

# Resource

FEBRUARY 2022 VOLUME 16

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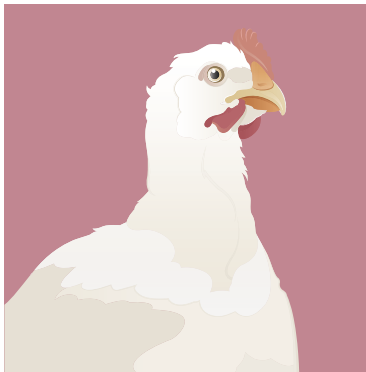
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## FOREWORD

### Two years later

I started as managing editor at *Resource* two years ago. I had been here about five weeks - I could just about find my way to campus without Google Maps - when the first lockdown was announced. We switched to working online, just like the rest of the world. And it was OK, really, but it wasn't fun. I'll be honest: I'm not at my best online. And I'm not even talking about my appearance, although it's not easy to ignore your own deathly pale talking head throughout a meeting. I'm just nicer in real life - and when I'm really meeting other people. I think so, anyway. And I think the same about other people. Contact generates energy, warmth and inspiration. Wageningen lecturers and students have found the same, as we learned from a series of interviews about two years of education in Covid times (p. 18). Lecturers have achieved their learning objectives and no more students have dropped out than in other years, but everyone is tired. Exhausted, in fact.

Lack of contact wreaks havoc with love lives, too. *Resource* discovered that students have been going on dating apps en masse to find their true love. A subsequent meeting has often only been possible out of doors, at one and a half metres distance. So you go for a walk, and just hope it doesn't rain (p.12). We have a tip for anyone on a walking date who is worried about awkward silences: do the campus audio tour with artist in residence Remco de Kluizenaar (p. 26) and discover what protein sounds like. That should provide enough food for conversation. And for an energy boost, take a bottle of coke with you, while you can still afford it (p. 22).

**Helene Seevinck**  
Managing Editor







## WINTER AID

The winter edition of the introduction for new students (AID) started Monday evening. About 200 AID freshers took part in the pub quiz in The Spot and two adjoining rooms. All with face masks on. Even so, that is an improvement on 2021 when the winter AID was almost entirely online or else in small groups. The AID committee hopes Covid will no longer be a factor by the summer. 'We are assuming we'll have an AID then like the one in 2019: everyone together, and six days of partying.' LZ

Photo Sven Menschel



# Last year of loan system isn't affecting enrolments (yet?)

**The return of the basic grant as of the academic year 2023-2024 has not yet led to a dip in enrolments for the coming academic year. 'But it is still too early to draw conclusions,' says recruiter Renske van Dijk.**

Many educational institutions are holding their breath: will the announced abolition of the loan system cause the number of first-year Dutch BSc students to plummet in the coming academic year, only to go through the roof the following year when the basic grant returns? 'Everyone, including the ministry, wonders how these factors will affect decisions made by high school students,' says Student Recruitment team leader Van Dijk. 'Even market research firms cannot quite put their finger on it yet.' So far, there does not seem to be a rush to do a gap year. Nationally, the number of preliminary registrations is

actually still about 4.7 per cent higher than it was this time last year. 'But that mainly applies to degree programmes with an enrolment cap, such as Medicine. It is quite possible that those programmes are less affected by changes in student financing than the "ordinary" degree programmes.'

## Covid effect

At WUR, the current number of preliminary registrations is comparable to that of last year around this time. But it is too soon for a reliable prognosis, cautions Van Dijk - the 'high season' for enrolments is still to come. 'And from parent publicity officer Hermien



How many (or how few) students will be studying the Forum pond next year? ♦ Photo Guy Ackermans

Miltenburg I understood that parents and deans are increasingly interested in gap years. So it cannot be ruled out that the change in student financing will still become a major factor'. Last year, the number of Dutch Bachelor's students at WUR fell quite sharply, by 14 per cent. 'That was a national

trend: the Covid effect,' says Van Dijk. 'There wasn't much we could do about it, but of course we don't want it to fall even further.' So this spring will be a critical moment. There will be on-campus open days for Bachelor's degrees again on 19 and 26 March. ME

## More students ask for help

**In 2021, 8.7 per cent of WUR students sought help. That is 1200 students, over 200 more than the previous year. WUR offers students training, life coaches and the help of student psychologists, for example.**

This information comes from student welfare manager Door van der Sloot. 'I think this increase can partly be explained by a demoralized mood. There is an obvious link with Covid. We are now in the third lockdown. Students experience motivational and concentration problems, tension, stress and symptoms of depression, ranging from low mood to more serious complaints.'

The increase in the demand for help is causing a long waiting list for student psychologists. In response to that, more

**'I think the increase can be partly explained by demoralization'**

explicit screening has been introduced, Van der Sloot explains. 'What kind of problems are students dealing with and what is the best solution? That could be seeing a psychotherapist, but for less severe cases, it could be an e-health module at Gezondeboel, a training course at Student Training & Support or a session

with one of our life coaches, with whom you can have up to three sessions in which to unburden yourself. Selecting students like this enables us to offer them tailor-made help and at the same time keep the waiting list for the student psychologist manageable. If a student disagrees with a referral, they can always ask to be put on the waiting list for the student psychologist.' The waiting time is currently about three to four weeks. LZ

*For an overview of the help available, go to [WUR.nl](https://www.wur.nl) and search for 'student guidance'!*

# 8000

That's how many 'unlucky students' joined a protest in Amsterdam on Saturday to demand fair compensation for the basic grant they missed out on. The message: one billion euros in compensation – which comes to about 1000 euros per loan-system student – is not nearly enough. An 'unlucky student' living independently misses out on at least 14,000 euros compared with students who get the basic grant. Minister of Education Robbert Dijkgraaf said he understands the students' point of view but just doesn't have the funds for more compensation. LZ

## Universities continue to grow

The number of students enrolled in Dutch universities this academic year grew by over 13,000, or four per cent, compared with last year. The total number of students in the Netherlands is currently 340,346. WUR's student population grew by only 1.2 per cent due to a fall in the Bachelor's intake. WUR now has 13,056 students. That's a nice number, says Dean of Education Arnold Bregt. 'Our policy is to aim for about 13,000 students. So it's not our ambition to grow any further, but nor do we want to shrink.'

The association of Dutch universities (UNL) published the figures on Monday, 7 February. The numbers relate to enrolments as at 1 October 2021, but it takes several months before they can be published as they have to be checked first. HOP/LZ

## Microbes also need to collaborate

**Humans have used micro-organisms since time immemorial, for example for the production of beer and cheese. In biotechnology, this activity has been elevated to an art form. This often involves a single species of bacterium or fungus. Imagine the possibilities if different micro-organisms were to collaborate.**

This is the main idea behind the WUR contribution to the new Centre for Living Technologies, a collaborative initiative by WUR, Eindhoven and Utrecht universities and Utrecht Medical Centre. Scientists from these institutes are joining forces to 'introduce new functions in living (multi) cellular systems'.

### Unicellular

'All of the partners work with living cells,' Diana Machado de Sousa says. She represents WUR on the centre's board. 'Of course human cells are very different to microbes. Microbes are unicellular, while humans are multicellular. But microbes can act as a kind of multicellular organism when in microbial communities.

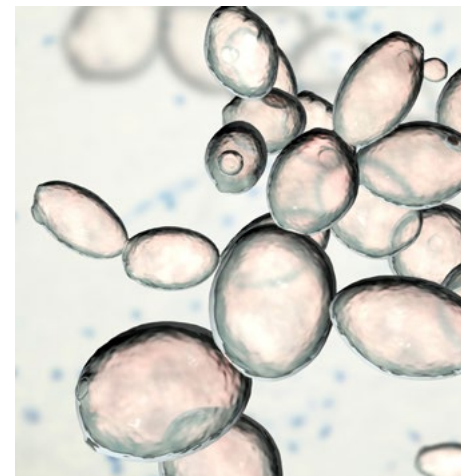
Together they can do different things than when they are alone.'

Machado de Sousa aims to steer this collaboration by encouraging teamwork in micro-organisms. 'The goal is to

**'Together, microbes can do different things than when alone'**

create added value by bringing the right microbes together, for example ones that exchange and use each other's metabolites. This is common in nature, but utilization of this concept to create controllable microbial catalysts is relatively new in biotechnology.'

The Centre for Living Technologies is part of a more extensive collaboration



This yeast microbe *Saccharomyces cerevisiae* is used to brew beer • Photo Shutterstock

between the four parties. This Knowledge Alliance was launched two years ago. The new centre has a budget of six million euros for four years. The first online workshop on synthetic microbe communities will take place on 17 March. RK



## Infarm partners with WUR

Infarm, a large network for vertical agriculture, is funding two PhD students and a postdoc over the next four years to optimize tomato production in terms of taste, nutritional value and yield. The tomatoes will be grown hydroponically indoors, in water containing nutrients and under LED lighting. An Infarm

**An Infarm research team will also be based at the Wageningen campus**

research team will also be based at the Wageningen campus. Infarm has already set up more

than 1400 vertical nurseries in North America, Asia and Europe, in which more than a million plants are grown every month. The company claims that indoor cultivation uses 95 per cent less land and water than land-based agriculture, and no chemical pesticides.

### Experimental results

Infarm is looking for ways to reduce growing costs and improve the quality of the tomatoes. The researchers at WUR will use modern sensors and scanners to evaluate the growth rate, health and nutrient content of the tomatoes.

WUR professor of Horticulture and Product Physiology Leo Marcelis: 'This partnership is an ideal opportunity for WUR to apply experimental results in practice because the research conditions are representative of actual cultivation conditions.' He wants to make the knowledge acquired in these projects generally applicable, with the aim of improving tomato yields and quality while drastically reducing water and energy consumption. AS

## Startlife invests millions in startups again

Innovative startups aiming to make the food supply chain more sustainable can once again apply for loans from Startlife.

The loans will be between 75,000 and 250,000 euros per company. The financing comes from a new fund, Startup Fund Gelderland. The money is earmarked for young knowledge enterprises that implement sustainable food production, for instance by cutting greenhouse gas emissions in agriculture, reducing food waste or developing meat substitutes. Startlife always grants the loans in combination with professional coaching and supervision. The startups also get access to knowledge and expe-

rience from leading companies and investors. To be eligible, startups must be located in Gelderland.

