are only lit occasionally, for the ambiance they create. But energy bills are changing that. ‘With today’s high gas prices, you can’t blame people for looking for alternatives for heating their homes,’ says Heusinkveld. ‘But that should not happen at the expense of air quality and therefore of people’s health. For traffic, we have long since taken measures to reduce pollution. Cars have catalytic converters and particulate filters and there is lead-free petrol. But with stoves, anything goes. New wood-burning stoves do have to comply with the EcoDesign seal of approval. But that label only sets standards for efficiency and carbon monoxide emissions. It says nothing about particulate matter. The RIVM issues alerts on wood-burning, but they are non-binding. Meanwhile, complaints are pouring in about health problems caused by wood-burning. Following one such complaint, the Council of State recently ordered a municipality to carry out further research. With measurements like ours, you can substantiate a complaint like that, especially on damp nights, when previously nothing could be measured. Once you have figures, you can motivate municipalities to take action.’ ■

Scenario study on agriculture's PROVINCIAL PUZZLE

What needs to be done at the provincial level to achieve the national targets for water quality, the climate and nitrogen in agriculture? And is this feasible? These questions are at the heart of a new Wageningen scenario study.

Researcher Edo Gies of Wageningen Environmental Research presented the study, commissioned by the ministry of Agriculture, last week during a WUR Live event. Paul Pestman, who heads the government's National Programme for Rural Areas (NPLG), gave an introduction. Pestman pointed out that while nitrogen

'The study offers support for decision-making'

dominates the political and public debate, there are other issues too facing rural areas. It will be a serious challenge for the agricultural sector to

achieve the agreed objectives for nature, water and the climate by 2030. 'A complex puzzle' was how Pestman put it. To help solve that puzzle, about a year ago NPLG asked WUR 'to provide inspiration for both the national government and the provincial authorities.'

In early February, the minister Christianne van der Wal sent the result of this assignment — the scenario study — to the Lower House of Parliament. The study explains how the national targets for water quality, the climate and nitrogen in agriculture can be translated into objectives per province. It also assesses whether the regional objectives can be achieved with a comprehensive package of measures that WUR researchers see as promising.

Big impact

Regarding that last aspect, the announcement on WUR.nl was quite clear: yes, the objectives are largely attainable in theory, but only if major measures are taken that would have a big impact on farmers. To cite two examples, the scenario study assumes livestock

numbers that are about 25 per cent lower than current numbers, and much higher groundwater levels on peatland (40 centimetres below ground level, and even that may not be enough).

Even with such far-reaching measures, the aggregate effect is not enough to turn all target indicators green. For example, the study concludes that only Drenthe and Overijssel would achieve the provincial targets for the leaching of phosphate into the surface water. And none of the provinces would achieve the goal for carbon sequestration in the soil. In contrast, the calculations show the reduction of methane and nitrous oxide production is attainable for nearly all the provinces.

Not a blueprint

In his talk, Gies emphasized that the scenario study is mainly aimed at showing how big the task is exactly in each province, revealing how the various issues are interlinked and indicating the effectiveness of the various measures. He stressed that the study is not a blueprint. 'It is not a model where we input the targets and the model churns out the required measures, but this study does give important insights as support for political decision-making.' ME



Photo Shutterstock

Student Jiska Taal, candidate in the water board elections

‘I WANT TO MAKE THE NETHERLANDS A BIT MORE ATTRACTIVE’

The typical water board member is a man in his sixties. High time for more diversity, thinks Bachelor’s student of International Land and Water Management Jiska Taal (20). So she is standing for election on 15 March.

What exactly are these water boards?

‘Water boards are the oldest governance systems we have in the Netherlands. The earliest water boards date back to the 13th century. Long story short, water boards take care of water management in the broadest sense of the word: from the quality of surface water and sewage treatment to protecting people from water with dykes, for example.’

You are studying International Land and Water Management. Did you get interested in the water board elections through your studies?

‘It was the other way round, actually: I ended up doing this degree programme through the water boards! When I was at secondary school, someone from the Delfland water board visited our class. They were looking for youth administrators. I applied and took part in a kind of youth election. Before I knew it, I was on the youth board for four years, including one year as youth water board member for the whole of the Netherlands. I learnt a lot about water boards from that, and saw how important that work is. And that led me to start a degree in International Land and Water Management here.’

