

WUR from within: straight, sharp, transparent

No 03

# Resource

OCTOBER 2020 VOLUME 15

**No inbreeding depression**  
for Dutch cows

**The secret life**  
of Wadden  
Sea fish

**More work pressure**  
for staff due  
to corona

**Campus Radio:**  
four students  
on the air

**'Use the forest'**  
'But hands off  
nature'



**Video lectures?**  
WUR MOOCs  
have had them  
for five years



# Contents

NO 3 VOLUME 15



16

**Mini-guts**  
mean no  
more need  
for lab mice



18

**Game on!**  
Online climate  
game for  
policymakers



26

**More for less**  
Student gets  
million euros for  
shrinking region

4 Student societies want  
to be sociable yet safe

6 Ten cases  
of fraud in  
online exams

8 Is oily fish  
good for your heart?

9 Water purification  
makes oil drilling greener

10 Why biological pest  
control wasn't working  
in Bangladesh

Read the latest news and  
background stories at  
[resource-online.nl](http://resource-online.nl)



## FOREWORD

### Have fun anyway

'Now it suddenly seems a lot closer,' says everyone in a shocked tone when I tell them that one of my sons has the coronavirus. I agree, and I admit I'm a bit shocked too. Not so much out of concern for my son, who was happily whistling away in the garden tending to his three cannabis plants when the municipal health service finally phoned with the result. I wasn't worried about my own health either, even though I hadn't kept my distance when my son was sick. Of course not. But I have been rather shaken by the consequences: going into quarantine, no visitors, no cuddling the kids, no fetching your new driver's licence from the town hall, no cooking for granddad, no going into work to do the final *Resource* edit. Worrying about who you might have infected or might still infect. We'll manage but it's not exactly fun. Which, incidentally, is what WUR's teachers say about the recent periods of online education (page 25). How can we keep our spirits up? Some tips: do a WUR MOOC, as a million people have done before you (page 12), or play the climate game (page 18). Ask your neighbour to do some shopping for you and cook nasi goreng (page 29). Or you could just read *Resource* from cover to cover. That cheers a person up, as I should know.

**Helene Seevinck**

*Resource* managing editor







## DEMOLISHING THE MATHS BUILDING

Many Wageningen alumni will have been taught in the Maths Building at De Dreijen. This building, which dates from 1968 and used to have a large lecture hall, is now being pulled down. The university is selling the land so residential housing can be built there.

Photo: Eddy Teenstra



## WUR students on the air with 'Campus Radio'

Four WUR students have recently started producing Campus Radio, which can be listened to on RTV Rijnstreek. Student of Communication & Life Sciences Luwe Groot (22) is on the radio production team. 'On Monday we start the week with the latest campus news, student affairs and the most attention-grabbing WUR publications. In short: a lot of airtime for current affairs and interviews. On Thursday it's all about letting off steam towards the end of a busy week of studying. This programme is more informal: we go out on the street, phone up houses that are in quarantine, and try to make it a nice pre-party for Thursday night.' The DJs would like to expand their team, says Groot. 'We'd like to work towards airing Campus Radio every weekday. A woman on the team would be a nice addition.'

*Campus Radio is on air on Mondays and Thursdays between 17.00 and 19.00 on 106FM and the Ziggo and KPN cable channels. You can also listen on [rtvrijnstreek.nl](http://rtvrijnstreek.nl), where previous shows can be found too.*

▼ From left to right: Ruben de Vries, Pim ter Laan, Sven Alkemade and Luwe Groot



Student societies plan to organize more open-air activities. Photo Anna den Hartog

## How to socialize safely during the pandemic

How can students continue to meet one another and still keep to the coronavirus rules? This was the key question in a meeting between Wageningen municipality and the student societies on 24 September.

In view of the increasing number of Covid cases in Wageningen, the student society boards had a talk with the municipality and the municipal health service (GGD) about sticking to the coronavirus rules. While most students who tested positive became infected in private homes rather than at the societies' clubhouses, the municipality still thinks the societies play a role in setting a good example. What is more, GGD researcher Kirsten Wevers says that while until recently infections were primarily among young people (including students), now cases are increasing in other age groups too.

The meeting produced some ideas on how students and the municipality can help reduce the number of infections. For example, the municipality and the societies could create more opportunities for socially distanced gatherings outdoors, such as at pavement cafes with awnings. The municipality could speed up the permit process for this. The societies could pay attention to

criticism from local residents that students are not keeping to the rules, for example by explaining how many students are allowed in the clubhouse under the coronavirus rules and how many actually visit. They could also record clips of pub evenings to show that they genuinely are sticking to the rules.

### Coronavirus in Wageningen

78 people were tested positive for the coronavirus between 14 and 27 September in Wageningen municipality. This means infections are increasing, says Svetlana Landbrug of the Gelderland Midden Health and Safety Region. 'We have a good picture of the situation and we can usually trace the source of the infection. We continue to monitor developments.' Most infections come from friends or family and take place in the home setting.

AS & LZ

*The government's coronavirus dashboard gives the number of positive tests per municipality*

# 535

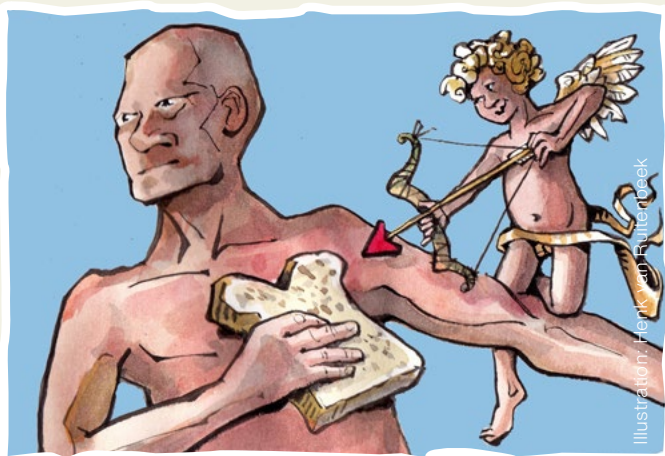
## Biobased economy for dummies

The biobased economy is more tangible than most people think. Now WUR researchers will be demonstrating this in Wageningen. 'More and more products based on natural resources are found in shops,' says scientist Harriëtte Bos (Food & Biobased Research). 'But ordinary people don't realize they are biobased!' The European Union wants to change this with the BLOOM project. On Sunday, Bos will be giving a talk on behalf of WUR in the public library. A typical WUR contribution to the biobased economy is the plastic based on polylactic acid (PLA). Everyone knows PLA foil as the crinkly plastic that is used as packaging. 'My talk will be about the things we can make from renewable resources that look like the familiar petroleum-based products,' says Bos. HK

*The talk is in Dutch and you must register beforehand via the library's website.*

The coronavirus crisis will inevitably cause some students to fall behind with their studies. Education minister Van Engelshoven realizes this too. So anyone who graduates with a Master's between September 2020 and the end of January 2021 will get a refund of three months' tuition fees, namely 535 euros. A motion in parliament to extend the scheme to students not in their final year failed to win a majority in a vote early this week.

## Typical Dutch A sandwich as a meal



Before I came to the Netherlands, I had googled Dutch cuisine. As a Turkish person, food is very important to me. I found some interesting Dutch foods on the internet, most of which are not proper meals – like *kroketten*, *patat* and *pannenkoeken*. I knew Dutch cuisine was not very rich but it was only after I started my Master's programme that I realized quite how important bread

is to the Dutch. The Dutch can eat bread with everything. Students take a whole package of bread to the classroom. They even prepare and eat sandwiches during the lecture. The Dutch take a piece of cheese to make a sandwich with. And they can

eat that bread the whole day as breakfast, lunch and dinner. Everyone in the Netherlands has a lunchbox, even the grown-ups. The lunchbox is for carrying sandwiches – it is obviously not for cooked meals. When I say we eat a cooked lunch in Turkey, they look very surprised: a cooked meal is just for dinner! And the weirdest thing for me is that they

eat bread with butter and the sprinkles that are used for cake decoration. They even have a name for it: *hagelslag*.

Now, I have a very busy schedule and I can understand why sandwiches are so important. Preparing a sandwich

**'Everyone in the Netherlands has a lunchbox, even the grown-ups'**

is so simple and time-saving. If I do not have much time for lunch, I do not want to wait for my meal. I can eat my sandwiches anywhere, anytime. So the sandwich has become an important part of my life, as it is for every Dutch person.

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

This Typical Dutch comes from **Meltem Meydankaş**, MSc student of Biosystems Engineering, from Turkey.





## MOOCs are booming thanks to Covid-19

**De coronavirus crisis works in favour of online education in the form of MOOCs. Registrations for a WUR course have tripled.**

WUR got on the MOOC bandwagon five years ago and now there are 43 WUR courses available in this Massive Open Online Course form on the EdX platform. The one millionth participant in a WUR course registered recently. And the boom continues: the number of registrations is two or three times what it was before the coronavirus. The enforced switch to online education has lowered the bar for starting on a MOOC.

Some of the new recruits are a result of last spring's decision by a large number of universities that are active on EdX to

**The one millionth participant recently registered for a WUR MOOC**

make their courses available entirely free for each other's students and

staff. The initiative was inspired by the corona crisis and the need to offer good online alternatives to classes on campus. It brought WUR an additional 8000 course participants. And about 1000 people from WUR took a MOOC elsewhere.

Actually, only around five per cent of MOOC participants finish their course. According to Suzanne de Bruijn (Business Developer for Lifelong Learning), that needs to be seen in perspective. 'Finishing the course is not the explicit aim of a MOOC. Sometimes people might meet their learning needs by watching just one video.' LZ

*(More on the Wageningen MOOCs on pages 12 to 15)*

## Ten cases of fraud in online exams

According to the university, 10 Wageningen students committed fraud in online exams. A further 64 students were given an official warning because of irregularities, although fraud could not be proven.