The province of Gelderland is financing the fund and development company Oost is managing it. It is a six million euro revolving fund, which means that loans that are paid back become available again for other startups. Startlife has already provided around eight million euros in loans to startups through previous funds. AS



## Societies open again

Student societies are allowed to open their doors again, albeit with Covid measures in place, similar to those affecting bars and restaurants. That means that a digital Covid pass is compulsory, face masks must be worn until you are seated, and there is allocated seating. The Wageningen student societies' boards are pleased: 'The news always leaks out a few days early, so we saw it coming, but you don't count your chickens until they hatch,' says Anne van der Molen, chair of SSR-W. 'When we heard that we could stay open until 10 in the evening, there were cries of relief in the boardroom.' LZ • Photo SSR-W

More reactions on [www.resource-online.nl](http://www.resource-online.nl)



## Bacteria in groundwater can break down pesticides

**Bacteria in groundwater can break down pesticides, but they don't have the right environmental conditions for this, according to PhD research by Andrea Aldas-Vargas.**

Concentrations of pesticides in Dutch groundwater are increasing, which is bad news as two-thirds of our drinking water comes from groundwater. 'The concentrations are low but we are getting better at measuring the pollutants in the monitoring wells,' says co-supervisor Nora Sutton of the Environmental Technology group. 'On average the water stays in the ground for 30 years, so we are actually measuring future contamination. The water companies have to purify the water to make sure the water we get from our taps is clean and safe.' Aldas-Vargas showed that bacteria can be used for this. She collected water samples from the monitoring wells and added low concentrations of pesticides in the lab. She found that the bacteria in the groundwater failed to break down the pesticides in normal, anaerobic conditions but they did do so when oxygen and organic matter were added.

### Vidi

At present, the law forbids such additions because the consequences are unknown. Last year, Sutton was awarded a Vidi grant by the Dutch Research Council to investigate this further. 'I want to develop technology for the biological breakdown of pesticides in groundwater.'

Aldas-Vargas has laid the foundation for this technology as she obtained a lot of information about the composition of bacterial communities in groundwater. Sutton now wants to create the right environmental conditions in groundwater to allow the bacteria to break down the pesticides. She also intends investigating the risks and any unforeseen effects of this intervention. AS



The gene that determines the sex also determines whether the wasp smells male or female. ♦ Photo Jitte Groothuis

## The 'AXE effect' in parasitic wasps

Insects can't talk but they do communicate by sending chemical messages. Lots of these messages have to do with reproduction. Not unlike humans, really. Entomologist Eveline Verhulst and her group have discovered that a gene called Doublesex is a determining factor in this chemical communication.

Verhulst has been studying the role of Doublesex in the lives of parasitic wasps for some time. The gene regulates sexual differentiation in the offspring. It now turns out that the gene also controls the production of pheromones and other sex-related scent molecules. That control takes three different forms, as was demonstrated by switching off Doublesex in male *Nasonia vitripennis* wasps.

### Appeal

This makes the males lose their appeal and their ability to make females succumb to their advances. That appeal operates through two different systems: attraction at a distance and recognition from close by. The pheromones that have an effect at a distance are volatile and are released from the wasp's abdomen. The pheromones that have an effect

from close by are oily hydrocarbons on the insect's skin.

When Doublesex is switched off, males hardly make either category of pheromone anymore. As a result, they lose their sex appeal and their ability to distinguish between males

**The gene that determines the sex also determines whether the wasp smells male or female**

and females. In fact, other (untreated) males see these males as females. So when

Doublesex is switched off, the males are feminized.

Chemical analysis of the hydrocarbons on the skin revealed that the main component of the 'perfume' was an alkene with the code name Z9C31. Applying synthetic Z9C31 to the 'faulty' males restored their manly odour as effectively as AXE deodorant. Even if the effect in this case was to put off other males rather than attract females. RK



## A Little Wiser

# Does waste sorted for recycling end up on the dump?

You've probably heard it before: 'There's no point in sorting your rubbish, it ends up on the rubbish dump anyway'. Not very motivating. Fortunately, it is (largely) untrue, according to Ulphard Thoden van Velzen, a researcher at Wageningen Food & Biobased Research.

'Separated waste streams are assessed by the waste processors after collection. That goes for waste such as paper, PMD (plastic, metal and drink containers, ed.) and GFT (fruit, vegetable and garden waste, ed.). Heavily contaminated waste, such as plastic containing a dead animal or paint residue, is rejected and gets incinerated with the residual waste.' After a while, waste collectors get to know where the 'problem neighbourhoods' are. 'Collecting waste separately is very expensive if it doesn't work because you incur costs for both collecting the waste and processing rejected waste.' This poses a dilemma for municipalities: 'It doesn't go down well with people if you separate waste but then combine it again and incinerate it anyway if it comes from certain neighbourhoods. That can be demoralizing for the people who are doing it properly themselves, but have the misfortune to live in a neighbourhood where others mess things up. Some municipalities, such as Utrecht and Rotterdam, have now decided not to collect PMD waste separately in certain neighbourhoods and to sort the waste post-collection instead. Municipalities with a lot of high-rise housing are particularly affected by this

problem, explains Thoden van Velzen. 'In rural municipalities you've got space for separate bins for each type of waste next to your house and you don't have to take your bin bags to the container at the supermarket. But there is more to it than that: people with low literacy levels or who do not speak Dutch are more likely to live in high-rise housing. And surveys show that people in those neighbourhoods have other things on their minds than sorting their waste – things like unemployment or debts. I think municipalities could do more to reach these groups. A sense of community is important: in municipalities with lots of tourists or students, waste separation is often less successful.' In spite of all this, most waste in the Netherlands does get sorted and recycled. 'Only we don't know how much of the collected waste is rejected for recycling. Rejected household waste is classed as industrial waste and no separate statistics are gathered on that.' So there is room for improvement, but according to Thoden van Velzen we can also be proud, since the Dutch waste-processing system is among the best in the world. 'Worldwide, dumping waste is still the norm! TL

**'Collecting waste separately is expensive if you incur costs for both collecting the waste and processing rejected waste'**

Ulphard Thoden van Velzen, researcher at Wageningen Food & Biobased Research

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?

Illustration Marly Hendricks





## Fish swims amazing distance

**Marine ecologist Niels Brevé could hardly believe his eyes when he checked his emails recently. One of the fish he had fitted with a transponder for a study in 2017 had resurfaced. Literally, as a German fisherman had caught the fish in Mannheim Harbour. That was 550 kilometres from the Haringvliet sluices where Brevé had released the fish.**

Fish no. 11328 was one of 67 pike-perches with transponders that were released in the sea in early 2017 for an experiment. The aim was to see whether these freshwater fish could find their way back to the rivers. Thousands of freshwater fish are flushed out to sea every day through the sluices. Do they all end

**Pike-perch no. 11328 migrated further than ecologists thought possible**

up dead or do some find a way back? Eleven of the 67 pike-perches managed

to return to the freshwater. They used the sluice for boats or the special fish passages in the sluice pillars. One of these 11 fish was caught by a fisherman 194 days later, 112 kilometres upstream. So pike-perch no. 11328, a male, is an exception. This fish migrated further than ecologists thought possible.

### Sluices

No. 11328 has done a lot for science, explains Brevé. In part because of this experiment, the sluices are now managed in such a way to give the fish more chance of swimming back. 'We are working with all stakeholders, including the Dutch angling association, which employees me and funds my PhD research, to see how we can keep the sluices open as much as possible.' RK

## Risk of muscle loss in old age differs per ethnic group

Muscle mass and strength start to decrease from the age of 30 and this gets worse around the age of 60. PhD student Berber Dorhout discovered that the risk of that condition, sarcopenia, depends on a person's ethnic background.

People from Suriname with South Asian ancestry are particularly prone to an increased risk of sarcopenia, Dorhout discovered during her PhD research at Human Nutrition and Health. The muscle disorder occurs about twice as often in this ethnic group than in people with Dutch, Turkish, Moroccan, African-Surinamese or Ghanaian ancestry. This was shown in a study involving more than 5000 test subjects over the age of 55. The risk of sarcopenia also differs between the other ethnic groups, although the difference is less pronounced.

### Eating habits

The reason for these differences is still unclear, although Dorhout thinks there are several factors involved. Muscles need training and proteins to maintain themselves. Eating habits therefore play an important role. It is precisely those habits that are strongly influenced by culture. For example, chicken and dried fish are the main sources of protein for people from Suriname, while the Dutch get much of their protein from cheese and milk.

'Social behaviour around food also plays a role,' explains Dorhout. In certain cultures it is not socially acceptable to refuse food during family gatherings. It can then be difficult to get the right nutrients and sufficient protein. In addition, not all cultures view exercise in the same way.



'Sweating or mixed sports are taboo in some cultures,' says Dorhout.

### Training

Genetic differences play a role as well. So big a role, in fact, that the study could give a distorted picture. 'Body composition and fat distribution differ between ethnic groups,' says the PhD student, yet the scientists used the same yardstick to measure sarcopenia in all subjects. Even so, the new awareness obtained from the PhD research should help in designing training programmes for the elderly. 'Now we know that they should take each person's ethnic background into account, as well as cultural factors.' NVTWH

# Growing potatoes on mist

**Plant Sciences Master's student Emiel Smits is doing his graduation thesis on the cultivation of potatoes using mist. The official term is aeroponics: the roots hang in the air and are fed tiny droplets of water containing nutrients.**

The potato plants are now two and a half months old and they are thriving, as are their roots. Smits is testing what drop size gives the best results. Cultivation using mist has various advantages, explains Smits. When potatoes are grown in soil there is a lack of oxygen in the soil that slows down growth. Potatoes grown in mist also don't suffer from soil diseases and persistent pests such as nematodes. Another benefit is that the plants can be grown close together; Smits thinks 20 plants per square metre would work. The only negative aspect of Smits' experiment is that the tubers are not growing that well. 'That's my own fault. I created the perfect environment for plant growth in this greenhouse but two weeks ago I discovered the plants form tubers when

they are under stress. Now I've reduced the nutrients in the water droplets. That creates some stress but I also need to do

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**'Price of land for growing potatoes is going up while this technique is becoming cheaper'**

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something with the day-night cycle and mechanical stress to encourage tuber growth.'

