

Resource

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FOREWORD

Too late

What is the quietest part of the campus? The Dassenbos. The little wood on the western edge of the campus is a peaceful oasis. There is something magical about how quiet it is there. I wouldn't mind betting that more people have stood on the moon than, say, Executive Board members have been into the Dassenbos. And that is as it should be, the board members have decided. The Dassenbos is a nature area and not to be used as an extension of the campus, declares the brand-new memo 'Strengthening the Dassenbos'. Reporter Stijn Schreven came across it when he looked into the history of the Dassenbos (p.12). Well, it's great that WUR at last has a viewpoint on future of the Dassenbos. Albeit after the board was happy, until recently, to let a ring road run right through it. After it has just located a gigantic new education building right next to the wood, beaming light far into it. And after a bus lane and a cycle path have been planned along its southern edge, for which a bit of the old woodland has already been felled. Strengthening the Dassenbos is a great initiative. The wood could use a bit of strengthening. But it does seem like too little too late.

Roelof Kleis
Science editor





AAARGH!

Imagine taking your dog for a walk in the woods and suddenly coming across these three creatures... Youth society Unitas organized a ghostly tour of the Wagenin-gen woods last Monday evening. Fortunately, all the spectres were actually just Unitas members in disguise. Or were they? cj

Photo Guy Ackemans

ABP will sell its shares in fossil fuels

The pension fund is set to sell all its shares in oil, gas and coal over the next 18 months. Campaign groups have been trying to get the pension fund for government and education employees to change its course for years.

The shares in fossil fuels account for about three per cent of the total share portfolio, with a value of 15 billion euros. ABP says the sale will not have a negative impact on pensions.

Previously, the pension fund had tried to maintain a dialogue with oil and gas companies to persuade them to become more sustainable, but it has now abandoned that approach. 'We see insufficient opportunity for us as a shareholder to push for the necessary energy transition at these companies,' explains ABP.

Deforestation

The pension fund will continue to invest in major consumers of fossil energy. It wants to encourage them to speed up the



Photo from the collection Anefo/Wikimedia Commons

ABP has not yet reached a decision on investments in companies involved in deforestation

transition from fossil fuels to sustainable energy. 'We will mainly focus on firms in the car industry and aviation and on electricity companies.'

ABP has not yet reached a decision on its investments in companies involved in deforestation and the loss of biodiversity.

The WUR campaign group 'Grey Hair, Green Forests' had protested against ABP's investments in livestock farming and mining in the Amazon region and has since been talking to ABP about how it can prevent deforestation, CO₂ emissions and the loss of biodiversity. This would need to be incorporated in the revision of ABP's Sustainable & Responsible Investment Policy, due to be completed in mid-2022. HOP/AS

Failure to cut NWO research proposals

The Dutch Research Council (NWO) and the universities agreed in 2017 that the universities would pre-select research proposals for submission. This was to reduce the number of proposals submitted to the NWO and increase the chances of success. Four years later, nothing has come of that agreement.

In 2017, the joint universities submitted a total of 5730 research proposals to the NWO, data from the research council reveals. In 2020, that number had increased to 6803 proposals. Wageningen University submitted 299 proposals in 2017 and 273 in 2020.

Dutch researchers have been complaining for years about having to submit proposals to funders without much success. The NWO talent programmes and the National Science Agenda grant funding to between

15 and 20 per cent of the proposals. The universities and the NWO agree that this low success rate must be improved.

'The big issue is the systematic shortage of research funding,' says spokesperson Belinda van der Gaag of the NWO. This keeps researchers too dependent on research grants, forcing them to submit proposals continuously. The NWO and the universities have been calling on government to increase the research budget for years.

Quota

Meanwhile, the NWO seeks to take measures to reduce the number of proposals and alleviate the pressure on researchers to submit proposals. The NWO has improved its communication so researchers can see what funds will become available when and what conditions apply,

enabling them to plan their proposals better. But no firm measures are in place yet for reducing the number of propos-

'The big issue is the systematic shortage of research funding'

als, although, the NWO intends to look into making more use of quotas. 'Some programmes already have quotas,' says Van der Gaag. 'There are advantages and disadvantages to this system, which we are going to evaluate.' AS

Read more about how WUR deals with the mountain of research proposals (and rejections) on pages 26-27.

1

WUR is the best place in the world to study environmental sciences and ecology, says U.S. News, the second biggest news magazine in the US. Environmental and ecological research at Wageningen is in first place worldwide in the magazine's annual ranking. Institutes are assessed for the number of articles they published in the period 2015-2019 and how often these articles are cited by other scientists. RK

RoomService on campus

This year, as an exception to the rule, the cultural festival RoomService is being held on campus and not in people's living rooms. It's a classic for its fans, offering theatre, dance or music in the cosy setting of a Wageningen living room. But that setting is being avoided this year because of the coronavirus. Instead, the 2021 version is a classRoomService, which will take place on Thursday 11 November in rooms on campus, says organizer Studium Generale. Guests will not have to show a Covid pass: officially the festival is an extra-curricular activity and therefore only open to students and staff at WUR. You can see three of the full set of nine shows for 7.50 euros. There is space for nearly 500 guests in total. RK

Working in a bird box

A workspace in the shape of a bird box has been on campus for almost a month now. It is a wooden cabin in amongst the greenery next to the Zodiac pond.