**T**hese figures come from the Education & Student Affairs online exam team. Many written exams have been held online since the coronavirus crisis. In these exams, students are supervised using 'online proctoring'. The vendor of the surveillance software made 28,500 video recordings of exams over the past months (periods 5 and 6 plus resits). 1500 of these exams were identified as 'suspicious'. Most were trivial instances: stopping a few minutes late, a photo on the wall or mum entering the room with a cup of tea. But there were also students who had a suspiciously long visit to the toilet, who made a phone call during

the exam or who failed to provide a proper visual scan of the room where they were taking the exam.

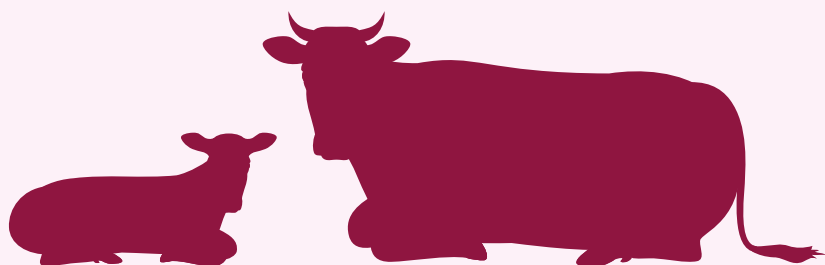
The WUR examiners reviewed these suspect cases. This revealed 10 cases where exam fraud could be proven: students had illegally used a smartphone, sent text messages, opened websites or kept them open, or used a second laptop or crib sheet.

Ten cases of fraud is slightly more than normal, says a representative of the examining boards. The number of warnings was also higher than with written exams in an exam room. AS

*There will be more on testing for fraud in the next Resource (15 October).*



**WUR students organized a protest against the European policy on refugees. The protest was a response to the situation in the Greek refugee camp Moria, says MSc student of International Land and Water Management Tom van Dalen (24), one of the organizers. 'Earlier this year there were campaigns to bring 400 orphaned minors to the Netherlands. And the cabinet said no. Now Moria has burned down and 13,000 refugees have no roof over their heads, and our country is only taking 100 people. We think that is nowhere near enough.'** LZ Photo Sven Menschel



## Inbreeding among cattle deserves attention

**'With DNA data you can pinpoint kinship and inbreeding more precisely'**

Kinship and inbreeding in Holstein Friesian bulls have been increasing fast in recent years, PhD student Harmen Doekes has ascertained. Thanks to targeted pairing, inbreeding among the cows has not increased so much. He advises safeguarding genetic diversity.

Most of the dairy cows in the Netherlands are of the Holstein Friesian breed. Livestock farmers use a select group of AI bulls for artificial insemination that produces calves with useful traits. Doekes studied kinship and diversity among AI bulls born between 1986 and 2015, using DNA markers.

Inbreeding is problematic if it happens at the expense of the productivity and health of the cows. That is then known as inbreeding depression. The level of inbreeding depression is negligible at the moment in comparison with the genetic progress, says Doekes. Because of the genetic progress, today's cows produce more milk, are more fertile and have healthier udders than the cows of 10 to 20 years ago.

But diversity still deserves attention, says the PhD student, now that it has become clear that kinship and inbreeding have increased faster in the past 10 years. He established the kinship between the bulls with the aid of 75,000 DNA markers. This method is more precise than the old calculation method using a pedigree. 'With a pedigree, you assume that a calf gets 50 per cent of its genetic material from the father and 50 per cent from the mother, but you don't know exactly which 50 per cent. With DNA data, you do know this and you can pinpoint kinship and inbreeding more precisely.'

Doekes advises breeders to monitor kinship and inbreeding at the DNA level and to limit it through their selection of bulls. <sup>AS</sup>

'China plants forests like it puts up buildings: fast, efficiently and on a grand scale.'

WUR environmental policy expert Annah Zhu in the newspaper *NRC Next* on the emergence of China as a key player in global environmental negotiations.

## PROTEIN DRINK FROM BEER INDUSTRY WASTE PRODUCTS

**Every year, the Dutch beer brewing industry produces vast amounts (0.5 million tons) of brewers' spent grain that contains around 30 per cent proteins. These proteins are currently mainly used as low-value animal feed. Thanks to a new process developed by Wageningen Food and Biobased Research, they can in future be used as food, increasing the value sevenfold.**

The new process has been developed in a research project involving Heineken brewery, feed company Duynie and WUR. The research will take three years and will cost a million euros.

The biggest challenge so far has been

how to extract the proteins from the brewers' spent grain, explain WUR researchers Carl Safi and

**Thanks to a new process, the protein fraction can be used as food**

Wim Mulder. Only a small fraction of the proteins are soluble in water and easy to isolate. In contrast, the majority are attached to non-soluble fibres such as cellulose, lignin and hemicellulose. So the proteins must be separated from the fibres. The researchers have now developed a method for cutting up the non-soluble proteins so that 90 per cent of them are made available. However, this protein extract also contains other ingredients such as sugars and minerals, so it needs to be purified too. Safi and Mulder have developed an innovative filtration process for that purpose. On an industrial scale, Duynie is going to process thousands of kilos of brewers' spent grain per hour into proteins. 'But you can also use the proteins to produce meat substitutes or vegan cheese,' says Safi. <sup>AS</sup>



## A Little Wiser

# Is oily fish good for your heart?

What is bad for your cardiovascular system. But oily fish is supposed to be good for it. So how does that work?

The answer lies in the omega-3 fatty acids which oily fish such as salmon and herring are rich in. Fish qualifies as oily if it contains over five per cent fat. 'From large-scale population studies and studies using supplements, we've learned that fish fatty acids can lower the risk of cardiovascular disease,' says Marianne Geleijnse, professor of Nutrition and Cardiovascular Diseases in the Human Nutrition and Health department. The main reason fish is healthy is that it contains the unsaturated omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). 'The human body isn't good at making these itself, so we need to get them from our diet,' Geleijnse explains. Most fish is also rich in vitamin B12 and minerals such as iodine, phosphorus and selenium. But certain species, such as eels, can be polluted with dioxins and heavy metals. So it is not sensible to eat too much fish, especially during pregnancy.'

As for the health impact of oily fish, two mechanisms seem to be at work, says Geleijnse. 'A low dose of EPA and DHA

from a weekly portion of oily fish provides protection against serious heart arrhythmias, which can cause heart failure. And large quantities of EPA and DHA, as found in the traditional diet of the Inuit and the Japanese, reduce the risk of blood clots, arteriosclerosis and high blood pressure.'

'The effect of fish and the fatty acids they contain has been studied for a long time,' says Geleijnse, 'and among heart patients too. But not all studies come up with beneficial effects.' According to the Nutrition Centre, one weekly portion of oily fish fits into a healthy diet. But it is no guarantee that you will stay fighting fit. TL

---

## 'Not all studies come up with beneficial effects'

Marianne Geleijnse, WUR professor of Nutrition and Cardiovascular Diseases.

Every day we are bombarded with masses of sometimes contradictory information on pressing issues. In this feature, a WUR scientist gives you something to hold on to. What are the facts of the matter?

Every question answered makes you a little wiser. Do you dare to ask yours? Email us at [redactie@resource.nl](mailto:redactie@resource.nl)





# Water purification method makes oil extraction more sustainable

Although Wageningen stands for green sustainable energy, Pauline Sosa Fernández has been working for four years on a method for optimizing oil extraction. She developed a technique for recycling water used in the extraction process, making it more sustainable.

**B**ecause in spite of the large-scale development of sustainable sources of energy, demand for oil just keeps on growing. So the oil industry is looking for ways of getting the maximum out of every oil well. One way of doing this is to use thickened water to flush out old oil wells that still contain more than half the amount of oil they started out with. But that flushing process requires four to eight litres of water per litre of oil. Sosa Fernández developed a method for recycling that water, thereby saving a lot of water. She filtered salts out of the water with membranes and electric current.

## Disruptive salts

To flush out oil wells, the oil industry uses viscous water. That viscosity is a result of polymers added to the water. 'These are long strings that form a tangled net,' says Harry Bruning, one of Sosa Fernández's supervisors. 'That makes the water gloopy, making it easier for it to push oil out of the ground.' In the process, the water also takes salts out of the ground, and these disrupt the network of chemicals, causing the water to lose its viscosity.

'In the recycling process, we want to filter out those disruptive salts while keeping in the chemicals that cause the viscosity,' says Bruning. PhD scholar Sosa Fernández succeeded in that, channelling the water into small compartments sealed



Photo: Shutterstock

off to the left and right with membranes that let the salt through. She then sent an electric current through the water. Because salt consists of charged particles, the current acts like a magnet, attracting positively charged salt particles through the left membrane, and negatively charges ones through the right membrane. The water with chemicals dissolved in it is then left behind.

## Layer of slime

One problem is that the chemicals in the water are charged too, and move with the electricity. They are too large to get through the holes of the membrane, so they remain stuck to it. 'That forms a layer of slime that blocks the membrane,' says Bruning. To unblock the membrane, Sosa Fernández briefly reverses the

---

**This method helps get the maximum out of every oil well**

---

direction of the electric current, so that it temporarily pulls the chemicals in the opposite direction, clearing the layer of slime off the membrane. NVTWH

*Paulina Sosa Fernández graduated on 11 September 2020 with a PhD supervised by Huub Rijnaarts, professor of Environmental Technology.*



## WUR influential in SDG research

**WUR is a leading player in research aimed at advancing the sustainable development goals (SDGs), according to a study published by Elsevier on 23 September.**

Five years ago, the United Nations identified 17 sustainable development goals, including clean water and an end to poverty and hunger. Since then, 4.1 million articles have been published worldwide on issues relating to these SDGs, according to Elsevier's calculations. Most of these publications deal with improvements to global health.