Now you want to rejoin the water board. Why?

‘I have followed the water boards ever since being on the youth board. You are on a water board for four years. I have been doubtful as to whether it wouldn’t take up

too much time alongside my studies: I want to finish my Bachelor’s and am considering doing a double Master’s degree. I also wondered whether I know enough about the subject yet. But after talking to several people, I thought: you know what, I’ll just do it. The work is super interesting and I think something’s really got to change. I have a lot to learn still, but I don’t have to do it on my own and with my background in terms of my degree and my experience in the youth board, I’m sure it will work out. So now I am on the list of the General Water Board Party. That party has no links with political parties and governs on the basis of expertise.’

What’s got to change?

‘Most water boards consist mainly of men in their sixties. I am three times younger and I am a woman. It is good for people with different perspectives to have a say in decisions. Decisions get made for us at the moment, and we have no real voice. One of my priorities is the long term. Water boards are now making plans for 2050, but I won’t even be 50 then. So I say: come up with a vision for 2100. And weigh up the consequences for future generations of every decision or plan. I stand for climate mitigation:



Text Luuk Zegers

‘SOON THERE WILL BE CAMPAIGN ADS WITH MY FACE ON THEM. THAT WILL BE WEIRD’



Jiska Taal at a weir in the Binnenveld. 'One of our priorities is 'enough water for everything and everyone'. Here there is a weir that is too high for fish; they can't get past it. A fish passage has been created so the fish can still swim to their spawning grounds.' ♦ Photo Guy Ackermans

changing things *now* to ensure you limit the effects of climate change. If we do that, we won't need as many major measures in the future. And I want to focus on desiccation on the Veluwe plateau. Because of all the coniferous woods there, a lot of water evaporates and the area is drying out. By gradually turning them into deciduous woods, you improve the water management and the biodiversity.'

What's the connection with your degree programme?

'I did a minor in Forest and Nature Conservation and it made me want to go further in that field. I want to combine the Forest and Nature Conservation Master's with the Master's in my discipline, International Land and Water Management. The interaction between those two disciplines is interesting. A good example is the desiccation of the Veluwe that I just mentioned, where a different type of forest can improve water management.'

That sounds like a lot to me: two Master's programmes plus the water board.

'It will be time-consuming, of course. But I don't mind that because I find this super interesting and I want to make the Netherlands a bit more attractive and better protected. I will need an extension on my studies anyway, but I see that as a small price to pay.'

How many votes do you need?

'I am the fourth candidate of the General Water Board Party's list for the *Vallei en Veluwe* water board, which includes Wageningen. At the moment there are three of them on the board, so it could be a close-run thing but there is a reasonable chance I will be elected. And it is assumed you need 4500 to 5000 preferential votes to get in on that basis. I try not to think about that too much. Everyone living in the water board's area is allowed to vote, including international students and employees. Soon there will be campaign ads around Wageningen with my face on them. I think that will be weird, and no doubt some moustaches will be drawn on them. But I'm proud of it.' ■

About the water boards

- The water boards are the oldest governing bodies in the Netherlands. The first water board, the Hoogheemraadschap van Rijnland, dates back to 1255 (over three hundred years before the Netherlands became independent).
- At one time, there were thousands of small water boards. Over the years, they merged to become more efficient. In 1950, there were 2,600 water boards; in 1980, 260; and in 2023, 21.
- Water boards are responsible for water-related issues including flood protection ('dry feet'), water quality and water quantity.
- - Together, the water boards maintain some 18,000 kilometres of flood defences such as dams, dykes and locks.



THE SIDE JOB

You've got to make ends meet somehow. We can all borrow from Uncle Duo, but there are also students who earn money in unusual ways. In this series, we put some interesting side jobs in the spotlight. This time we meet Neeltje Leloux (22), a Master's student of Governance of Sustainability Transformations. She and her housemates Barris Steenhorst and Hanna van der Gaast work as game facilitators at Escape Room Wageningen.