## Aeroponic spuds

Smits thinks aeroponic spuds have a future. 'They are already being grown on a small scale in greenhouses in Switzerland, and this method is starting to make financial sense in the Netherlands too. There is less land available for growing potatoes and prices are going up, whereas the technology for aeroponics is becoming cheaper.' Potatoes can be grown in mist in greenhouses or outdoors. This method uses



Emiel Smits, Plant Sciences Master's student, is growing potatoes on mist. • Own photo

95 per cent less water than cultivation in fields, says Smits. The use of pesticides can be reduced by 100 per cent in greenhouses and 80 per cent outdoors (where Phytophthora and Colorado beetles are a problem). He is still doing the calculations on the profitability of one hectare of potatoes grown in mist. **AS**

## In other news science with a wink

### ◆ A LEAP

Scientists at Tufts University (Boston) have succeeded in growing a frog's leg. Not in a lab dish but on a real frog that was missing one. Frogs do not naturally possess this regenerative capacity. But all it took was 24 hours of exposure of the stump to a cocktail of five substances. The stump then grew into an almost complete leg in a year and a half.

### ◆ FLASH

The world record for the longest flash of forked lightning has gone up to 768 kilometres, the World Meteorological Organization has announced. That is 60 kilometres

longer than the previous record flash. The flash was recorded by satellite over the Great Plains in America: Mississippi, Louisiana and Texas. It's equivalent to a flash stretching from London to Hamburg. It happened fast of course – at lightning speed in fact.

### ◆ CHUBBY

Fat mothers do not necessarily have fat children. The genetic factor is less important than lifestyle, shows British research at the University of Bristol. That is good news for chubby mothers: it's not in the genes. On the other hand, the link between obesity

and lifestyle is indisputable. In other words: fat mothers often do have fat children.

### ◆ RARE

British researchers (at Anglia Ruskin University) have discovered a new leafhopper in the jungle of Uganda. In itself, that is not so extraordinary. But the rarity of the find is. The last closely related leafhopper was spotted 50 years ago in the Central African Republic. The creature is only 6.5 millimetres in size and has been named *Phlogis kibalensis*. **RK**

# Responsible innovation empowers people

The EU invests millions in responsible innovation aimed at benefiting both the economy and society at large. PhD candidate Lucien von Schomberg (Philosophy) considered the question 'What is innovation?' and examined the consequences the answer has for society. In January he defended his thesis *Raising the Sail of Innovation*.

**I**nnovation is often just a technological invention with market value, such as a smartphone,' says Von Schomberg. 'This techno-economic definition doesn't fit well with responsible innovation.' Are social media benefiting the general public or mainly the social media companies? In his thesis, he delves into history and philosophy in search of an alternative concept that can help us resolve complex problems.

'In the past, innovation had nothing to do with technology, let alone the market,' says Von Schomberg. 'The Ancient Greeks saw innovation as something threatening that made people question the established order. So for a long while, innovation was a political concept. That changed in the Renaissance, when innovation signified progress and discovery. Innovation has only become something technological with a market value since the Industrial Revolution, and especially in the past 50 years.'

Von Schomberg wondered what the Ancient Greeks' political concept of innovation could mean for us in the context of responsible innovation. The ideas of the philosopher Hannah Arendt play a key role. 'Innovation for society should aim to empower each individual and make sure everyone can express



'The Ancient Greeks saw innovation as something threatening that made people question the established order,' says philosophy PhD candidate Lucien von Schomberg. (The photo shows caryatids in Athens.) • Photo Shutterstock

themselves in word or deed,' explains Von Schomberg.

## Action

Arendt divides people's activities into three levels: labour, work and action. As Von Schomberg explains, 'Labour is all the necessary, physical things we do to

survive, such as eating and sleeping. Work is the useful things, building something new that is not part of nature, such

as a table. Action is taking the initiative for something where the consequences are unknown and unpredictable.'

Von Schomberg defines innovation as creating something new ('work' in Arendt's terminology) that enhances people's scope for action. 'Take the washing machine. It was something new but it also helped the emancipation of

women.' His definition can help politicians evaluate innovations, but it can also encourage innovators to prioritize society rather than businesses in the design phase. 'It gives a philosophical basis for policy geared to responsible innovation.'

## Football

Von Schomberg applied his insights to football. He worked as a football coach at the club KRC Genk, and the management asked him to turn his philosophy into a vision for the youth training scheme. So Von Schomberg put Arendt's ideas into practice: 'Labour is all about a healthy lifestyle and the player's core values. Work is about how the player develops. Finally, action is about showing your unique qualities. It means trusting and encouraging, making promises and being forgiving.' Von Schomberg now uses the football case to illustrate Arendt's philosophy in his job lecturing to students at the University of Greenwich in London. ss

**'Our techno-economic definition doesn't fit well with responsible innovation'**



It'll have to be a walk

# DATING DURING LOCKDOWN

How do students and PhD researchers fare when they are looking for their Valentine? How do you still meet new people without parties, drinks and outings? Journalist Stijn Schreven took the plunge on Tinder in 2020 but hasn't found his true love yet. How are others doing? Three students and a journalist talk about love in times of Covid-19.



Text Stijn Schreven

**‘W**ould you like to go on a date with me soon?’ I ask my match on Happn. ‘Sounds good

to me,’ she replies with a smiley emoji. We set a date. We both like walking and - not unimportantly - that’s about the only option still open to us. It is lockdown, December 2021. Everything is closed and it gets dark early in the evening. The day before the date in question it is raining. It’s like a grey curtain of disappointment. Tomorrow the same, the weather forecast indicates. We cancel the date. No new date gets arranged. Shit.

Half of all singles between 18 and 39 have given up on love for the duration of the pandemic, says an international study by YPulse. A poll on *Resource* online shows that in Wageningen too, one in three respondents (out of a total of 65) find dating impossible during Covid times.

## Dating apps

For those who don't want to give up, dating apps are one of the few options left

for meeting new people. ‘Go on as many dating apps as possible and see which one works for you,’ Danish PhD student Simone Gasque advises. She uses Tinder, Happn, Hinge and Breeze. ‘I already had them, but now I use them a lot more. Because where do you meet people anymore, in the supermarket with a face mask on? Forget about it. I meet people through an app and then we go for a walk. Hinge is more serious: you have to answer questions on it. Breeze offers you two or three profiles a day. If one of them’s a match, you set up a blind date.’ Simone often picks up her date at the bus station, after which they walk in the direction of the arboretum or the water meadows. ‘For a first date it is good to choose neutral territory,’ she says. ‘And to do something together, a shared hobby or sport. Then, whether it’s a good date or a bad date, you’ve made good use of your time. I went kayaking once, for example. Me in a bikini, him in swimming trunks. We stopped at a fort

with a restaurant and had a beer sitting among the normally dressed guests. It was really fun.’ The impact of Covid on her dating life is less than the expat effect, by the way: ‘As soon as I tell them I’m doing a four-year PhD, some men lose interest because they think I’ll be leaving right away.’

## Taimi, Her and Fiorry

Cecilia, from South America, came to the Netherlands last summer to do a Master's degree. She is a bisexual trans woman. ‘Until I came here, I was still in the closet. I tried to date as a man in a heteronormative society. Here I have the chance to be myself and discover what I like.’ Besides Tinder and Bumble, she uses dating apps for LGBT people: Taimi, Her and Fiorry. ‘I mainly use Bumble and Her; there are a lot of bisexual and lesbian women on those apps. I wasn’t plan-

ning on it, but once I got here, I realized I could use these apps without coming across people from home. I swipe every now and then and see what comes of it.' Marjolein, who has just completed her PhD, is not yet on a dating app. 'Personally, I think it's a meat market and I'm too shy for it. Maybe I'll succumb in the spring. Now I ask people in my network if they know any single men and then go on blind dates. The first blind date I had was in autumn, when we were still allowed to sit on a café terrace. We had a beer and it was very nice.'

### Sharing the sofa

I myself started with Tinder and later I also used Happn and Bumble. Happn looks for people in your neighbourhood, and on Bumble only the woman can start the conversation. I usually go on a walking date. You can also do something new

or exciting together. An adrenaline rush makes you like each other faster, they say. For a date in Arnhem, I suggested going up the Eusebius tower to the glass balcony. Plenty of excitement for me since I'm afraid of heights. Unfortunately, she was not at all, so I stood there with my knees knocking.

But what do you do when everything is closed and you have already had a series of walking dates? The next option is to meet at home. There isn't much in between. To me, it feels like skipping a phase: you don't know each other that well yet and suddenly you're standing together at the cooker or sharing the sofa. Simone recognizes the big step from walking to meeting at home. 'It quickly becomes too intimate or relationship-like. It feels forced. If it clicks and the bars and restaurants are closed, you