The Elsevier report concludes that Dutch research on the SDGs is influential as it is often cited by other scientists. WUR is particularly influential in research on climate change for the climate action goal: there are 220 per cent more citations of WUR articles than the global average in that field. <sup>AS</sup>



Photo: Shutterstock

## Why biological pest control wasn't working in Bangladesh

Many farmers in northern Bangladesh have not managed to implement biological crop protection in the cultivation of aubergines. They still apply large quantities of pesticide every week to combat the brinjal shoot and fruit borer (*Leucinodes orbonalis*), a moth. Environmentally friendly alternatives are known but they need to be developed in partnership with the farmers, says PhD candidate Naznin Nahar.

### After a trial year, the farmers stopped using pesticides

Nahar's first step was to find out from the farmers what the main crop diseases were. In addition

to the moth, the key problems were two fungal diseases and bacterial wilt. The growers used chemicals to tackle these diseases too. The literature recommended a combination of biological methods but not all had been tested in practice. So Nahar started field trials together with the farmers.

For example, the aubergine seedlings suffered from a soil fungus. She was able to increase numbers of healthy seedlings by 25 to 64 per cent, compared with numbers when using chemicals, by treating the seeds with hot water

and applying the beneficial soil fungus *Trichoderma harzianum* to drive out the pathogen. *Trichoderma harzianum* also helped suppress the bacterium responsible for bacterial wilt.

### Too labour intensive

To tackle the moth, the literature recommended a combination of pheromone traps and the removal of infected shoots and fruits. The farmers rejected the second option as too labour intensive.

They wanted to combine pheromone traps with conventional spraying. So Nahar suggested biological products instead that could also be sprayed and are less damaging to the environment. This combination increased the farmers' yields and income. After one trial year, the farmers stopped using the pesticides as they no longer had any added value in combatting the moth. The field trials had let the farmers test for themselves whether integrated pest management worked for them and which elements helped most. Nahar's conclusion: biological crop protection is possible, but only in combination with integrated people management. <sup>AS</sup>



# Evaluating evaluations

**At our first** staff meeting after the summer vacation, a few teachers expressed satisfaction: courses had received positive evaluations from students in spite of being taught online, and in spite of the issues with exams and lockdown fatigue among students. It's good to see that even after years in the classroom and the challeng-

**'My guess: the courses you loathe the most now, you'll appreciate the most later'**

theless, I would like to see course evaluations done differently, at least in part.

**Now that I've** been coordinating a course myself for a couple of years, I know that teachers await the evaluations with bated breath. That includes me. But when I was a student myself, I saw course evaluations as a boring task, which I only did if I got lots of begging emails. I hope Wageningen students are more conscientious about it than I was, because now I find myself reading through the evaluations of my course as though the students carefully weigh up every word and grade before they write them.

es of teaching during a pandemic, teachers still genuinely care about how their courses go down with students. Never-



**Guido Camps**

**I still think** we should change our evaluation system, or at least add something to it. The problem is that the evaluations as we do them now just seem to reflect how easy students found the course or – even worse – how pleased they are with their grade. Don't get me wrong, these things can be important. But we should also evaluate things that you can only really ask about years after the ink has dried on the exam papers.

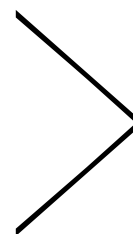
**I would like** to ask graduates who have been working for two years: do you look back with a smile? And people who've been working for five years: which teachers have influenced your career most, and why? I'd ask people in their first year after graduating: which skills acquired at university do you use the most? And most of all, I'd like to know: which courses do you look back on with the most pleasure? Time heals the wounds of those far too early morning lectures, tough exams or annoying group work. Only a few years down the line can you assess whether that really difficult course was worth the effort. My guess would be that the courses you loathe the most as a student are the ones you appreciate the most later. I'd like to see *that* being evaluated.

Guido Camps (36) is a vet and postdoc in Human Nutrition. He enjoys cooking, beekeeping and unusual animals.





# WORLDWIDE WUR



The coronavirus crisis has put the wind in the sails of online education, including the MOOCs, the free online courses. And this is just the start. Increasingly, the university's reach goes way beyond the campus. **Photos Eric Scholten**

On a table near the entrance to Atlas stands a box of blue envelopes full of basil seeds. You're welcome to send them to friends or acquaintances. It's a gift to celebrate the millionth participant in a MOOC. One million students in just five years. When you think about it, those seeds seem superfluous: the massive open online course has already taken root.

In fact, WUR's MOOC organization has proven its worth twice over during the recent lockdown period, explains director of Open & Online Education Ulrike Wild with understandable pride. 'The teachers have benefitted enormously from the expertise we built up over the past five years. We know how online education works, we have a studio, and we have the people and the organization. When everything suddenly had to go online from one day to the next, we didn't have to think about how to do it. We knew what can be done in a hurry, and how it can be done better.'

And that, says Wild, is because we got on the MOOC bandwagon in good time. That is thanks to former rector Martin Kropff. The story goes that he sat next to someone on a flight who was doing a course on his iPad. It turned out to be a MOOC. Kropff saw the potential straightaway and brought the phenomenon to Wageningen, where Wild, who had only just been appointed, set to work immediately.

---

**'IT WAS ALL VERY  
AMATEUR TO  
START WITH'**



Text Roelof Kleis

Now, five years later, WUR is one of the big players on the American MOOC platform EdX, with 43 courses. Nutrition courses dominate WUR's section of EdX, with seven courses. And the undisputed king of MOOCs is Professor Sander Kersten (Nutrition, Metabolism and Genomics), whose course on Macronutrients and Overnutrition alone accounts for one fifth of all registrations. Yet Kersten had never heard of MOOCs five years ago. 'I heard that Kropff wanted to take up the idea. So I looked it up and it was love at first sight. I was just looking for a way of taking our knowledge out into the world and reaching a broader audience. My predecessor was on Twitter but that's not my thing. This felt like the right thing from the start.'

## Squinting

Kersten tells great stories about the pioneering work that followed. 'It was all very amateurish. There was no expertise here on visuals. Things like how to record things, or what you should wear in front of the camera. We didn't have an autocue in the studio at De Dreijen, for instance. Someone held up a laptop in front of the camera and scrolled through the texts. It looked ridiculous on the screen: you squinted at the screen. After a couple of filming sessions we hung the laptop under the camera instead, and that worked OK. A year later, we got a camera with an autocue, and the process was professionalized step by step. Not just the technique but also the way the teachers taught.'

Kersten got on the MOOC bandwagon to share his knowledge outside the ivory tower of the university.

## ‘MOOCS MAKE COURSES ACCESSIBLE IN A WAY THEY WEREN’T BEFORE’

But that wasn't the only reason. 'Part of my motivation for making a MOOC was that I could also use the material to boost the quality of my teaching on campus. It is a new way of offering learning materials. The traditional picture is that students attend lectures and obediently go and do their homework. The reality is that half of them come to lectures and less than half do their homework. For those stay-at-home students, online options are handy because then they can listen to lectures when they want to. So I'm catering for a group of students who break the traditional mould. On the other hand, the traditional lecture-goers are not always happy with what they are now being offered online. I learned that when I used this course for my regular teaching. So now I am giving more face-to-face classes alongside online methods.'

Innovation in the university's regular degree programmes is certainly one of the objectives aimed at with MOOCs, says Wild. 'More and more teachers are coming to us if they want to try out something new. It is not so easy to develop a new course within WUR's education system. And a MOOC is a good way to start. A nice example is the Drones for Agriculture course. Suddenly the MOOC is there and someone says: can't we do that on campus too?'

In some ways these are incidental benefits. What is really innovative about MOOCs is their reach. 'MOOCs have given us the opportunity to make courses accessible in a way that wasn't possible before,' says Wild. 'Education was always bound by time and location. Online, that is no longer the case. And it is scalable. It no longer matters how many participants there are. I always say that the universities with MOOCs have gone extramural.'

### New target groups

'Beyond that, there are a lot of people who are interested in a particular topic but don't necessarily want to get a degree,' she adds. 'That possibility for spreading knowledge holds a strong appeal for the teachers. It is a tremendous development, and we got on board in good time.' Kersten agrees with that. 'The fact that you are catering for a group of people who we would never reach with our regular education: that feels great. People from very different backgrounds, with different perspectives. All sorts of people take part. I get a lot of satisfaction from the fact that you reach someone other than the homogeneous group of school leavers you generally get on the Human Nutrition and Health degree programme. The blonde girls with ponytails, as it were.'

The global reach of MOOCs is having an increasing impact on the world of professional learning, according to Wild. 'More and more online options are coming on the scene for continuous learning and in-service education, and for retraining for a career switch. Excellent



Sander Kersten in de studio in Leeuwenborch



universities have excellent courses, and as a result, formats have emerged like professional certificates – which are useful qualifications. Animal Breeding and Genetics is a nice example. It is a real niche for the industry that is a client for it.’

WUR has five such professional certificates on EdX. They do carry a price tag, though, and that is another trend, says Wild. MOOCs are still open access and free, in principle. But the approach is changing a bit. ‘More and more, there is a business model in the background. Parts of the course are open and free, and then comes the paywall. Don’t forget that a lot of work goes into making a MOOC. And you can recoup some of that investment.’

In fact, Wild says WUR is approaching the point when MOOCs cover their own costs. On average, that is. ‘Some of them earn a lot, and others hardly anything. It all depends on the niche you’re operating in. Anyway, it’s hard to calculate the costs and benefits. The contribution MOOCs make to innovation in education on campus is hard to express in money terms, for instance.’ Kersten makes money from his MOOCs. Not personally, of course. ‘In the past year, we agreed to pool all income from the Nutrition MOOCs. We used it to appoint someone to keep the courses up to date. That is time-consuming work, which teachers don’t have time for.’ As well as professional education through individual courses, it’s possible to follow micro-Master’s and Bachelor’s programmes on EdX. WUR has four micro-Master’s programmes on offer. ‘Parts of the whole degree programme, with academic standing because you can get credits for them,’ says Wild.