Text and photo Steven Snijders

'The former cigar factory in Wageningen has housed an escape room since 2016. We now have three rooms where you can play: Prisoner of War, Final Battle and Crazy Farmer. Crazy Farmer has a Wageningen flavour to it, of course. In Final Battle, two teams play against each other, which is fun for something like a work outing. As the game facilitator,

I set up the game rooms, welcome the guests and keep an eye on them during the game. I am watching via cameras throughout and I can hear and see everything the players do. So I am in a kind of control room during the game. I make sure that if the players get the right answers, they can move on to the next level. I start a video or I set up a physical adjustment to facilitate the next task. That's a bit of a vague description, but I don't want to reveal any spoilers for the readers! The players have one hour to escape from the room. The players are allowed to shout "hint!" and then I give them a clue via a screen in the room. For me, finding the perfect

hint is a nice puzzle.

It's really nice that my housemates are my colleagues. Our house, 'La Bastida', is a major source of staff. It is very funny to listen in on the players. Sometimes, because of the stress, they can't do very simple sums. Or their thinking goes in the wrong direction entirely. The floor is a bit broken in one of the rooms. Sometimes people try to put the pieces of the floor back together, not realizing that it has nothing to do with the game. The different group dynamics are also entertaining: sometimes the person with the smart answers gets ignored by the rest. And things can get quite rough in families, with the little sister being pushed over, for instance. For us, it's nice that the players always leave happy, and everyone always thinks it's a really cool thing to do.'

'For me, finding the perfect hint is a nice puzzle'



From the left: Neeltje Leloux, Hanna van der Gaast and Barris Steenhorst

Neeltje plays along

Who: Neeltje Leloux (22)

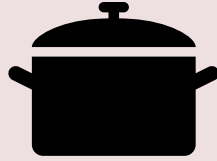
What: game facilitator at Escape Room Wageningen

Why? fun to help the players from the control room

Hourly wage: 11.16 euros

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

You encounter all the flavours of the world in the WUR community. Luca Sarobe (22), a Climate Studies MSc student from Spain, shares a recipe for *Tortilla de patatas*.



Flavours of WUR

Tortilla de patatas



Luca Sarobe
Climate Studies MSc
student from Spain

'Tortilla is one of the few dishes that you will find all around Spain. It is served for dinner, as a starter for lunch, as a mid-morning snack and sometimes even for breakfast. It reminds me of getting together with friends and family, because it is often served on social occasions. They are even competitions in Spain to see who can make the best tortilla. The great debate is: should or shouldn't there be any onion in this recipe? I go for onions!'

- 1 Peel and chop the onions and potatoes.
- 2 Heat the pan gently. Add the onion and enough olive oil to cover the onion. Fry until it softens, stirring regularly.
- 3 After about five minutes, add the

potatoes and enough oil to cover the vegetables again.

- 4 Fry 15-20 minutes until the vegetables are soft (check frequently). Stir regularly.
- 5 Beat 6 eggs in a large bowl.
- 6 Drain the fried potatoes and onions

Ingredients (for 4 persons) :

- 500g potatoes (chopped)
- 250g onions (finely chopped)
- 6 eggs (medium)
- 3 pinches of salt
- 300 ml olive oil (or as much as necessary)

in a sieve, saving the oil. Add the vegetables to the eggs.

- 7 Add the salt and mix well.
- 8 Fry the omelette in a little oil until firm, then turn it out onto a chopping board or large plate and return it to the pan to fry the other side.
- 9 When it has browned slightly on both sides, flip it onto a large plate or board. It is best served with lightly toasted bread.

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Documentary about soil life

An underground world

Soil biologists claim that there are more organisms in a teaspoon of soil than there are humans on Earth. The new film *Onder het Maaiveld* (below ground level) documents some of that soil life.

Making the film is a cherished dream come true for WUR soil biologist Gerard Korthals of the Centre for Soil Ecology. Three years ago, he received nearly three million euros from the Postcode Lottery for a project to restore soil life in the Netherlands in collaboration with the nature conservation organization IUCN Netherlands, the Butterfly Foundation and the Netherlands Institute of Ecology. The film, which leans heavily on WUR expertise, is one of the results. The theme running through *Onder het Maaiveld* is the attempt by a group of city dwellers to start their own vegetable garden based on the principles

of regenerative agriculture. That form of agriculture is all about restoring the natural processes in the soil. What gives the film its appeal to a wider audience are the stunning images of worms, woodlice, springtails and other underground grubs.