**'I THINK IT'S A MEAT MARKET AND I'M TOO SHY FOR IT'**

**'COVID FORCES YOU TO THINK OUT OF THE BOX'**

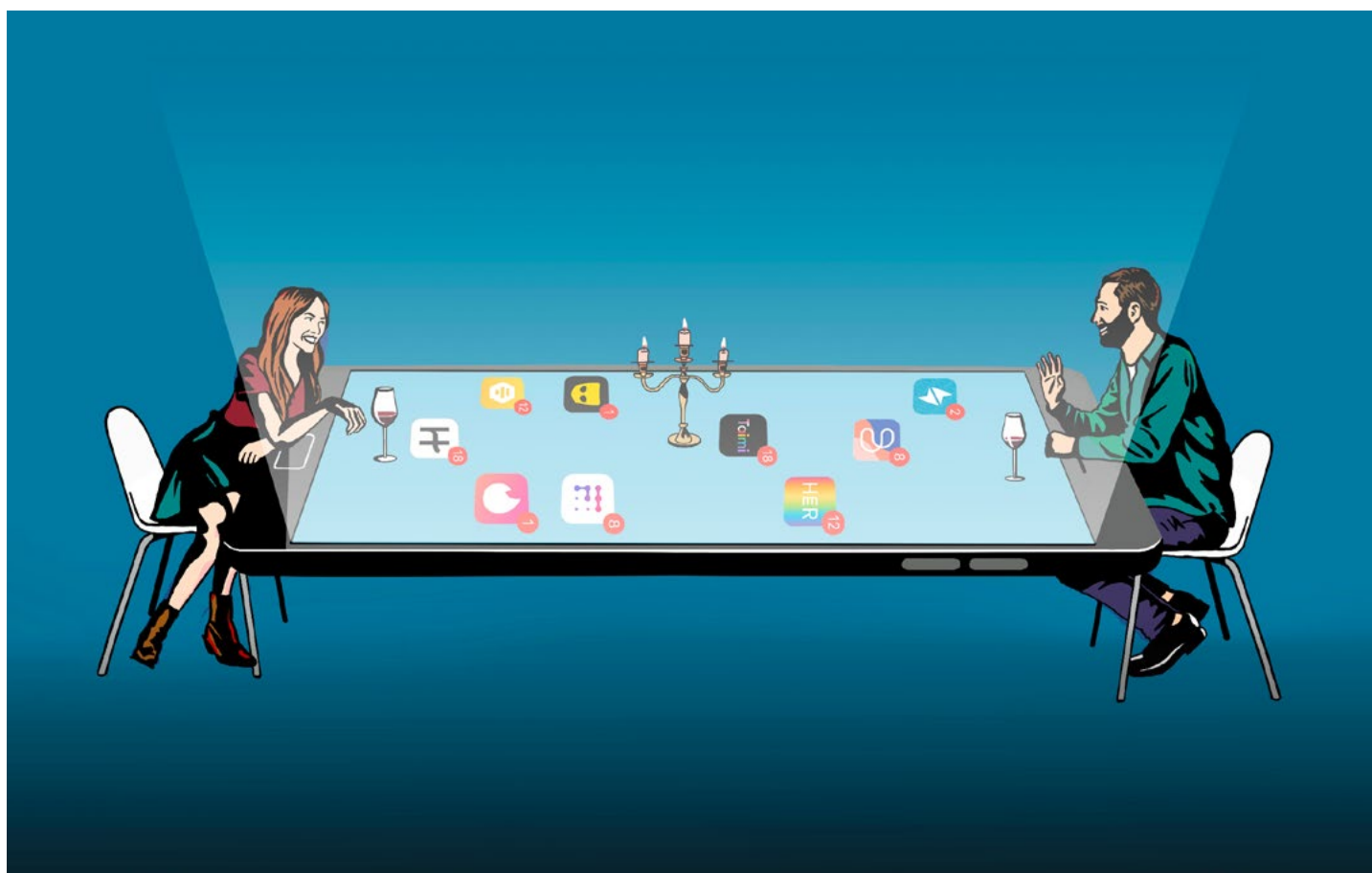
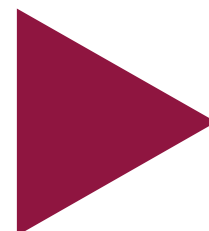


Illustration Valerie Geelen

can suggest having a drink at home. But that is open to misunderstanding too.' Marjolein had a blind date at home arranged through a housemate, which actually went well. 'She had invited him and it was super informal.' As a single person, she has the advantage that she always falls within the lockdown rules on visitor numbers, so friends often invite her over. 'The disadvantage is that I am then the only guest.'

### Vaccinations and face masks

And what about the awkwardness that can arise around the questions of vaccinations and face masks? Cecilia: 'We insisted on doing self-tests before we met. A refusal to do that is reason enough for me to postpone the date.' Simone turned down a date with someone who wasn't vaccinated: 'After Christmas, he texted me to say he had had his shot and asked if we could date now. He offered to show me his QR code, but I thought that was going too far.'

Tinder's report *The future of dating*, which came out in early 2021, tells us that more users now mention their boundaries in their profile or discuss them when they meet online. On Bumble, users fill in how they prefer to date: online or in-person, outdoors or indoors, at one and a half metres distance or less, with or without a face mask. On walking dates, I sometimes felt very conscious of the one and a half metres. Even if you walked

closer to each other, there was a barrier to touching each other. After visiting a museum in Den Bosch, I had a drink with my date on a café terrace, after which we walked back to the station. At one point, I couldn't resist asking: 'I'd like to give you a hug, is that OK?'

Simone often hugs on the first date. 'It feels natural, I would do it normally. I think it is important to have some physical contact. Without a hug you can unintentionally come across as distant, and I think it's a good way to see if there is any chemistry.' For Marjolein, social distancing has its plus sides. 'I sometimes jump into relationships, so it's good for me to keep a little more distance and take things a bit more slowly.'

### Hopeful

How do these singles see the year ahead? Marjolein doesn't lose sleep about Covid anymore. 'After two years, you get kind of nonchalant about it,' she says. 'Every moment is a good moment. I am hopeful now that everything is opening up a bit again. Spring is also a much nicer time to be dating. I'm also hoping to pluck up the courage to go on a dating app. Now that I've got my PhD, there's more room in my head for it too.'

For Cecilia, there is more pressure. 'I'm nervous,' she says. 'I have limited time to gain experience, to make up for lost time. It feels like I'm running out of time. I feel a bit lost, not necessarily because of Covid, but it does make it harder.'



## 'I SWIPE NOW AND THEN AND SEE WHAT COMES OF IT'

Simone is optimistic: 'I have not given up on finding love and I never will. I hope things will get better. Now that the bars and restaurants are opening again, it already feels like normal.'

And me? Well, I've recovered from my December blues. The next walking date is planned. All we need now is some sunshine.

The names of Cecilia and Marjolein have been changed for reasons of privacy. ■



### Dating apps shown in the illustration

#### General



Tinder



Hinge



Bumble



Happn



Breeze

#### Specifically for LGBT+



Her



Grindr



Fiorry



Taimi



# Moratorium

Since July 2021, we have not been allowed to go scuba diving for research in the Animal Sciences Group (ASG). A ban on diving is comparable to banning molecular biologists from pipetting.

Last December, I was on fieldwork for a project on the restoration of coral reefs. The project, which is funded by the ministry of Agriculture, Nature and Food Quality, was set up before this diving moratorium was announced. To collect at least some of the agreed-on data, we have no choice but to dive deep with just mask and snorkel, holding our breath. Freediving, in other

**'While we're grounded, the rest of the campus and the country are diving safely'**

words. Now, freediving is nowhere near as dangerous as the film *Le Grand Bleu* (tip!) would

have you believe, but for research it is riskier than scuba diving.

After a tiringly inefficient day of diving like pearl divers through high waves to collect our valuable samples, we visit one of our local collaborators. While there we meet a couple of students from the WUR Environmental Sciences Group. In disbelief we see them unload diving equipment from their truck. 'Those Wageningen researchers

are allowed to dive!' says our collaborator, laughing at the absurd situation.

So what's going on? In the Netherlands, there is recreational diving (e.g. PADI qualifications), and there is professional diving for heavy work underwater, such as welding on oil rigs. Scientific diving doesn't formally exist here. It is recognized by our European neighbours, where scientific diving certification is available. But since time immemorial, Dutch scientific divers have found themselves in a grey area. Recently, the powers that be became aware of this greyness, which led to an initiative to develop scientific diving certification and a protocol at a national level. This takes time. Therefore, Dutch academia decided to tolerate safe forms of diving for research until scientific diving is fixed nationally. Only the ASG decided to ban scuba diving.

In July, an internal group was formed to draw up a protocol, but that is seven months ago now. While we're grounded at ASG, the rest of the campus and the country continue to dive safely.

Could we be allowed some air, please?



**Lisa Becking**

Lisa Becking is an associate professor at Aquaculture and Fisheries, a researcher at Wageningen Marine Research and a member of the national Young Academy (Royal Netherlands Academy of Arts & Sciences). She has an eye for art above and below sea level.

# THE SUSTAINABLE POULTRY SHED

**M**any Dutch broiler farmers are going to have to modify their sheds in the next year or two because from 2023

Dutch supermarkets want to sell only chicken with the Beter Leven (Better Life) quality label. This means farmers must introduce welfare measures and can keep fewer chickens per square metre (12 instead of 18). They will also have to meet stricter criteria on levels of ammonia and particulate matter. How can they best do all this? Luuk Vissers looked for integrated solutions.

## 1 Ammonia

The broilers excrete on a floor covered with litter. This litter binds ammonia when it is dry; wet litter causes increased ammonia emissions. Broiler farmers can dry the litter with forced hot-air heaters or piped heating, potentially reducing ammonia emissions by up to 70 per cent. This has the added advantage of improving the climate in the shed: less ammonia is healthier for both farmer and chickens. The alternative, an air filter, is more expensive and does not provide that health benefit.

## 2 Fine particles

The litter that binds ammonia produces a lot of fine particles. There are ionization techniques to capture these: the farmer installs steel wires and applies a high voltage. This makes the dust particles stick to earthed surfaces such as floors and walls, and the farmer can reduce particulate emissions by up to 49 per cent. An additional welfare benefit is

**Luuk Vissers did doctoral research on a sustainable shed for broiler chicks which improves animal welfare and reduces emissions of ammonia and particulates.**