### Open education

‘Actually,’ says Wild, ‘I don’t think MOOCs are that interesting anymore as a phenomenon. Totally open education, and what that will do for us, is much more interesting. I foresee great changes there. The way we see our target group has changed. Everything no longer revolves around students on campus, but also around professionals in, say, Bangladesh. It is fantastic that we have the tools and methods to reach them.’ And the consequences are felt on campus too. ‘We have all grown up in classrooms, where someone stands at the front and tells you how it is. I call that the stagecoach. But education is now turning itself into a Tesla. Herding students into the lecture halls is not the best method. Due to the coronavirus, we’re seeing a lot of things being organized differently. On a smaller scale, because we can no longer all cram into the big classrooms. With a lot more use being made of digital and online options, creating space to offer meaningful face-to-face education. We are making great strides in that. It’s not about

### Top 5 MOOCs

<b>1</b>	<b>Macronutrients and Overnutrition</b>	208.066	Sander Kersten
<b>2</b>	<b>Micronutrients and Malnutrition</b>	77.951	Sander Kersten
<b>3</b>	<b>Food Risks</b>	51.291	Yvonne Rietjens
<b>4</b>	<b>Nutrition, Exercise and Sports</b>	50.567	Marco Mensink
<b>5</b>	<b>Sustainable Urban Development</b>	45.576	Huub Rijnaarts

## ‘WE’VE ALL GROWN UP IN CLASSROOMS – THE STAGECOACH – AND NOW EDUCATION IS A TESLA’

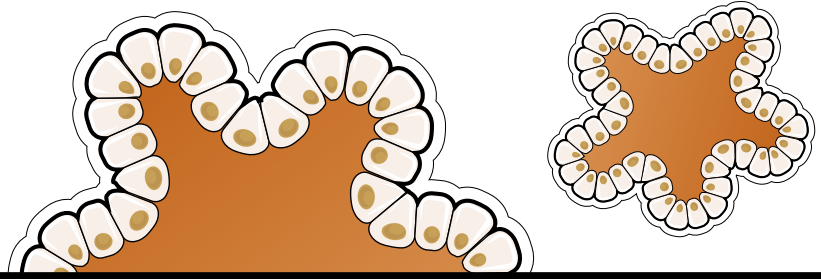
online versus traditional, but about the best education for the different target groups.’

Wild foresees that the professional market will go on developing. ‘If you have more courses online, you may be able to open them to that market. And whether you do that through EdX or Brightspace doesn’t really matter. We’ve got three online Master’s programmes now, not on EdX as it happens. Maybe we should develop more micro-Master’s programmes that you can accumulate to get a full online Master’s. Once we have more courses online, we can also make a new timetable, a more flexible one so you can take courses at several different time of year.’

Kersten looks even further ahead. ‘Ultimately, we could work towards a situation in which courses are interchangeable between universities. Why should every university offer all the foundation courses, if you could do them elsewhere, and might be better off doing so? That sparks an interesting discussion about justifying your existence as an institution. Here in Wageningen we’re safe because we operate in a niche and we stand out in it. Offering MOOCs puts us among the frontrunners.’ ■

## What are organoids?

An organoid is a miniature version of an organ. They are useful for research in the lab (*in vitro*) and are models that can be used as an alternative to animals (*in vivo*).



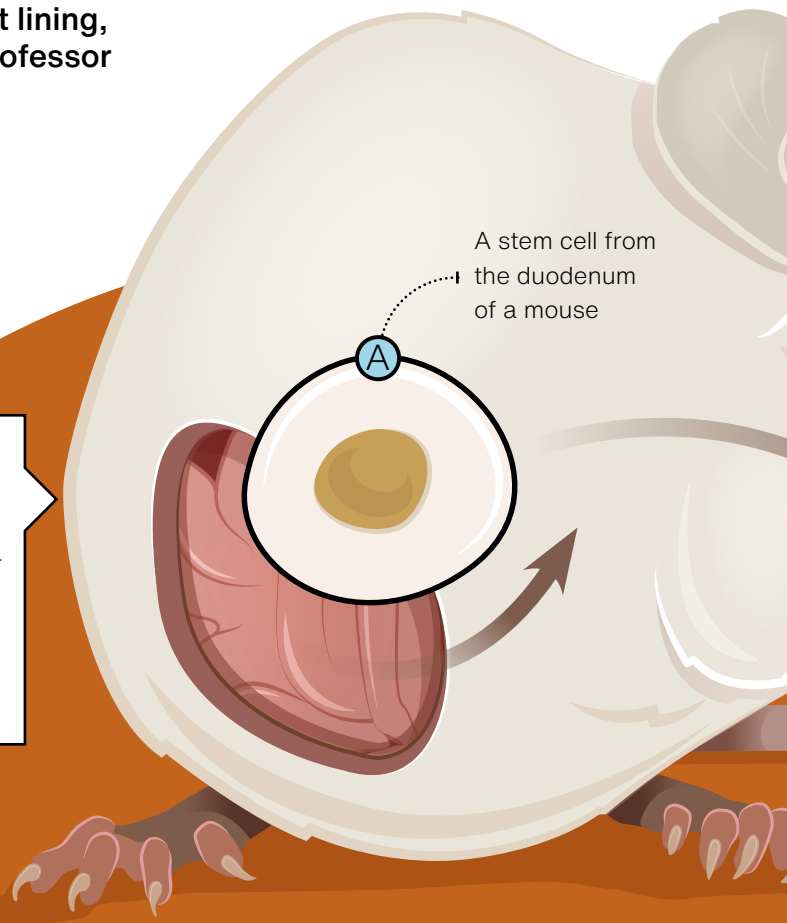
# MINI-GUT AS AN ALTERNATIVE FOR ANIMAL TISSUE

**Intestinal organoids, mini-guts, can be used to study transport and interactions between food ingredients and the gut lining, concluded a multidisciplinary research team led by Professor Jerry Wells of the Animal Sciences group.**

Infographic Pixels&inkt

1

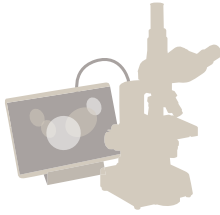
- A The researchers used stem cells from the duodenum of a mouse to grow the organoid.
- B The gut is a tissue that regenerates itself from stem cells. Mini-guts can now be made for different animal species, like chickens or pigs. This can be done using slaughterhouse waste, or donated tissues so no animals are killed for their stem cells.





## 4 What do they study?

Now the researchers can study the positive and negative effects of the protein sources. To do this they look at for example:



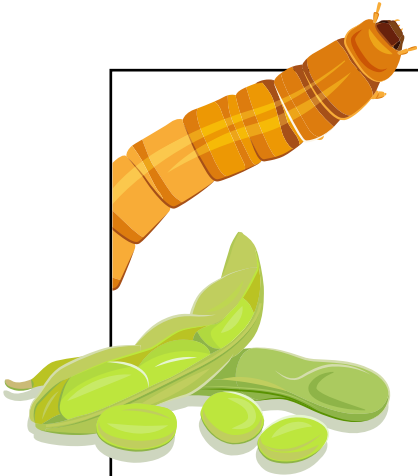
Microscopic changes in the cells



Differences in cellular gene expression

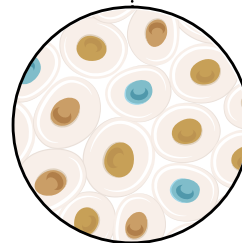


Biochemical processes, such as enzyme reactions

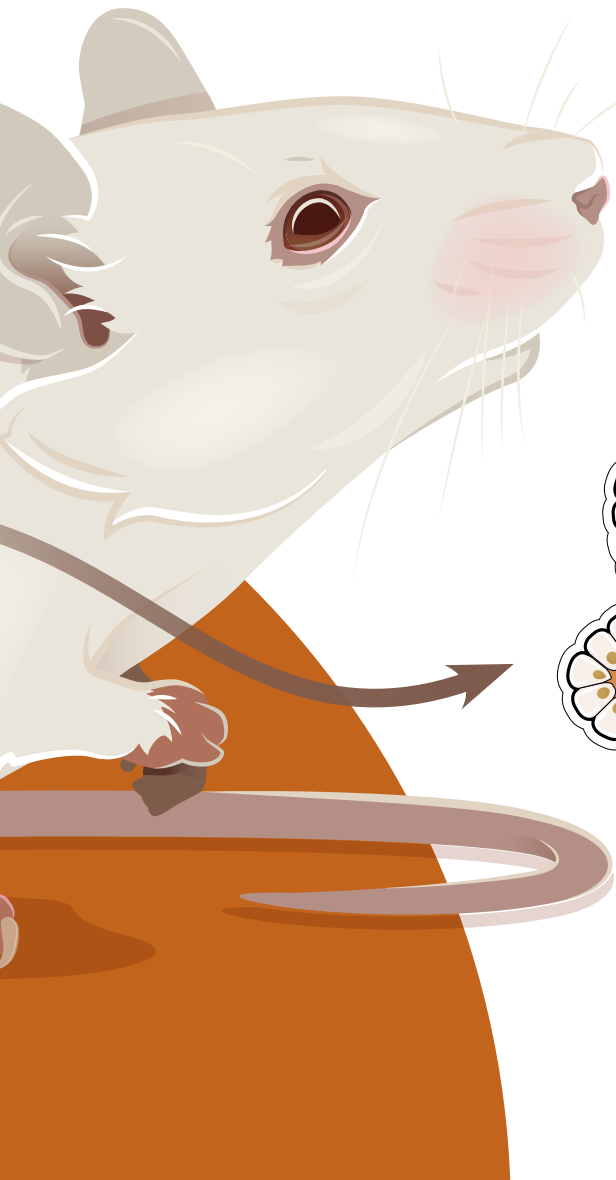
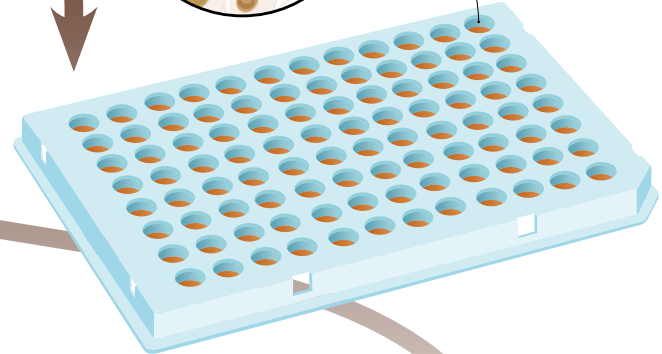


These cells are then grown in a monolayer (one cell layer thick) on a semi-permeable membrane, so that the cells take up an orientation just like in a real gut. The cells are then exposed to different alternative sources of protein for animal feed, such as soya beans, yellow mealworms or black soldier fly larvae.