Making the invisible visible

The film's stars are the creatures themselves. *Onder het Maaiveld* is an interesting crossover between a nature film and a documentary, with forays into the lab and even the lecture theatre. Some of the footage was shot by research assistant Simone Brandt of Wageningen Field Crops in Lelystad. And macro photographer Wim van Egmond's

stop-motion shots of fungi are downright spectacular.

Onder het Maaiveld shuttles continuously between the worlds above and below ground, between the visible and the normally invisible. Director Mark Verkerk skilfully forges those elements into a coherent whole. If you want to spot colleagues on the silver screen, Simone Brandt and worm experts Ingrid Lubbers and Professor Jan Willem van Groenigen all have roles. RK

Onder het Maaiveld will be showing in Heerenstraat Theater from 2 March.

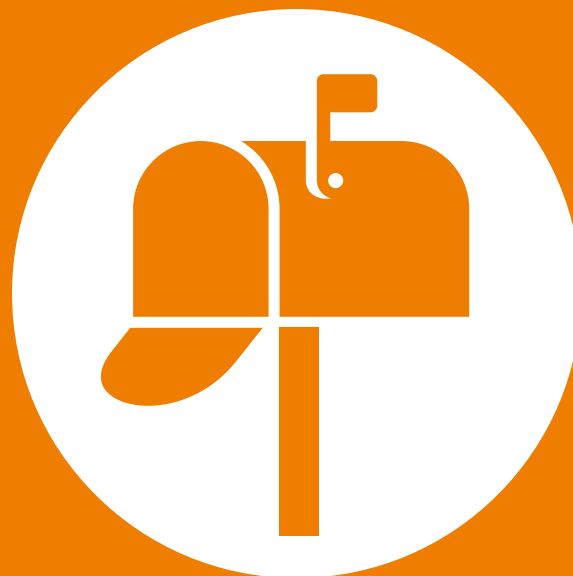


Slug eggs in the soil. • Photo EMS FILMS

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Colophon

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THERMO CHALLENGE LAUNCHED

WUR is launching a new challenge with the slogan 'How low can you go?': the temperature in campus buildings will be lowered even further this spring. Those who still want a warm workplace can reserve it via Optare in exchange for a number of leave hours.

There are two motives behind the Thermo Challenge, says energy coordinator Wouter Lionheart: further reducing WUR's energy bill and reducing our footprint. 'As long as WUR continues to work with Shell, we will have to go the extra mile on other fronts to keep our narrative about climate change and planetary boundaries credible,' he explains. The challenge applies both on campus and at WUR sites outside Wageningen.

To prepare students and staff for the Thermo Challenge, an e-learning environment was put on BrightSpace and the intranet on 29 February in which Wim 'Iceman' Hof explains some useful breathing techniques. Further measures are not necessary, according to the energy coordinator, although he advises

everyone to dress appropriately for the challenge. 'Feel free to wear your ski suit. You hardly need it any more anyway. With the changing climate, winter sports are dying out,' said Lionheart. For visitors who feel the cold, bloniesies (blanket onesies) in WUR green can be reserved at the reception desks. Employees who still value a heated workplace can reserve one in exchange for leave hours via Optare. The conversion factor is 1:1, or one hour of leave for one hour of working at 20 degrees Celsius. In total, up to 500 heated workstations are available on campus, on a first-come-first-served basis. 'HR looked

into the feasibility of dynamic pricing – the higher the demand, the higher the price – but they ran into obstacles to that in Optare. A pity, otherwise WUR could have made a mint on Tuesdays and Thursdays,' Lionheart chuckles. For people who can't work in cold temperatures for medical reasons, WUR is looking into whether workstations can be set up in the heated greenhouse complexes. 'Be aware that these are only available on presentation of a doctor's certificate,' Lionheart concludes.