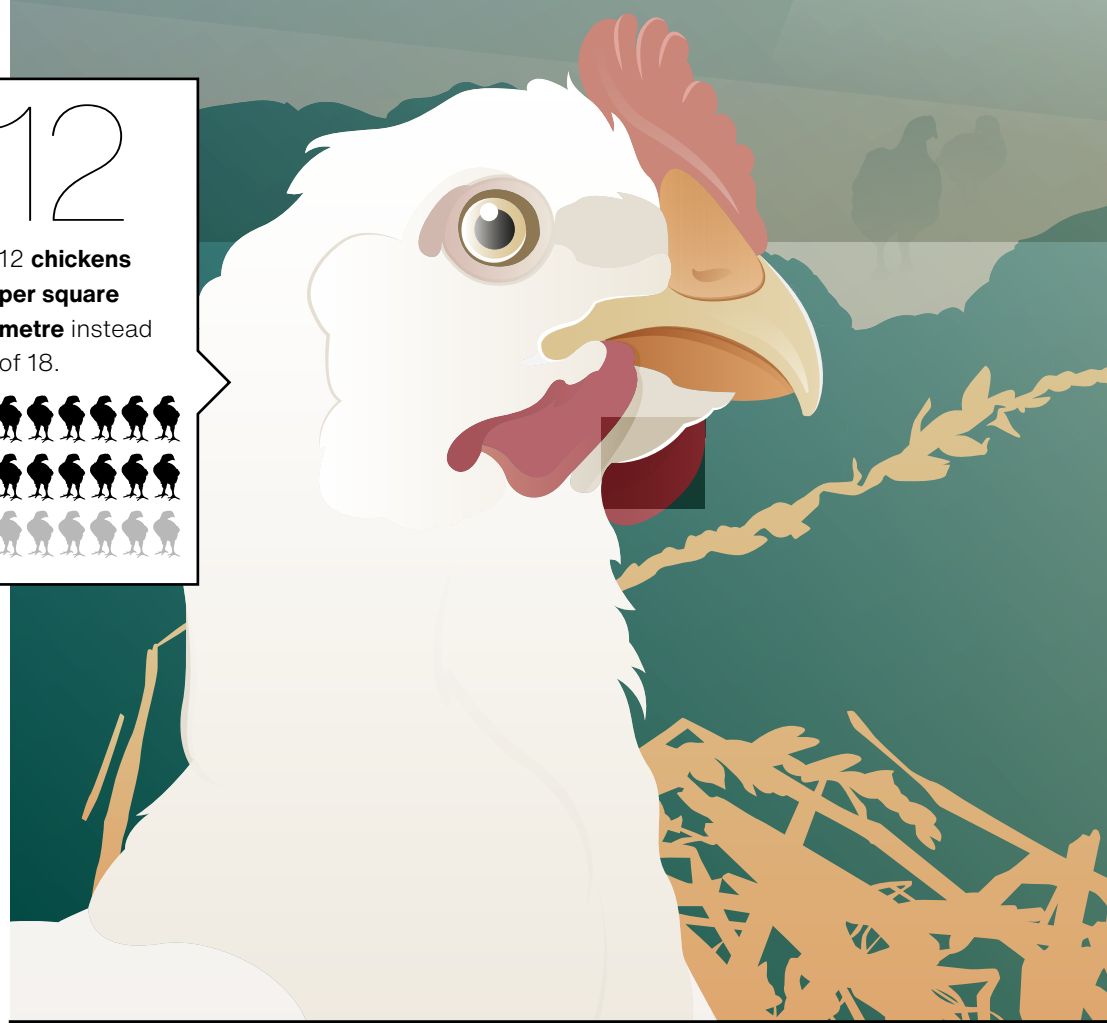
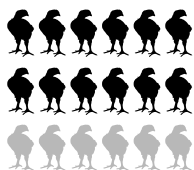
Text Albert Sikkema  
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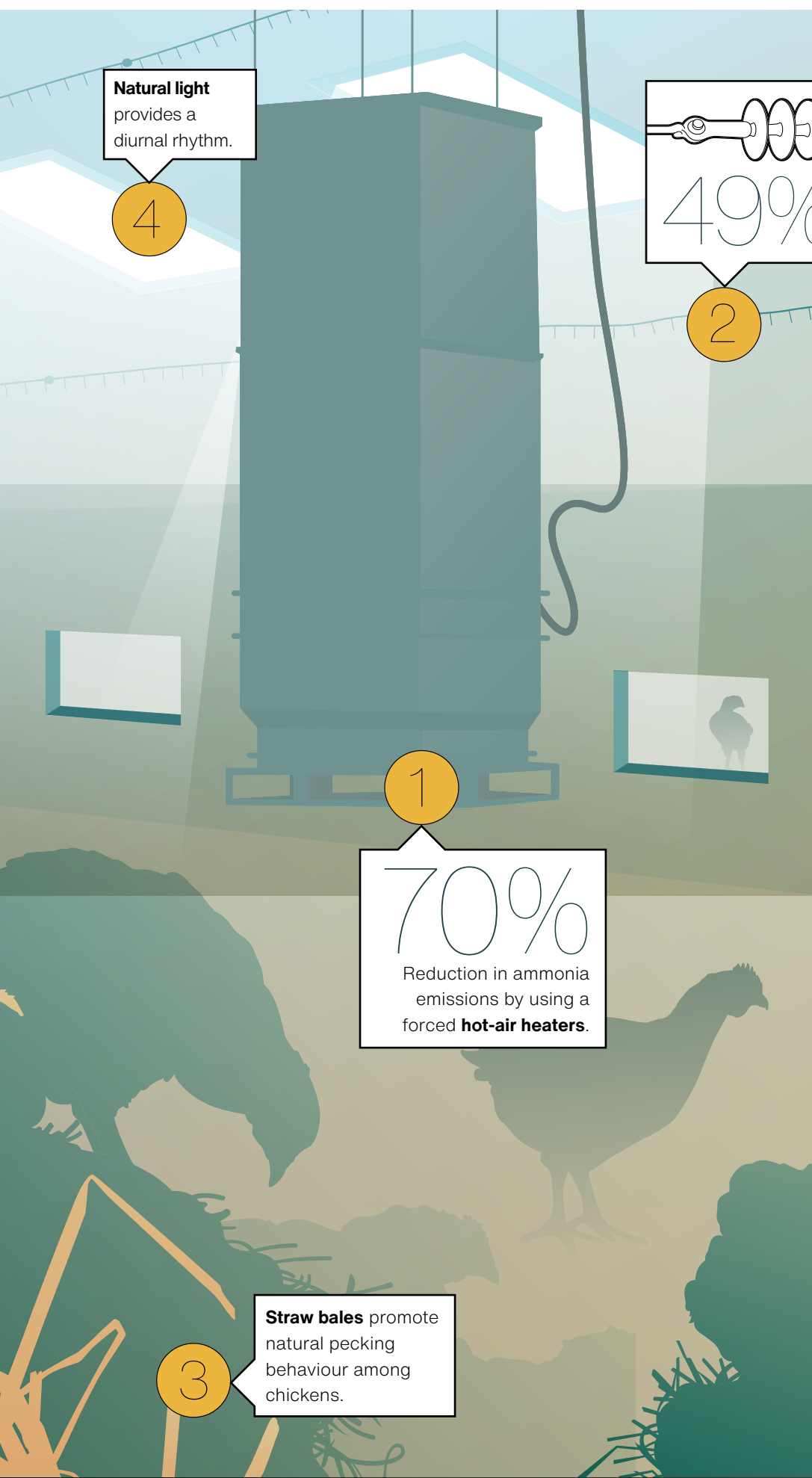
Passage to a covered run.

5

12

12 **chickens per square metre** instead of 18.





that the barn climate improves. Should halving emissions be insufficient, the farmer can combine this technique with an air filter, yielding a reduction in particulate emissions of 84 to 87 per cent. The air filter captures ammonia as well, but it is an expensive option.

### 3 Straw bales

One of Beter Leven's welfare measures is placing bales of straw in the shed so that the chickens can display their natural pecking behaviour. This will lead to a (slight) increase in their activity levels, kicking up more fine particles.

### 4 Natural daylight

Natural light and a diurnal rhythm have a positive effect on the welfare of the chicken. That is why the Beter Leven label requires natural daylight in the shed. This measure also makes the chickens more active, leading to higher particulate emissions.

### 5 Covered runs

No studies have measured the effect of free-range housing on ammonia emissions, Vissers says. Free-range farming methods can increase emissions, but this depends on many factors, including temperature, humidity and wind direction. There is a need for ammonia sensors in and around the barn to measure this.

### Conclusion

The combination of fewer hens per square metre, tube heating, electrified wires, natural daylight and straw bales can reduce ammonia emissions by 66-73 per cent and particulate emissions by 41-61 per cent. But these measures and investments increase the costs incurred by broiler farmers such that they would need to raise their selling price by 19 per cent, Vissers says.



Two years later

# 'Learning goals were achieved, but everyone's exhausted'

Now that the campus is opening up for education again, it is time to take stock of the damage. What impact has two years of Covid crisis had on students, teachers and the education? 'What we've missed most is the contact.'

Text Albert Sikkema and Luuk Zegers • Photos Guy Ackermans

Since mid-January students have once again been able to enjoy education on campus, but in the first few weeks it was still fairly quiet in the educational buildings. Not all teachers wanted to switch from online to campus education in the middle of period 3. Too inconvenient. Some students even dreaded going to the campus, says policy officer Jetske ten Caat. 'They don't know their fellow students and feel there's a barrier, as though they were going on their own to a party or conference where they didn't know anyone.' Ellis Hoffland, personal professor of Soil Biology and a member of the Board of Education, did decide, in consultation with her students, to teach on campus again. About two-thirds of her students wanted to come to campus – 'they were tired of sitting at home'.

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'A lot was achieved under high pressure, but it cost a lot of energy'

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'One student had made a fortune with crypto currencies'

And Hoffland rediscovered the great advantages of the lecture hall: 'interaction, looking each other in the eye, asking questions'.

## Relief

Bettina Bock, personal professor of Inclusive Rural Development and another member of the Board of Education, is relieved that the coronavirus measures have been relaxed again. After two years of teaching in Covid times, she notices exhaustion among teachers and students. 'Much of the teaching has continued and the learning objectives have been met, according to an initial evaluation. But students miss contact, discussion, critical reflection and gaining experience outside the university.' In addition, the Board of Education estimates that some students have fallen behind, as a result of which fewer students will graduate this year. Bock also expects to see students who postponed their thesis research because of Covid catching up now.



Some students even dreaded going to the campus.

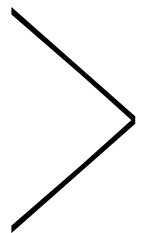
### No one seriously behind

In general, Wageningen students have not fallen seriously behind in their studies during the Covid crisis. This is apparent from figures provided by the Education & Student Affairs department. The number of Bachelor's students graduating within three years (the nominal duration of the degree programme) did drop slightly over the past two years (by three and four per cent) for the two cohorts affected by the Covid crisis. This is not very different from the figures for Bachelor's students who did not study during Covid, however. There was a bigger drop in the number of Master's students graduating in the nominal two years: this fell by seven per cent and four per cent in the two affected cohorts. 'Master's students mainly suffered delays affecting their internship and/or their final thesis research, due to the Covid restrictions,' says data analyst Geertje Braat. 'But after the third year, the number of Master's students graduating successfully is back to normal! The dropout rate did not increase significantly in recent years either.'

All in all, Covid has caused a lot of uncertainty around education for nearly two years now, according to Vera Hartman and Judith Kikkert. Like Bock, these two students are actively involved in the Board of Education. Kikkert: 'Not knowing where you stand: that's been the recurring theme for both teachers and students over the past two years.' Teachers have responded very flexibly,

in her view. 'As soon as campus education is allowed, almost all the teachers are prepared to offer it again. At the same time, they try to offer hybrid options for students in quarantine. These changes create a lot of extra work. It's obvious that everyone is Covid-weary. A lot has been achieved under high pressure, but that also costs a lot of energy.'