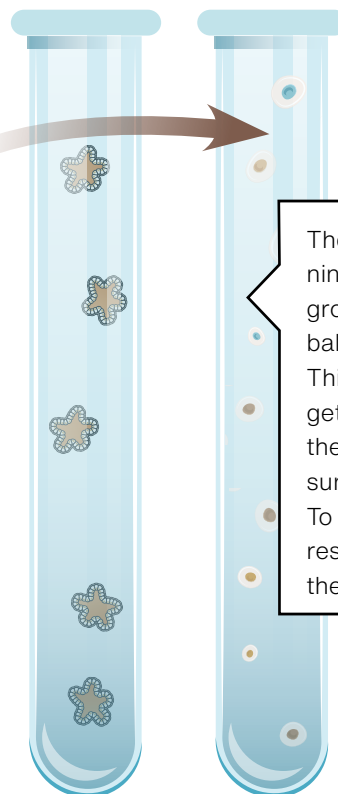
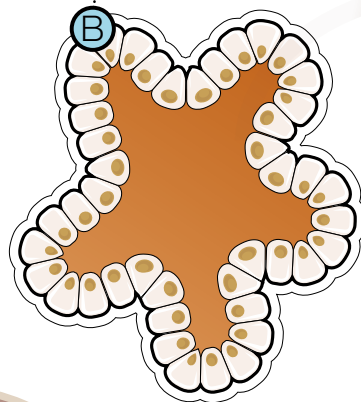
3



The single layer of cells that functions as a gut wall



Organoids grown from a stem cell



The organoid, containing different cell types, grows as a kind of hollow ball of cells in a 3D matrix. This makes it difficult to get the test substances on the inside, which is the surface exposed to food. To make it easier, the researchers separate the cells.

2

Online game for policymakers shows effect of measures

# Game on! Gaming for a sustainable Netherlands

A serious game with which you can explore how you can make the Netherlands sustainable: that's what SIM4NEXUS is. *Resource* played the game with its creators at WUR. **Illustration SIM4NEXUS/Alfred Heikamp**



Text Albert Sikkema

**T**he Netherlands has many simultaneous goals. We want to transition to solar and wind energy, to make our agriculture sustainable, to capture more freshwater, to create more nature areas, and also to cut the climate impact significantly. Can you do all that at once? Today I'm sitting at a gaming table to find out. I'm playing the game SIM4NEXUS, developed in a European project coordinated by Wageningen Economic Research. I see four blocks on my screen. Top left are the Netherlands' scores for water, energy, land, food and climate in 2020. This shows that we have only achieved some of our objectives in these areas. Bottom right are about 40 policy cards. We can apply these and then the game will calculate what effects they will have over every five-year period from 2025 to 2050. Each card also costs money and time. The game exposes links between the different policy objectives. 'To achieve the climate goals, you can close a few coal-fired power stations in this game,' explain

the makers, Vincent Linderhof and Nico Polman at WUR. 'But the demand for energy remains, so then you have to convert the coal-fired power stations into biomass installations, and import biomass. Those imports reduce the climate gains. But you can cancel that out again with the energy-saving card.'

## Decisions, decisions...

We are going to play the game, the first time without policy cards. Then we'll see how the Netherlands scores in the coming years if there is no change of policy. With regard to water, nitrogen and phosphate emissions from agriculture will go down until 2050, but not enough. In terms of food, we'll get a bigger proportion of our protein from plants, and we'll eat less meat, but again, this transition won't meet the targets. And the push to meet climate goals (a 95 per cent reduction in emissions) will get stuck at

less than 30 per cent. 'But this scenario doesn't include the Paris climate agreement,' explains Linderhof.

That is why we are going to introduce a few climate measures in the second game. We will provide extra incentives for introducing wind energy and solar panels, we shall raise the water level in areas with peaty soils, we shall stimulate the transition from meat to a plant-based diet, and we shall invest in CO<sub>2</sub> storage. With these policy cards, we prompt SIM4NEXUS to start calculating again. The final conclusion: by 2040 we will have achieved over 30 per cent of our climate goals, a few per cent more than we would with no change of policy. 'This is nowhere near enough for achieving our climate goals,' concludes co-developer Floor Brouwer of WUR. Introducing these climate measures also brings unexpected disadvantages with it. The investment in renewable energy sources did not go

hand in hand with a decision in favour of additional nature and more extensive agriculture. 'Here there are pros and cons in terms of biomass,' says Marian Witmer of the Netherlands Environmental Assessment Agency, one of the partners in SIM4NEXUS. 'If you use all the biomass from forests to meet your climate goals, you are left with less forest for other purposes. If you give precedence to forest and biodiversity for ecological reasons, you have less biomass at your disposal for achieving climate goals.'

### Ecology cards

We are going to test this interim conclusion in a third round, in which we mainly

use ecology cards. We are going to save energy, install solar panels on houses, eat vegetarian more often, reduce the livestock herd, invest in wet peat areas and improve the quality of the soil. To our surprise, the climate score goes up to 40 per cent, higher than in the previous game with climate cards. Why is that? This time we also used policy cards related to food. The reduced livestock herd and better soil management are reflected in better nature and climate scores. And so this game exposes interactions between the effects of our food, water,

energy and climate policies. When those effects are modelled and calculated, they are reflected in the integral scores of the game.

By this stage of the game,

you start to wonder: what are the connections between soil quality, the livestock herd, the wind turbines and greenhouse gas emissions, according to the creators of the game? You would like to take a look at the inner workings of SIM4NEXUS. And you can. On request, you can open flow charts that show the impact of the different policy cards on the outcome.

### The biomass catch

At the end of the game, we still don't know how the Netherlands can achieve its climate and energy goals by 2050. 'The game opens up discussion,' says Thomas Mattijssen of WUR. 'Which policy measures achieve something, do they have any unintended effects, which combination of measures seems to be effective for achieving several goals? Ministries, provinces and water boards can discuss these questions. You can make choices, which lead to further choices, and you can identify the consequences of those choices using this game.'

There is a catch, though. The role of biomass in the transition to a biobased economy is ambiguous. If the Netherlands wants to increase the proportion of renewable energy sources from 9 per cent to 90 per cent by 2050, it will need biomass. But converting wood, manure, organic waste and waste water into energy is anything but sustainable. That kind of detailed knowledge, which is still subject to different interpretations, is part of the integral Nexus score in this game. ■

## 'IN THE THIRD ROUND OF THE GAME WE MOSTLY USE ECOLOGY CARDS'



SIM4NEXUS is a European project focussing on linking up water, land, food, energy and climate. For five case studies, 'serious games' have been developed that explore the policy options. The project is being implemented by a consortium of 26 partners from 15 countries. Want to play SIM4NEXUS? Go to <https://sim4nexus.eu/>. Want to play SIM4NEXUS seriously in the interests of policy? Then get in touch with [floor.brouwer@wur.nl](mailto:floor.brouwer@wur.nl)



## 'I'm not here to defend the timber construction industry'

Climate goals are difficult to put into practice. Bio-energy sourced from wood looked like a win-win option, delivering more woodland and sustainable energy. But criticism is growing. Biomass clashes with the conservation of biodiversity, says ecologist Patrick Jansen, who specializes in forest ecosystems. Professor of European forest resources Gert-Jan Nabuurs, on the other hand, thinks the two can go hand in hand. A dialogue about dead trees, the flat bark beetle and multifunctional forests. **Text Marieke Rotman Photos Eric Scholten**



**Patrick:** 'I'm worried about the effect of felling trees for biomass on biodiversity, especially in terms of the role of old and dead trees in the ecosystem. An army of specialized organisms help to break down wood over many years. That's an almost invisible process, but it involves about 45 per cent of the biodiversity in forests. Now that cycle is being broken by felling old and dead wood. It's a blind spot in forest management.'

**Gert-Jan:** 'I couldn't agree more about the importance of biodiversity. But there will soon be nine billion humans on this planet. Wood is in constant supply and is a sustainable means of production for everything from the chair you're sitting on to cardboard boxes or toilet paper. Of course you've got to actively protect forests; I'm not here to defend the timber construction industry. But I do see opportunities: we can use some of the

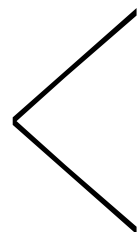
old wood in forests for bio-energy, and that's been happening for years. In combination with wood waste streams, that can supply a tenth of our energy needs.'

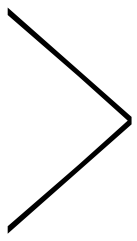
**Patrick:** 'The problem is that woodland as an ecosystem and woodland as a production system often go together, whereas for me as an ecologist, they are two very different things. A production forest is more like a piece of land on which trees happen to be grown, whereas a mature forest is a complex system. Wood is certainly a very sustainable building material. But it must not be used at the expense of areas that have been designated nature reserves, after much effort.'

**Gert-Jan:** 'Do you mean the Natura2000 areas?' (Natura2000 is a European network of protected woodland, ed.)

**Patrick:** 'I mean all the areas that count as nature reserves. If you establish a

'That way,  
the shops will  
run out of toilet  
paper tomorrow'





'Well, solve it!  
But hands off  
nature'

forest purely for production: fine. But if it is a nature area, its chief function must be clear: nature. I don't believe in multi-functional forests in reality.'

**Gert-Jan:** 'It's true that Natura2000 doesn't amount to much, even though it covers one third of all our forests. In Europe we only strictly protect less than one per cent of the forest, the ancient forests. We should give protected status to more forests with similar characteristics to those.'