Hartman adds: 'It's been a difficult time for students. Online education is very anonymous and "straight to the point". You don't get to know teachers and fellow students very well. There is more to being a student than just attending lectures and doing practicals. It is about developing into a discerning human being. It is precisely in the margins of your education that you learn that, for example in the committees and through the dynamics of group work on campus. On the other hand, the switch to online has also taught us many new skills. For example, we have become much more flexible and new forms of education are emerging. That side of the story deserves a mention now and then too.'





'The fun sides of being a student, like going out with friends, were kind of illegal for a long time.'

A major problem in recent years has been the limited contact between teachers and students, as well as among students themselves. Teachers struggle with this, Hartman says. 'Wageningen is known for its small groups and plenty of personal contact. The quality of the education here depends on that too. Teachers want to reach their students, but how do you do that online? They have to try and detect whether students are keeping up with the material from the reactions of the few who actively participate in the online lectures.'

### Cryptocurrencies

A number of teachers suspect that some of their students have dropped out. Sometimes these suspicions are confirmed by stories they hear. International Land and Water Management teacher Alex Bolding received an email from a student who had disappeared from the radar for 18 months. 'He had quit and made a fortune

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'New first-years hardly know anyone from their degree programmes'

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'I see the most stress among teachers with young children'

with crypto currencies, and now he wanted to continue his studies.' Bolding has also heard stories about lads who dropped out during the lockdowns and threw themselves into gaming. According to Bolding, students are longing for on-campus education. That is allowed again now, but meanwhile 30 of her 65 students taking a course taught by a colleague have tested positive. 'So then you have to go back online.'

### Alone in a room

The first Covid year was doable, according to Bolding. 'At first, we went into crisis mode, quickly designing online courses, learning a lot and trying to make the best of it. But at some point you run out of gas. After one year, I was exhausted and had no enthusiasm left. I noticed the same thing among students: there was a drop in participation online. Understandably. The degree course had sounded great, with a trip abroad or an internship every year, but they haven't had any of that for the past two years.'

Bolding is worried about the damage to mental health caused by the pandemic. 'We now have first-years who only know each other from the Teams icon. That leads to loneliness if you are isolating and you don't live in a friendly student house.' He is concerned about PhD students and teachers too. 'In my group there are eight new PhD students, but I don't know them. They are in the office a lot, but we weren't there anymore. That makes for loneliness. As for the teachers, I see the most stress



among those with young children. My children have left home, so I can work undisturbed at home. Young parents have a hard time anyway because of the broken nights and the work of parenting. But when they both have to work from home and look after their children at the same time, it's really tough.'

### Absent

The Student Council is concerned about the wellbeing of students too. Chair Daphne Louws points to a Trimbos study that shows that 51 per cent of all Dutch university students suffered from mental health problems last year. 'Unless Covid really mutates dangerously again, we never want to go back to fully online education'.

Sterre Hoek van Dijke is in the Education Enhancement working group on behalf of the student council. According to her, a large number of students have reached their Covid expiry date. 'They are at the end of their tether. New first-years hardly know anyone from their degree programmes. More of them are lonely and isolated. And the fun sides of being a student, like going out with friends, were kind of illegal for a long time.' So the opening up of the campus and everything else is very welcome. 'If you go to the campus for classes, you enter the campus bubble too. As you go up the escalator, you see posters advertising activities, or you pop into your student association's office and pick up a flyer. That feels a lot more natural than yet another online pub quiz.'

According to Hoek van Dijke, studying during the lockdowns was especially difficult for the less disciplined students. 'I think students with a lot of self-discipline may have got better grades and passed more courses than usual, because there were fewer distractions, and they could plan things themselves. But if you are not good at planning, it's just very difficult. No one is forcing you to go to those online lectures or checking whether you are paying attention. And if your camera is off, you can follow lectures in bed in your pyjamas. Nobody notices.'

### Phases

For Kasia Groenenberg, a student of International Development Studies, there were different phases in her studies over the past two years. 'At the beginning of the Covid crisis I was very strict and didn't visit anyone except my girlfriend, housemates and family. As a result, I didn't have enough social contacts. At times, I

was completely fed up with it: I was at home all the time on my laptop, I wasn't feeling good about myself – I'd had enough. In the second period of last academic year, I dropped out for three months. I started going for lots of walks then and enjoying the outdoors. Now I'm more relaxed about the Covid rules and I feel a lot better.'

At the beginning of this academic year, Groenenberg went to Florence to do a minor, but there she could only take online classes. 'So I came back to Wageningen early to take classes on campus here.' She is not sure exactly how far behind she is with her studies.

Groenenberg thinks the university should approach all students to ask how they are doing. 'I have a very active study advisor, but there are also students who don't hear from their study advisor.'

Suggestions are being made that the university should organize extra classes, discussions and activities in the coming period to get the students involved again. But beware, says Bettina Bock of the Board of Education, that such efforts are not made at the expense of the already overburdened and exhausted teachers and admin staff. ■

### Increased need for help

Increasing numbers of students are asking the university for help, says student welfare manager Door van der Sloot. In total, about 1200 students applied for help last year - over 200 more than the year before.

'I think this increase can partly be explained by a demoralized mood,' says Van der Sloot. 'We are now in the third lockdown. Students experience motivational and concentration problems, tension, stress and symptoms of depression, ranging from low mood to more serious complaints.'

'We started screening applicants to prevent the waiting lists for student psychologists from getting too long,' Van der Sloot continues. 'What kind of problems are they dealing with and what is the best solution? That could be seeing a psychotherapist, but for less severe cases, it could be an e-health module at Gezondeboel, a training course at Student Training & Support or a session with one of our life coaches, with whom you can have up to three sessions in which to unburden yourself.'

For more information on available help, visit [www.wur.nl/nl/artikel/Hulp-van-Wageningen-University-Research.htm](http://www.wur.nl/nl/artikel/Hulp-van-Wageningen-University-Research.htm)

# Sugar tax to tackle obesity

Half of the Dutch are overweight, and the new cabinet wants to address this by raising the tax on sugary drinks and cutting VAT on fruit and vegetables to zero. This is stated in the coalition agreement. Will this sugar tax make the difference?

Text Nicole van 't Wout Hofland

**T**here is nothing bad about sugar in itself. It is a source of energy for the brain and body and it occurs naturally in vegetables, fruit and milk. The problem lies in the sugars that the food industry adds to products. 'Sugary drinks are particularly unhealthy,' says Edith Feskens, professor of Human Nutrition and Health. That is because liquids are quickly absorbed by the body, while our satiety hormones, which normally make us feel full, work less quickly. This makes it easy to consume too much sugar. 'Research tells us that sugary drinks contribute to obesity and that children and adults from the lower socio-economic classes are most likely to consume lots of soft drinks,' says Feskens.

## Ten per cent?

The central government made agreements with civil society organizations and manufacturers in 2018 with a view to improving the health of the Dutch population. Manufacturers promised to make their products healthier by adding

less sugar to soft drinks, for example. The government hoped to avoid a sugar tax this way, but in 2021 it became apparent that the deals were not having enough impact.

So the new cabinet now wants to introduce the tax on sugary soft drinks after all. This will make the Netherlands the 44th country with this tax. It is not yet clear how high the tax will be, but its success depends on that. Just a few cents on the price will not make any difference to the average consumer. According to the World Health Organization (WHO), the price of soft drinks would have to go up by 20 per cent to have an effect on their sales. In most countries with a sugar tax the percentage is lower: around 10 per cent. Nevertheless, the on-average 10 per cent tax on sugary drinks seems to be working in other countries, concluded the National Institute for Public Health and the Environment (RIVM) in 2020. Although it is too early to say whether overweight is reduced by the sugar tax, consumers in the United Kingdom and

Norway did buy more of the healthier alternatives and sales of taxed soft drinks did drop. But the picture may be distorted. Consumers sometimes went to neighbouring countries to buy cheap soft drinks. This could happen in the Netherlands, with people shopping for soft drinks in Germany, where there is no sugar tax.

## Healthy food environment

We should not be blinded by sales figures though; reducing sales is not the only purpose of the tax. It is incentivizing soft drink manufacturers to produce alternatives with less or no sugar. As a result, healthier and cheaper soft drinks are coming on the market. A possible disadvantage is that manufacturers often replace sugar with sweeteners. 'That is not necessarily detrimental to health,' says Feskens. 'But it does taste different.'

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**'A problem is rarely solved by a single measure'**

A further benefit is that the sugar tax and product reform help create a healthier food environment. Acceptance research by the VU University of Amsterdam showed that the Dutch are positive about a sugar tax. They see the benefit of it, as long as it is offset by cheaper healthy products. 'That is precisely the reason why the government will make fruit and vegetables cheaper,' says Feskens. 'It stimulates people to choose healthy food and steers them away from unhealthy options.'

### Additional measures

'There are of course several factors that influence purchasing behaviour, but price is one of the strongest drivers,' says Ellen van Kleef, associate professor in Marketing and Consumer Behaviour. She is not sure whether the government should explicitly communicate the sugar tax to society. 'On the one hand, that could make consumers aware of what food is healthy, but on the other hand, it could provoke resistance.' Happily, a price increase without further explanation has the desired effect anyway. 'When the price of a product suddenly goes up, consumers look for a cheaper

## 'Children from lower socio-economic classes are most likely to consume lots of soft drinks'

alternative,' says Van Kleef. When a sugar tax is introduced, that alternative is also very likely to be healthier.

But the government should not pin all its hopes on the sugar tax, thinks Van Kleef: 'There is an awful lot of marketing around unhealthy products. It is good that the government is creating a countermovement, but you rarely solve a problem with a single measure'. That is why Van Kleef would like to see additional interventions, such as promoting healthy lunches at primary and secondary schools. 'That way you expose the next generation to a healthy food environment and teach them to make healthy choices from an early age.'

So shouldn't there also be a tax on solid sugary products such as sweets? Nutrition expert Feskens does not think so. 'In solid foods, the calorie count plays a more important role than the sugars,' explains Feskens. If a tax is imposed on sugar in these products too, the industry will replace sugar not only with sweeteners but also with fat and starch, so the number of calories in the product will stay roughly the same.

The anti-obesity sugar tax is not guaranteed to succeed, but scientists believe it can contribute to a healthier diet. It remains to be seen what the sugar tax will look like in the Netherlands, when exactly it will be introduced and how the Dutch will react to it. In any case, the government has taken a first step by including the plan in the coalition agreement. ■



Our satiety hormones can't keep up with the speed at which the body absorbs sugary soft drinks • Photo Shutterstock



## ▶ A CLASS OF ITS OWN

a series on remarkable courses

# Genetic tracking reveals the invisible

Every organism leaves traces of its DNA behind it. On this Master's course, students learn to decipher those traces like CSI detectives. To find out which insects have been on a plant, for example. Or what a wolf had for lunch. Detective work with DNA.