**Patrick:** 'Yes, forests with potential. You hear it said, "Once exploited, always exploited", but if that's the case we can write off the whole of the Amazon.'

**Gert-Jan:** 'We've got more forest in Europe now than in the Middle Ages.'

**Patrick:** 'But the ecological quality is bad, certainly in the Netherlands. If you want to go on milking a forest, you can't designate it a nature reserve.'

**Gert-Jan:** 'That term, milking the forest, doesn't do justice to what goes on. A forest manager pays attention to every aspect of the forest and responds to the wishes of the general public. At the moment, those tend in the direction of more biodiversity.'

**Patrick:** 'That's easy to say. Imagine you are looking for a house and you find one without a roof or a bed. The seller says: "It's a compromise, but it's a house." It won't be a good place to live, will it? That's how it goes with forest management. If you can't develop the forest in the direction of a fully-fledged ecosystem, you shouldn't claim that as forest it contributes to the climate goals.'

**Gert-Jan:** 'Timmermans (Frans Timmermans, Vice-President of the European Commission, ed.) wants to start planting timber plantations in Europe now.'

**Patrick:** 'I've seen those kinds of plantations: nothing lives there. Do something that benefits both the local population and nature.'

**Gert-Jan (laughing):** 'So multifunctional forest after all.'

**Patrick:** 'Yes, after all. As long as protected forest really is protected. Natura2000's protected list includes just two species that contribute to breaking down old wood: the European stag beetle and the flat bark beetle. It makes no sense, of course, to protect those two species and not the thousands of other species involved.'

**Gert-Jan:** 'As well as primeval forest, in Europe we also have one to three billion hectares of forest that we harvest from, and we should make use of that for ecology.'

**Patrick:** 'There are examples of forests that are exploited in moderation and yet remain very diverse and function well. But without bulk production, such as for biomass.'

**Gert-Jan:** 'That way the shops will run out of toilet paper tomorrow, Patrick.'

**Patrick:** 'Well, solve it! But hands off nature. The falling biodiversity is humanity's problem.'

**Gert-Jan:** 'In the end, we'll have to try to reduce demand.'

**Patrick:** 'Yes, that is the crux. People are happy that energy becomes even cheap-



er if we start producing it sustainably. Hello! Actually it should get more expensive. There are enough ways of keeping it affordable for people on low incomes. Otherwise it's far too likely that biodiversity will pay the price.' ■

The answer to the big questions is seldom clear-cut. In *Two sides*, people with different views on a complex issue engage in dialogue.

Diving into the secret life of fish

# Wadden Sea detectives



Using electronic tags, sound measurements and underwater cameras, researchers from Wageningen and Groningen are embarking on a thorough study of the life of fish in the Wadden Sea, where fish numbers have been falling for years. 'If we find out why, we might be able to turn the tide.'

Photo Peter Verhoog



Text Tessa Louwerens

'The birds and soil fauna of the Wadden Sea come in for a lot of attention. But we don't know enough about fish,' says Ingrid Tulp, a researcher at Wageningen Marine Research (WMR) and coordinator of the large-scale research project Waddentools – Swimway Waddenzee, which will identify the bottlenecks for fish in the Wadden Sea. WMR has been monitoring the fish stocks for 50 years through the annual Demersal Fish Survey (DFS). 'But this survey is a snapshot and we only catch fish that are near the seabed. We have no idea how fish such as herring, sharks and rays use the Wadden Sea to feed and reproduce, for instance.' Tulp has seen how fish stocks are dwindling. 'If we know where the problems lie, we can give advice on the management measures that are needed to turn the tide. That is important because fish are a major link in the food chain.'

'The fish were always a bit of a poor

relation,' says Tulp. But this research project is changing that. Together with the Royal Netherlands Institute for Sea Research (NIOZ), the University of Groningen (RUG), the Wadden Association – and indirectly the Directorate General for Public Works and Water Management and the angling association Sportvisserij Nederland – Wageningen Marine Research is studying the life cycle – also known as the swimway – of fish. How do they use the Wadden Sea? Where are they found and which habitats do they use, to what end?

## High-tech gadgets

The researchers make use of all sorts of high-tech gadgets in this work. 'We've got acoustic methods for recording the movements of schools of fish,' says Tulp. Researchers from the RUG also use special underwater microphones (hydrophones) to record sounds made by fish. This helps them establish whether certain species are found in an area. 'Water is a good conductor of sound,' says

Klemens Eriksson, associate professor of Marine Ecology at the RUG. 'The hard part is filtering out sounds you don't want, like those coming from ships.' The aim is to match the sound recordings with video footage and fish catches in order to learn which sound signals come from which fish species. 'We know the sound signature of a couple of fish species,' says Eriksson. 'We want to find that out for the rest of them too. It is real detective work.'

## Tagged fish

The researchers are also using more time-honoured methods such as studying the otoliths (ear bones) of fish. 'From the chemical composition of the ear bones, we can find out the age and

---

**'This is real detective work'**





Five PhD students started at Swimway Waddenzee this year, each with their own research question:

growth rate of the fish, as well as when a fish has lived in salt or fresh water,' explains Tulp. Dozens of fish are also being tagged so that the researchers can track them on their journey through the Wadden Sea. Tulp: 'We are also collaborating with other tagging projects, such as *Vissen voor Verbinding* (Fishing for Connections), which is tagging trout. That way we can track each other's fish and collect more data over longer routes.' Tulp is also looking at other animals such as birds and seals, which eat the fish. 'We are working with another Waddentools project *Wij & Wadvogels* (Wadden Sea Birds and Us) to see whether the brooding islands of terns, which feed their young on fish, are well located.' It is too early for Tulp to say whether the project will come up with specific recommendations. 'We are focussing first on the more fundamental questions. For fish, there are only a limited number of buttons you can press when it comes to management, and these are issues of fisheries policy and nature conservation. If our research shows, for example, that climate change is an important factor in the decline of fish populations, it will be a lot trickier.' ■

## 1 Future (NIOZ/WMR)

Using lab experiments and models, researchers investigate the conditions under which different species of fish grow well; which areas of the Wadden Sea are suitable for different species, and how that changes with different climate scenarios. Researchers in this project also collate the new information from all the sub-projects to determine which processes and habitats pose the biggest problems for the fish.

## 2 The shores of the Wadden Sea (RUG)

The Wadden Sea is a nursery for a great many fish. From the salt marshes on the shore, a lot of food – such as amphipods and insects – gets swept into the sea for the young fish swimming there. In this study, experiments will be done with different methods of grazing and water management to find out which approach to managing the salt marshes is most beneficial for fish.

## 3 Large fish (NIOZ/WMR)

Not much is known about the larger fish in the Wadden Sea, such as the sea trout, the European bass or the school shark. GPS doesn't work underwater, so the fish are fitted with an acoustic tag. A network of receivers, attached to buoys, then registers the fishes' movements. Some fish are also fitted with an electronic gadget, a data storage tag (DST) that continuously measures the depth at which they are swimming, their temperature and salt levels. When the fish are caught, the researchers can read the information off the tag.

## 4 Schools (WMR)

Pelagic fish usually swim in schools. These species, such as the lesser sand eel, the herring and the sprat, are food for fish-eating birds and seals. With the aid of acoustic apparatus on the seabed – echo location – and sonar from ships, the researchers are studying the movements of schools of pelagic fish in tidal inlets where North Sea water flows in and out of the Wadden Sea with the tide. With the data they obtain, the researchers also look at whether the breeding islands created for terns are well located.

## 5 Shellfish banks (RUG)

Shellfish banks provide shelter and food for young fish. The scientists look at the role played by the sublittoral mussel banks (which are permanently underwater) in the life cycle of fish. Among other things, they film fish and record sounds to find out which fish use the shellfish banks and in which phase of their lives. They also look at the effect of artificial reefs.

# TAKE CARE OF EACH OTHER, TAKE CARE OF YOURSELF AND STAY ALERT!

Now the summer is over, coronavirus infections are rising rapidly again. This is a growing cause for concern for many residents of Wageningen, and that includes the members of Wageningen municipal council. We have noticed recently that people have been getting more and more lax about observing the Covid-19 rules. Although we understand that it can sometimes be very hard to stick to the rules, this worries us because the virus can cause long-term health problems for young and old. We have talked to older residents who are feeling anxious and don't dare leave their houses. We have talked to young people who feel lonely because of the social isolation that has already been going on for six months. We have talked to nursing staff who had to work extremely hard in the first half of the year, and are worried now. What lies ahead? Will they be called on again, and if so, can they cope? We have also talked

to businesspeople in the town who are doing all they can to keep their business going. We realize that these are tough times for everyone. That the measures are not nice. That working or studying at home can take its toll, and that people need social contacts. But to drive the virus out of our town, we shall have to observe the hygiene rules: maintaining a safe distance, washing hands and staying at home if you have symptoms. This demands effort and perseverance from every Wageningen resident. Do it for yourself and for others who are having just as hard a time as you, or maybe even harder. Only together will we rid Wageningen of the virus! Take care of each other, take care of yourself and stay alert!

*The chairs of the parties in Wageningen municipal council*



Erik-Jan Bijleveld, GroenLinks



Rien Bor, Stadspartij Wageningen



Laura Kaper, D66



Bart Rozemeijer, VVD



Jan Willem Kamerman, PvdA



Melissa van der Lingen, Connect Wageningen



Monique Heger, ChristenUnie



Jan Dijkstra, CDA



Moomin Ait-Imchi, SP

## CHECK IT OUT, LIKE & FOLLOW!

### For the real campus news: *Resource*

If you want to know what's really happening on campus, *Resource's* independent journalists are constantly coming up with interesting news about student life, education and research as well as the stories behind the news. The *Resource* social media are the best way of keeping up to date. You can find us on Facebook, Instagram, Twitter and LinkedIn. Check out [www.resource-online.nl](http://www.resource-online.nl) for your daily dose of news, feature articles, student blogs and much more.



[facebook.com/WUR.Resource/](https://facebook.com/WUR.Resource/)



[@resource\\_wur](https://instagram.com/@resource_wur)



[twitter.com/ResourceWUR](https://twitter.com/ResourceWUR)



[linkedin.com/company/resource-wur/](https://linkedin.com/company/resource-wur/)

# 'The switch to online classes increased the work pressure'

An evaluation of period six last summer by Tim Stevens (Education and Learning Sciences) found that 80 per cent of WUR teachers experienced more work pressure and 66 per cent were feeling more stressed.

**B**oth students and teachers indicate that online education is working and the transition was successful. Under the circumstances, they are pretty satisfied. But whether they are happy is another matter. Among teachers, that is clear from the increased work pressure, which was already high before the coronavirus crisis.' Teachers emphasize that they miss the

**'Under the circumstances, teachers are pretty satisfied. But not necessarily happy'**

personal interaction with students. The lack of direct feedback makes it harder to know how the students are doing and what kind of support they need. And 51 per cent of the teachers said they found it hard to combine online teaching with their home situation, because they have

children at home, for example.

About half the teachers (48 per cent) don't enjoy teaching online; 29 per cent do like it, and 23 per cent have no strong feelings either way. 'That people dislike teaching online will be down to the crisis situation in which everything suddenly had to go online,' says Stevens. 'If the work pressure is already high, and then this comes on top of it, you're not going to be happy. But teachers also say they want to go on using the online methods. So they are satisfied with changes they have made themselves.'

## No motivation

Both teachers and students long to go back to classes on campus, but some students also see 'blended' education (partly on campus and partly online) as the best option. Over half the students don't like online classes. Students struggle with motivation problems: 52 per cent say they

are not motivated to follow online courses. And students too miss the interaction and the sense of community.

Both students and teachers say they expect online education will have a negative impact on students' attainment levels. Yet the average grades and the course evaluations have remained stable. However, more students didn't get grades for courses they had registered for. 'But the number of course registrations increased,' says Stevens. 'So if you look at the percentage of students who still haven't got a grade for a course in period six, and you compare that with the average of the past five years, you see an increase of five per cent.' This doesn't give the complete picture, however. Delays are still expected with internships and final theses. LZ



Both teachers and students long to go back to classes on campus. Photo: Jesse Reij



## Master's student Daniele Chavarria helps shrinking village Frigento (Italy)

# 'A GRANT OF ONE MILLION!'

WUR student Daniele Chavarria has bagged a grant (of one million euros!) to enable her to set up an Erasmus development project studying regions where the population is shrinking.



Text Luuk Zegers

‘Who fancies a six-month internship in a village in the middle of nowhere, doing research on shrinking regions?’ Daniela Chavarria (30) jumped at the idea, and so the Colombian MSc student of Development and Rural Innovation set off in August 2019 for the southern Italian village of Frigento to do an internship at Kinesis, a joint research project on shrinking regions run by the Group for European Development (a foundation) and the University of Naples L’Orientale. ‘Young people leave villages like Frigento and move to urban centres. The rural villages shrink and their population ages. As a result, most of the development and innovation happens in urban areas, which further propels the urbanization and shrinkage processes. Together with my supervisors I wanted to research how you can revitalize a village like Frigento.’

### Depressed

For a shrinking village, Frigento was very busy and lively when Chavarria arrived there. ‘Entire families had come back to the village for the holidays to visit the grandparents. But when I started talking

to the people who actually live there, they were very negative. “It is lively now, but just wait until September; then it will be very sad”, they told me, and “you will probably get depressed. Why do you want to be here?”’

Chavarria soon saw where that negative attitude comes from: in August there were 6000 people in Frigento, and in September only 300. ‘Imagine what that means for the social fabric of a community,’ says Chavarria. ‘Every person who goes away leaves a hole in that fabric. At some point, there is no cohesion left. But that social fabric is vital for a community. You have to find a way to repair it, but how do you do that? That is what we were trying to figure out.’

### The village as lab

Chavarria and the team launched a ‘social innovation lab’ in Frigento. ‘To put it simply, the community is the laboratory. You try out various interventions – whatever – and see what comes out of them. What helps – and what doesn’t help – to change and improve the social fabric? Our approach was to organize a series of workshops.’

Chavarria’s team started with a work-

shop on social cartography: mapping the problems the village was facing together with the community, and brainstorming to come up with solutions. ‘By discussing these problems, you can find a way to cooperate. You also get an impression of what’s going on in the community, which helps you know what other workshops are needed.’ That led to workshops about a range of topics, including culture and traditions, the relationships between different generations, recycling, and environmental problems. ‘While running the workshops, we realized how important an “outsider” is for a community. An outsider sees things that community members take for granted. In Frigento, people have their own dialect, they grow their own food, and they have traditions like making enough tomato paste for a whole year. For them that is normal, but for me as an outsider, it is incredible! Having me there talking to them helps them to see its value.’ The workshops also helped the Frigentesi to see each



Daniela Chavarria. Photo: Sven Menschel

---

## ‘THE WORKSHOPS ALSO HELP THE *FRIGENTESI* TO SEE EACH OTHER IN A NEW LIGHT’

other in a new light. ‘At the end of these workshops we all just went to the cafe, grabbed a drink and chatted. People realized that they have neighbours and that you can do things together. This realization helps in restoring the social fabric. People started socializing and doing things together again.’

### Erasmus grant

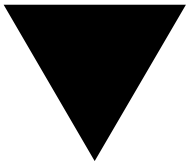
In Europe alone there are thousands of villages like Frigento. With the aim of revitalizing shrinking regions across Europe, Kinesis wrote a proposal for an

Erasmus grant so they could start an exchange programme. Chavarria: ‘The proposal was rejected because the project in Frigento was too local: it wouldn’t have much of an impact if students could only visit Frigento.’

In January 2020, Chavarria came back to Wageningen, where internship supervisor Bettina Bok put her in touch with an expertise network on the depopulation of the north of the Netherlands (Kennisnetwerk Krimp Noord Nederland). ‘We found out that there are similar projects in the Netherlands, Germany, Spain and Estonia, all working on shrinking villages.’ So the projects joined forces and became affiliates of Kinesis. ‘We wrote

a joint proposal for an Erasmus grant for an exchange program in shrinking regions in all the countries in the expanded Kinesis network.’ The grant was awarded: one million euros to set up an exchange programme over three years. ‘The EU was already concerned about this issue. Their strategy is to enhance local development. Our project does just that, and we’ve got European students working on it. So we ticked all the right boxes for a grant.’

Chavarria will play an important role in setting up the new exchange programme. ‘The plan is for exchange students with an academic background to set up these social innovation labs in the participating countries. The first exchanges will be in 20 villages near Frigento: that will be the pilot. After that, the exchanges will expand to rural villages in other Kinesis countries as well.’ The first exchanges are due to start in May 2021. ■



## Key people: Evert van Silfhout

They are indispensable on campus: cleaners, caretakers, caterers, gardeners, receptionists – the list is long. *Resource* seeks out these key people. This time, meet Evert van Silfhout (55), a caretaker in the Forum. **Text Milou van der Horst Photo Guy Ackermans**

‘My motto is: if you haven’t laughed today, you haven’t lived. I like to be enthusiastic and positive and people appreciate that. It’s important that you enjoy your work and if you don’t, you should look for another job. I never know what the day will bring and that makes it interesting. When I’m on duty in the morning I go round all the classrooms to make sure they’re in order, because then everyone keeps them clean. I test all the screens and microphones, check if the blackboards are clean, and replenish the chalk. What I like most is that we are the first port of call for ad hoc problems. If a

---

**‘I never know what the day will bring and that makes it interesting’**

teacher is having trouble with a beamer, for instance, we have to solve it. Along with the ladies on reception, the technical lads, the waste collectors from Ecosmart and the cleaners, we are the lynchpin of the organization. Everything must be kept going under changing circumstances, as you can see now with the coronavirus. We’ve been incredibly busy reorganizing rooms, moving furniture, putting up signposting, and creating new exits. I hope the corona period is over soon and everyone can come back to the Forum – it’s awfully quiet at the moment.

As a lad, I wanted to join the police but after the admission test they said I was too young still. Through connections I got a job at the university library, and now I’ve been working for the university for 35 years. Always in different jobs, but always with a lot of contact with people. In 2007,

a colleague and I organized everything for the opening of the Forum. We had a lot of say, in the layout of the rooms for example. That was really nice. It was a special day, too, when the Forum was opened by Queen Beatrix and Princess Máxima. That’s not something you experience every day.

A few years ago, there was a stabbing incident in the Forum. Everyone panicked. I was called and my colleagues and I helped the victims. To help the police, I kept an eye on which way the attacker went. Something like that affects you – it brings violence very close by. But it is good to be able to deal with it with your colleagues. I’ve still got 13 years to work, and maybe I shall go and work in the new education building Aurora for a couple of days a week – another new challenge. You have to make something of it yourself, don’t you?







## Campus ♦ companies

### Potato breeding company HZPC

Through the merger in 1999 of Hettema BV and the Seeds and Planting Material Cooperative ZPC, the potato breeding company HZPC was formed: the Netherlands' biggest exporter of seed potatoes. The company has had a branch on the WUR campus for two years now. 'To start with, I was on my own in Impulse for two years,' says Remco Ursem, HZPC's Bio-informatics programme leader and Innovation & Scouting manager. Now he has been joined by two colleagues, both bio-informatics specialists, and they are in Plus Ultra II.

The plant-breeding company wants to be where the knowledge and talent is. In recent years, HZPC has worked with the Wageningen groups Plant Breeding, Phytopathology and Bio-informatics on the development of new potato varieties, in for example public-private

collaborations under the top sector Agri-food. 'But we want to be closer to the action so we can apply our knowledge faster,' says Ursem. HZPC's Research Hub is now

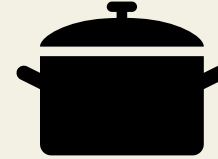
also working with other knowledge companies on campus, such as Hudson River Biotechnology, the Virtual Lab for Plant Breeding and GeneTwister.