Text Roelof Kleis

**A**dvanced Molecular Ecology is the name of the course. And advanced it certainly is. What the group of 20 students get done in four days of lab work borders on the incredible. Deducing a wolf's menu from its faeces, for instance. Or detecting the presence of amphibians using a sample of pond water. Or mapping the community of bacteria that generate electricity around the roots in a plant-based fuel cell. These are just a few of the experiments that the students come up with themselves. 'All their own terrific molecular ecological research projects,' says course leader Reindert Nijland (Marine Zoology) enthusiastically. Most students focus on e-DNA, which stands for environmental DNA. In other words: DNA traces from the environment. It is no coincidence that this is Nijland's specialism. But the course's range is broader than that. One student sequenced the complete genome of a sponge, for example.

## Own interests

Students of Animal Sciences Bob van Strien and Michou Weimar are studying water samples from Blijdorp Zoo in Rotterdam to see if the DNA traces in the water tell them which fish inhabit the aquarium. The results were a little disappointing: they could only identify one of the five fish in the aquarium – a sturgeon. 'We're a bit

fed up about that,' says Weimar honestly. It's anyone's guess why their score was so low. 'Maybe it has to do with the size of the fish. Those sturgeon are really big; up to one metre long. Perhaps they excrete more DNA than the other fish.'

'Or the water is too well-filtered', Van Strien suggests.

'The water in those aquariums has to be very clean, otherwise visitors to the zoo won't see anything.'

The Advanced Molecular Ecology course came into existence about three years ago, partly in the lecturers' own interests. 'We noticed that the students who came to the lab to do research for their Master's thesis or PhD lacked the hands-on experience they need to do molecular research. We had to train them individually every time. That's not very practical, hence the course. In the first two weeks, they have lectures in which we explain the theory. After that, they get going on their own research.' Essential equipment for that research is the

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**'This sequencing of DNA would have been impossible a few years ago'**



Niek Palmen and Agata Marchi try to identify traces of insect DNA on flowers. • Photo Guy Ackermans

MinION, a device that can sequence DNA codes quickly and affordably. It is Nijland's toy. 'A few years ago, this kind of DNA sequencing would have been quite impossible. Much too expensive. And this is still an expensive course. A flow-cell, the heart of the machine in which the DNA code is sequenced, costs 500 euros. But we can do this because there are also PhD students using it for their own research and they can pay for it from their own budget.'

### Invisible

The possibilities opened up by e-DNA are amazing. Niek Palmen and Agata Marchi are using traces of DNA to try to find out which insects have been eating a plant. This idea came from geneticist Bart Pannebakker (Laboratory for Genetics), who leads the course together with Nijland and Hendrik-Jan Megens (Breeding and Genomics). He recently came across a Danish study in which this had been tried. 'I work on the genetics and evolution of insects and how you can apply that in biological pest control. With e-DNA you can reveal things that you would not normally see. Super cool.'

In September, Pannebakker picked ivy, comfrey and white wood aster flowers, put them in a tube and froze them. In the lab, the students identified the various

visitors to the flowers. Here too, they had mixed results. They found traces of herbivores, pollinators and insects that use the flower as a shelter. But there were also traces of species that are not found in the Netherlands. Not to worry. Contamination of samples is a common problem, said Nijland in the discussion after the students' poster presentations.

### Bat droppings

'I had actually expected them to find traces of bees,' says Pannebakker. 'I live next door to a school where a bee garden has been created. But no: nothing. The common green bottle fly was detected though, which is interesting. It seems they play an important role as pollinators — an eye-opener for me. That is the great thing about this type of research: it reveals the invisible. I want to see more of this. It is still in its infancy, but I want to find out what we can do with it.'

And it is not just idle curiosity. 'Two years ago, we analysed the diet of bats from their droppings. That even resulted in a Veni proposal,' says Nijland. 'And together with the NIOO (the Netherlands Institute of Ecology, ed.) we have mapped the genome of a rotifer. A paper on that will be published soon. So this work provides some useful data for ongoing research.' ■

# CAMPUS EXPEDITION ON PROTEIN TRANSITION

Sound artist and WUR's artist in residence Remco de Kluizenaar has spent many months exploring the protein transition. He interviewed experts, visited their labs and investigated the sounds made by materials and machines. He compiled all these impressions into a campus audio tour which, in his own words, 'gives your ears a glimpse' of WUR's work on the protein transition. The tour is available from today. A report in soundbites.

## Sounds from the lab

Everywhere the audio tour takes you, you hear sounds being used by the sound artist to illustrate key concepts from protein science. An abstract concept such as 'exponential growth', for example, is brought to life in a self-replicating series of bleeps, buzzes and other sounds from the lab. Those familiar with them may recognize the sound of a pipette machine and a 3D food printer, among other things.



Text Marieke Enter

## Duckweed protein

The beat is fast and the background chorus invigorating. After a few seconds you hear a roaring voiceover: 'Rrrrru-bisco - for 350 million years *the* vegetable protein that has provided you, as a land animal, with all your essential amino acids!' Near the Forum, the audio tour has you listening in to a conversation with researcher Ingrid van der Meer about the potential of water lentils (duckweed) as a new, sustainable source of protein, until De Kluizenaar pauses the conversation to express his admiration for the rubisco protein. He thought such a promising ingredient deserved its own jingle, so he went into action. The result is a ditty that settles firmly on your eardrums - the 'Rubiscohooo!' jingle is a first-class earworm.

## THE SOUND OF KNOWLEDGE

In the audio tour, you can hear interview fragments with experts such as Thijs Fijen (on bumble bees and white lupins), Ariette Matser (Plant Meat Matters: plant-based meat substitutes), Ingrid van der Meer (water lentils for human consumption), Barbara van Mierlo (socio-economic aspects of the topic), Marleen Onwezen (consumer behaviour), Stacy Pyett (WUR's position in the protein transition) and Teun Veldkamp (protein-rich fly larvae as animal feed).



### Missionary zeal

Will we manage to save the world? How can we feed the growing number of people on this planet with our limited food supply? *Resource* is reminded of the Biblical story of the five loaves and two fishes that fed 5000 people. The protein transition sometimes evokes religious associations for De Kluizenaar too. He confesses, for example, to a missionary zeal for converting people to a new diet. In the audio tour, this is expressed in a Gregorian-sounding chant of *'Et salvator mundi in transitione proteinum'*, after which the artist invites you to walk with him on water – meaning over the Forum bridge.

### Left and right

You usually listen to the tour while walking. But just past Carus, De Kluizenaar asks you to take a seat on the bench there, for a more contemplative perspective on the protein transition. What do you actually think about this transition yourself, and what food for thought on the matter can be offered by which WUR scientists? While various considerations pop up from your left and right (literally), the sound artist also gives you a glimpse of how he arrived at his own opinion. 'During my exploration for this project, I found many answers, but at least as many new questions too.' Fortunately, De Kluizenaar still has some time to find more answers: his appointment as artist in residence has just been extended by a year.



### The story of the oleosomes

One of the most intriguing sounds on the tour was given to De Kluizenaar after a sound competition was organized for protein scientists to generate material. In this case, the NMR resonance of hydrogen nuclei in a protein has been converted into sound using software. 'The participants called the sound "the story of the oleosomes", because the vibrations say something about the composition of the protein. Very poetic actually,' says De Kluizenaar. He describes the sound as 'inimitable, quite spacy and a bit creepy, and impossible to reproduce with any physical instrument'. This is another of the sounds you hear during the audio tour. And if you wonder what it looks like: the illustration accompanying this article shows the sound wave of that NMR sound.

## AN AUDIO CAMPUS TOUR

The audio tour (in Dutch only) works with the 'Echoes interactive sound walks' app and is therefore available 24/7. You'll find information on how to download the tour at [remcodekluizenaar.nl/campustour](http://remcodekluizenaar.nl/campustour).

**Tip:** For the best audio experience, take the tour using headphones or earphones. And make sure your phone is fully charged: the GPS tracking uses quite a lot of battery power.

The starting point is at the Axis building; the audio tour will guide you from there. At a normal walking pace, it will take you about 65 minutes. With lunch-hour walkers in mind, De Kluizenaar has structured the tour so that it can easily be divided into three walks of about 20 minutes.

The campus audio tour is intended for both the WUR community and people without direct links to the university. De Kluizenaar, who himself lives in Wageningen, hopes that it will appeal to 'ordinary' Wageningers as well. 'There are plenty of local residents who seldom or never come to the campus, even though the university forms a large part of the town's identity. This is a fun and accessible way to get a feel for what's happening on campus,' he thinks.

## Key people: Marleen Slagt

They are indispensable on the campus: the cleaners, caretakers, caterers, gardeners, receptionists - the list is long. *Resource* seeks out these key people. This time, meet Marleen Slagt, a switchboard operator in Actio. Text Milou van der Horst ♦ Photo Guy Ackermans

If you call the university's main phone number, you get me or my colleague on the line. I'm asked all kinds of questions by all kinds of people, mostly external. They want to speak to staff members to ask for help or cooperation. I usually just put the call through, but sometimes I provide information, like to lost parcel-delivery people or when we are inundated by calls with the same question. It's nicest and the most challenging when callers don't know who they need to talk to, because then I comb the organization like a detective. Because I studied biology, I understand the jargon.

### **'I learnt how to find out what a caller is really looking for'**

My detective work is also aided by our search system, in which terms are linked to employees. Sometimes I get such specific questions that I wonder if the university does anything with them, but I am often surprised. Last week, a son asked if we could help him enable his father to see his old-fashioned sprinkler for fruit trees one more time. Our Museum of Historical Agricultural Machinery no longer exists, so I put him through to the Special Collections Department. I'm afraid I don't know how that ended. I couldn't find a job in biology after my studies, so I took up naturopathy. I had a homeopathy practice for 12 years and then I was a yoga teacher for 10 years. But I wanted to work for an organization as well, and I heard about this vacancy

through a yoga student. Working in the academic world appeals to me.