Ursem is also scouting among Wageningen graduates for new staff at HZPC Research in Metslawier. 'We have regular vacancies.' And he looks for new technology, such as the new measuring equipment for soil research that he came across recently. 'We might be able to use that to monitor plant-breeding trials.' AS

**'We want to be close to the action to apply knowledge faster'**

There are about 100 companies on campus. We'll be introducing one of them to you in each issue of *Resource*. This time: potato breeding company HZPC.

All the flavours of the world can be found in our WUR community. Stefanus Mega Prabawa, Master's student of Food Technology, takes us to his homeland, Indonesia.



Flavours of WUR

## Nasi goreng tempeh

**'Indonesian fried rice is easy to make, quick to prepare and really delicious. It can be served as breakfast as well as dinner. In Indonesia, there are fried rice sellers in every village and city. They walk around shouting "NASIIIIII GOREEEEEENG!" while hitting a plate with a spoon. Nasi goreng is usually served with pickled cucumber, krupuk and a glass of iced tea. I often make this dish for my housemates.'**

- 1 Fry the tempeh in coconut oil and set aside.
- 2 Heat a little coconut oil in a wok and fry the shallots and garlic first. After 2 minutes, add the chilies and mixed vegetables. After 2 more minutes add the egg and stir-fry for 5 minutes.
- 3 Add the rice and stir-fry. Add the soya sauce, salt and pepper. Stir-fry for another 5-7 minutes.
- 4 Serve the fried rice with the tempeh, krupuk (shrimp-flavoured crackers) and fried onions.

### Ingredients :

- About 250g cooked rice
- Coconut oil
- 100g diced tempeh
- 2 red chilies or teaspoon of chili powder
- 2 shallots, chopped
- 2 cloves of garlic, chopped
- 1 egg
- 30ml sweet soya sauce (ketjap manis)
- 50g mixed vegetables (I use a cabbage, celery and carrot mix)
- Pinch of salt
- Pinch of pepper
- Fried onions
- Krupuk



*What dish reminds you of home? Share it in Resource and let the whole WUR-community enjoy it! Send your recipes to [resource@wur.nl](mailto:resource@wur.nl).*

**Stefanus Mega Prabawa**  
Master's student of Food Technology

## In other news science with a wink

### ◆ X-FACTOR

Women are better protected against Alzheimer's disease because they have two X chromosomes, discovered scientists from the University of California. These chromosomes come with a gene that protects against the devastating effects of Alzheimer's. Men only have one X chromosome and are therefore more vulnerable. That more women than men get Alzheimer's is because women live longer. And that includes living longer with Alzheimer's.

### ◆ IG-NOBEL

Professor of Psychiatry Damiaan Denys (at the University of Amsterdam) has won an Ig-Nobel

Prize for his study on misophonia. That is the phenomenon of hypersensitivity to certain sounds. Denys's first patient with this condition became extremely aggressive if anyone coughed. It was spring and Denys had hay fever. He described the case and won an Ig-Nobel for research that 'makes people laugh and then makes them think.'

### ◆ MILK TOOTH

Archaeologists from the University of Bologna have found a canine tooth of an 11 to 12 year-old Neanderthal. The child lost the milk tooth over 45,000 years ago in the Veneto area. According to the scientists, she was one of the last

Neanderthals in Italy. They were able to establish that she was related to Neanderthals from Belgium. The girl herself disappeared without trace.

### ◆ COCOONING

Delft students have developed a coffin made of mycelium. The coffin works like a living cocoon: once it is in the ground, the fungus comes to life and makes the corpse disintegrate faster. The job is done in 1-2 years. Sustainably, and about three times as fast as in a traditional coffin. The coffin has now been used for the first time, and its occupant already lies six feet under, enriching nature. RK



## Diary of a caretaker

### Nasty smell

**One hot summer's day**, a tenant stops me: 'Eugene, there's been a nasty smell in my room recently and it seems to be getting worse in the hot weather. I think it's coming from next-door.' I promise the young lady that I'll come by today and see what the problem is.

**Half an hour later** I knock on her neighbour's door, but there's no answer. And the smell reaches me through the closed door. I'm worried so I decide to go into the room to see what's up. As I open the door, my jaw drops in amazement.

### 'As I open the door my jaw drops in amazement'

I've never seen anything like it in my life: there are full bin bags everywhere, piled up to the ceiling. A path has been kept clear from the door to the neatly made bed and the wardrobe. Apart from those items, the room is full of bin bags. I think to myself: 'How on earth can anyone live here?'

And the funny thing is, the bed looks super-clean and

neat. As I leave the room, a smart young man in a sharp suit approaches. It's his room. Has been for years. He is a Wageningen student and works part-time at a bank.

**I tell him** I've just been in his room because there were complaints about a bad smell, and that I was astonished at the scene that met my eyes. He smiles at me amicably and says he was already planning to clear away the rubbish bags at the weekend. I give him the benefit of the doubt and tell him I'll be along on Monday. He keeps his promise: on Monday his room is clean and tidy.



Eugene van Meteren is a caretaker with student housing provider Idealis. He writes about his experiences for *Resource*. Read all his columns on [resource-online.nl](http://resource-online.nl)

Wageningen **in'to** Languages  
opens up new worlds

Start September

## Online Language Courses

### For employees

- (Advanced) Speaking Skills
- Basic English
- Hospitality English
- Lecturing in English (online)
- Professional Skills in English
- Grammar & Vocabulary

### For students

- English Skills Lab
- Academic English
- French
- Spanish
- Social Dutch  
(free for students!)

€60,- for  
students

'Language is the gateway to understanding a culture'

[www.wur.eu/into](http://www.wur.eu/into)

## IN MEMORIAM

### BEN VAN DE WEERD

Ben van de Weerd passed away on 13 September at the age of 81. Ben was a self-taught expert who quickly got to grips with geology. His greatest contribution at the university was to establish hydrogeology courses, together with Dr Nota. He also masterminded the Hydrogeology field trip to the Ardennes, which is still popular. Ben was a dedicated teacher, who helped supervise more than 100 graduates in their hydrogeological field research in watersheds with chalky soils. He was a real people person, a source of support for both students and colleagues, and always

cheerful and ready to have a chat. Ben retired some time ago, which gave him more time for his family and his hobbies. He was the driving force behind the monthly coffee morning in Gaia with former colleagues. In Ben, we have lost an enthusiastic, socially-minded person. Our thoughts are with his wife Mien and their children and grandchildren and we wish them *courage* in facing their loss of a caring family man.

*Henny van Lanen, Roel Dijkema and Remko Uijlenhoet (on behalf of the Hydrology and Quantitative Water Management chair group)*

## 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](http://resource-online.nl). The magazine is published every fortnight on Thursday.

**Contact** Questions and comments for the editors: [resource@wur.nl](mailto:resource@wur.nl) | [www.resource-online.nl](http://www.resource-online.nl)

**Editorial staff** Willem Andrée (editor-in-chief), Helene Seevinck (managing editor), Roelof Kleis (editor), Tessa Louwerens (editor), Albert Sikkema (editor), Luuk Zegers (editor), Coretta Jongeling (online coordinator), Thea Kuijpers (secretariat).

**Translations** Clare McGregor, Meira van der Spa, Clare Wilkinson

**Design** Alfred Heikamp, Larissa Mulder

**Overall design** Marinka Reuten

**Printing** Tuijtel, Hardinxveld-Giessendam

**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** Sander Fransen, Corporate Communications & Marketing, WUR







**'Teachers also like to drink a beer (or two) in the pub. But Wageningen is small and you soon bump into curious students. What should you do? Go to the pub in the next town along, or just take no notice?'**

Mark, WUR teacher  
(full name known to the editor)



## Have fun!

In my opinion, Wageningen is unique because of the way students and locals mix. So drinking a beer here in Wageningen must be possible for both teachers and students without anyone feeling guilty or uncomfortable.'

Annika Suichies, Nutrition & Health Master's student

## Not weird

'I would just do it in Wageningen. Students know teachers have private lives too, so I wouldn't find it weird at all if I came across a teacher. If you still find it difficult to relax, you can always go to another town next time. And I would definitely recommend another town if you're planning to drink loads.'

Guus Timmermans, Food Technology Master's student

## Drown your worries

'The sage advice from me and my fellow students is that if it becomes a problem for you, have another beer.'

Marieke Dijkstra, Communication, Health & Life Sciences Master's student

## Cool

'If I was a teacher, I'd take no notice at all! Like students, teachers have a need for social contact and the occasional evening off. If I came across a teacher in a pub, I'd just find it cool. Who knows, perhaps I'd have a drink with them and it would turn into a memorable evening.'

Luwe Groot, Communication & Life Sciences student

## Honest feedback

'I rarely go to the pub these days but if you go out at all in Wageningen, you'll regularly bump into students. I like to have a chat then as there's not enough time for that when you're teaching. You also often get more honest and clear feedback about the teaching after a couple of drinks than you do in the lecture room.'

Tijs Ketelaar, universitair docent Celbiologie

## In moderation

'I don't live in Wageningen so I usually down my pints elsewhere. But whenever I do hang out in Wageningen, I actually enjoy bumping into students. It does depend on the number of pints you're drinking, though. I don't think it's acceptable for a teacher to be lurching around drunk in Wageningen pubs on a Thursday evening and then stand up there in the classroom lecturing students on the Friday.'

Roel Dijkema, Hydrology lecturer

## NEXT WURRY

**'My housemate has recently started an internship that means she has to get up at six in the morning. Despite her efforts to be quiet and my earplugs, I always wake up whereas I don't have to get up until eight. Anyone know a solution?'**

Myrthe, Nutrition & Health student

*If you have advice or tips for this Wurrier, send an email (max. 100 words) before 7 October to [resource@wur.nl](mailto:resource@wur.nl) with subject 'noWURries #4'. If you need advice yourself, email your problem (max. 100 words) to [resource@wur.nl](mailto:resource@wur.nl) with subject 'noWURries'*