Over the past 10 years, I have learned how to find out what a caller is really looking for. You tend to jump in and address their first question immediately, but if you probe a bit further, you often find people mean something else. In my early days, we used to follow a protocol, so it has become ingrained in me that I answer the phone with a smile and always remain friendly and polite, even when people are angry. Angry callers are the most unpleasant aspect of my job. It was good for me that Covid-19 made it necessary to work from home, because my muscular disease limits my mobility. I will be retiring in two years. We'll be switching to a new system soon, which I dread. But we'll see; I take each day as it comes.





## Campus ♦ residents

### BBS

Wageningen food technology graduate Martijn Bosmans is head of Plant-Based Food development at the German company Bösch Boden Spies (BBS). While his German colleagues mainly work on concept development and sales of dried fruit and nuts, the focus in Wageningen is on ingredients for plant-based meat and dairy substitutes. His day-to-day work is to run a small three-person start-up in Plus Ultra, which currently focuses largely on forging links with partners, customers and consultancy clients. Bosmans used to work for the Wageningen-based firm Contined, which was acquired by BBS in 2016 and closed down last year. Now he gets to set up an innovation hub on the Wageningen campus. 'We want to develop plant-based products together with partners, but also to carry out consultancy assignments and do the logistics and sales for other food companies.'

In the process, Bosmans is also tasked with bridging the gap between the Wageningen experts and the German family business (140 employees). 'We are currently running a project on plant-based cheese for a German client.'

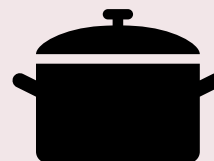
### 'We want to develop plant-based products together with partners'

We notice a lot of plant-based food companies springing up around Europe, with varying levels of nutritional knowledge at their disposal. We want to help these companies with product development and sales.'

Bosmans is not yet collaborating with WUR but he is working on setting up an Open Kitchen on the campus. 'Just like other start-ups, we want to develop and test plant-based products in a kitchen that is accessible to others as well. I am looking for partners in this venture.' AS

There are about 100 companies on the campus. We introduce them to you in *Resource*. This time: BBS in Plus Ultra.

All the flavours of the world can be found in the WUR community. Xiaoyong Zhang, a PhD student in Consumer Behaviour, shares a Chinese New Year dish.



Flavours of WUR

## Tang Yuan (汤圆)

'Tang Yuan is a rice ball with sugar, black sesame, peanuts, Osmanthus flowers or bean paste. The round shape of the rice ball symbolizes family reunion. In my hometown Hubei, Tang Yuan welcomes the New Year like the *oliebol* in the Netherlands! I adapted my Tang Yuan recipe by replacing sugar with Wageningen honey. I would say it is a Chinese Tang Yuan with a Wageningen twist.'

### Ingredients (20 rice balls)

- 80g black sesame seeds
- 6-8 tbsp Wageningen honey
- 130g glutinous rice flour
- 6 tbsp lukewarm water

- 1 Toast the sesame seeds in a frying pan over low heat.
- 2 Let the sesame seeds cool off and grind them fine.
- 3 Add honey and mix until the mixture is a firm, smooth mass.
- 4 Divide into 20 portions. Shape each piece into a ball. Set aside.
- 5 In a mixing bowl, add lukewarm water to the rice flour while stirring with chopsticks.
- 6 Knead with your hands until a smooth, soft dough forms
- 7 Roll the dough into 20 balls.
- 8 Flatten a piece of dough into a round wrapper with your fingers.
- 9 Put a honey-sesame ball in the middle. Gently close the dough around it. Repeat with the remaining filling and dough.
- 10 Bring a large pot of water to a boil. Gently slide in the Tang Yuan one by one.
- 11 Push them around with the back of a cooking spoon to stop

them sticking to the bottom of the pot.

- 12 When all the balls float to the surface, it is cooked.
- 13 Dish out along with some soup and serve warm.



**Xiaoyong Zhang**  
PhD student of Consumer Behaviour from China

### 10-euro lunch voucher

Share your recipe with *Resource* and get an **Aurora voucher worth 10 euros**.  
resource@wur.nl





# UNIQUE houses

There are student houses and there are weird and wonderful student houses. In this column we visit the latter. This time it's Pomona 3.

**Júlia:** 'The house consists of two residential groups, upstairs and downstairs. There are also four independent flats. In total, there are 16 of us, of 15 different nationalities.'

**Thibault:** 'Rumour has it that the landlord doesn't want any residents who speak Dutch, so that we don't complain, ha ha.'

**Dominique:** 'About a third of the residents are students, the rest have jobs. Most of those are doing a PhD.'

**Iris:** 'A lot of the conversation at the table is about PhD research. They almost got me doing a PhD!'

**Thibault:** 'Now that almost everyone works from home, it's nice that we're all living together. Working from home is very different when you are alone in a flat. Covid has helped us to grow closer as a house. We used to eat together now and then, on special occasions, but now

we do so every week.'

**Dominique:** 'Whenever there's anything to celebrate, we organize a dinner.'

**Emma:** 'Like now, Chinese New Year!'

**Jin:** 'That will be a traditional meal. Chicken soup, dumplings, fish and spring rolls. And we will decorate the house.'

**Iris:** 'So that's how it always goes. Honestly, 80 per cent of our conversations are about food. If you want to live here, you either have to love cooking or you have to love eating.'

**Iris:** 'Before it was a shared house, there was a chicken farm here. The land around it was an apple orchard, part of Pomona nursery.'

**Thibault:** 'There are still some very old apple trees in the garden.'

**Iris:** 'The landlady used to live here herself, with her family. It was one big villa at the time, but later they divided it up and created student rooms and flats in it.'

**Thibault:** 'When I first moved in here, it was a real maze to me. There are three



## Pomona 3

### Residents:

Aaditya (India), Alison (Malta), Angel (Spain), Daria (Poland), Dedji (Sri Lanka), Dominique (Germany), Emma (Canada), Iris (Netherlands), Jin (China), Júlia (Hungary), Maïmouna (Mali), Miia (Finland), Thibault (France), Sebastián (Austria), Varsha (India) and Yurdanur (Turkey)

### UNIQUE because:

there are PhD researchers everywhere you look

different entrances and staircases all over the place.'

**Iris:** 'If you go away for a long time, you put your plants in the living room and the others look after them. Around Christmas, it's a bizarre sight, because everyone is abroad. The living room is a jungle then and the few people left at home have a full-time job looking after the plants.'

Do you want your UNIQUE house to feature in *Resource* too? Send an email to [resource@wur.nl](mailto:resource@wur.nl)



In the photo: Júlia, Emma, Thibault, Jin, Yurdanur, Daria, Miia, Maïmouna, Iris, Alison, Dominique • Photo Guy Ackermans

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## 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](https://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)

**Editorial staff** Willem Andrée (editor-in-chief), Helene Seevinck (managing editor), Roelof Kleis (editor), Tessa Louwerens (editor), Albert Sikkema (editor), Luuk Zegers (editor), Nicole van 't Wout Hofland (freelance editor), Marieke Enter (freelance editor), Stijn Schreven (freelance 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

**Cover Photography** Duncan de Fey

**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** Corporate Communications & Marketing,  
Wageningen University & Research





## Non-binary

**‘There is someone in my workgroup who calls themselves non-binary: neither man nor woman. I find this difficult to understand, and maybe I don’t have to. But I also have difficulty knowing what to call them and switching from he/she to... well, what exactly? When talking to this person I lose all spontaneity. How can/should I deal with this?’**

R.K., Master’s student  
(name known to the editors)



## Examine yourself

‘It is not uncommon to get confused when you cannot identify a person with a specific gender. That is because gender is central to our identity. We learned to identify people as men or women right from birth and in our everyday life and mainstream media you nearly always see binary forms of gender. When something so crucial gets blurred, it is a great opportunity to transform the structure that we have learned to experience as natural. Ask yourself: Why am I troubled by this? Why is binary gender reassuring? What are the negative consequences of the gender binary? This will help you get to know yourself better and put you more at ease when you talk to your course mate. It will also help to allow diverse gender expressions to emerge and get accepted.’  
Chizu Sato, lecturer and researcher in Gender Studies

## Just people

‘Non-binary people are just people. You can ask your group member how they prefer to be addressed. That may take some getting used to, but I’m sure your fellow student will understand that the adjustment takes some time. And as for understanding a non-binary person’s perspective ... Well, I don’t always understand my “binary” colleagues either!’  
Coretta Jongeling, Resource online coordinator

## Practise

‘Thank you for asking this question. Personally, I always find that new forms of address take a bit of getting used to, even though I am non-binary myself. You can ask non-binary people which forms of address you can use; it is not rude to do so. Then you can practise that form out loud when the person is not around, perhaps in conversation with others or alone in your room. That will help you familiarize yourself with new forms of address. Remember that it is normal to find it hard to switch and as long as you do your best to adapt to the person you are addressing, you are not doing anything wrong.’  
Chris, former student

## Ask politely

‘Good to hear you want to know what this person’s pronouns are. It shows that you respect their gender identity. If you are not sure how to address this person, you can ask, as long as you do so politely. For example: “What pronouns would you like me to use for you? I want to make sure I get it right.” You can still be spontaneous. You do not usually use pronouns when you talk to the person directly, only when you refer to the person. If you do make a mistake, apologize and correct yourself.’  
Heather ten Ham, Diversity & Inclusion Officer for Students

## Heart-to-heart

‘Have you had an open, honest conversation with this person, a real heart-to-heart? It is my experience that the main requirement for inclusion is not understanding so much as sincerity and empathy. Empathizing with the transformation process this person is going through will lead to more dialogue, more engagement and therefore more spontaneity. To start the conversation, you could simply walk up and say: “Hi, I don’t want to cause you stress or exclude you, so I’ve been wondering how you prefer to be addressed?”’  
Percy Cicilia Jr., Diversity & Inclusion Officer and DARE Project Leader

## NEXT WURRY

**‘My thesis is going badly. When I started, I was brimming with energy, but a pile-up of Covid-related setbacks both socially and in my education have had a negative effect on me. I’ve been at it for a year and a half and I’m falling further and further behind schedule. I’ve been given productivity tips and I’ve tried mindfulness, but it hasn’t helped. I’m feeling anxious. How can I get my old energy and motivation back?’**

M., Master’s student  
(name known to the editors)

*Do you have advice, suggestions or tips for this Wurrier? Email [resource@wur.nl](mailto:resource@wur.nl) by 18 February (max. 100 words). If you need advice yourself, email your problem (max. 50 words) to [resource@wur.nl](mailto:resource@wur.nl) with subject noWURries.*