The cabin looks rather like one of those Tiny Houses, but it isn't. It is in fact a workspace available for people to work in as individuals or groups. The new workspace is one of various developments aimed at increasing the visibility of WUR's sustainability focus. Because that is currently a problem, says head of

The bird-box cabin fits with the 100 nest boxes that have been put up on campus. The nest boxes are for great tits, which are needed to combat the oak processionary caterpillar. The slogan is 'From damaged trees ... to happy birds'.

Carbon neutral

The bird-box cabin refers to the little nesting boxes. 'And it ties in with the wish to have more working areas outdoors,' explains Fortuin. A QR code on the cabin takes you to a website with background information on the campaign. This approach has been used for other topics too.

There are communications on rubbish bins, aboveground heat/cold storage points and coffee machines. The largest message is the slogan on the windbreak next to the square at Orion. 'From Carbon Energy to Carbon Neutral', it says

The workspace is intended to make WUR's sustainability focus more visible

Integrated Facilities Management Joris Fortuin. 'We brainstormed with WUR's corporate social responsibility group about how to change this.' The result is a major campaign.

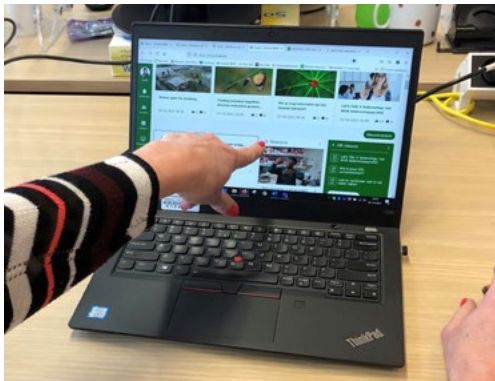
If you have been paying attention you will already have seen the evidence.



Photo Roelof Kleis

in large green letters, referring to the carbon-neutral energy consumption at WUR.

More messages will appear in the next while. 'We are slowly extending the campaign,' says Fortuin. 'The concept is always the same but the messages will be different'. RK



Find *Resource* on the intranet

WUR has given the intranet a facelift. Have you lost the *Resource* tile too? We've got the golden tip for you for restoring *Resource* news to the top of the page.

At the top of the homepage of the new intranet are four tiles with news bulletins. But *Resource* is conspicuous by its absence from this daily news supply. We've been moved down the page in what is known as a 'widget'. The good thing about a widget is that you can move it. First, find the *Resource* tile on the homepage of the intranet. You will see a square made up of 12 dots in the top left corner of the tile. Move your mouse over this square and a kind of plus sign with little arrows will appear. Click on it and drag *Resource* up the page to just under the four tiles to be sure of your daily dose of independent journalism about what's going on in WUR and among WUR folk. [WA](#)

Exhibition of Sower sculptor

The creator of the campus statue *The Sower* was a man of many talents, as an exhibition in the Casteelse Poort museum in Wageningen shows.

The museum in the city centre has dedicated a room to recently bought or donated works by the Wageningen sculptor August Falise. Added to these works are pieces that the museum already possessed or has on loan, including the prototype of *The Sower* from WUR's Special Collections department.

This painted plaster statue from 1920 is much smaller than the limestone work at the entrance to the Atlas building on the campus. The campus sculpture was not in fact made by Falise himself but by Hendrik Hagedoorn in his studio in Scheveningen. It was donated to the then agricultural college in 1926 to celebrate 50 years of agricultural education in Wageningen.

Sacred Heart

The newly acquired works include a terracotta sculpture of a man holding an infant in one arm and a skittle in the other. The sculpture was delivered in pieces and has since been fully restored. *The Sacred Heart* is another such sculpture. Falise was commissioned to make many such works by

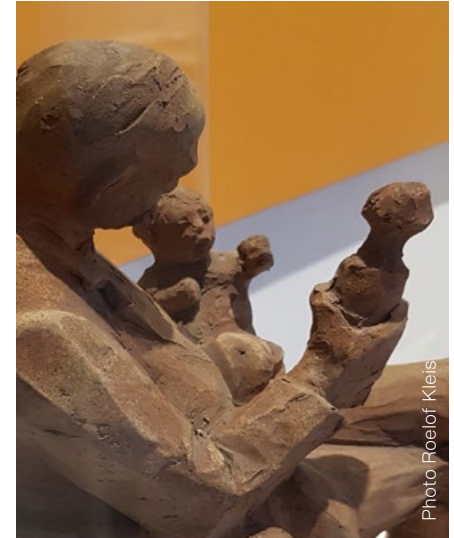


Photo: Roelof Kleis

the Catholic churches, curator Saskia Werner explains.

The museum has committed to collecting Falise's works. It is not known how many of them there are. Werner: 'I have a list, which came from a Falise exhibition in 2010, with 80 works currently exhibited in public or semi-public spaces throughout the country.' There are likely to be many more works in private collections, Werner thinks. Falise lived from 1875 to 1936, and came from a family of plasterers in Belgium, who made decorative ceilings and ornaments for outside walls. [NK](#)

Physics lesson in 60 seconds

Why does mozzarella melt but not halloumi? Why does red wine make your mouth feel dry? These and other questions are answered by Raisa Rudge in short video clips on Instagram.

Rudge started making the Physics Friday clips when she was doing her PhD on mouthfeel in food. 'My research was at the point where physics, chemistry and food technol-

ogy meet. Sometimes I had to explain some physics to food scientists or something about wine to a physicist. I discovered it is not easy as a scientist to explain your work in straightforward language.'

'I always keep my nieces in mind when I make the videos: they have to be able to understand them. Anyway, using unnecessarily complicated words doesn't help anyone — you just

put people off. I may have a PhD but I too prefer my science in everyday language.'

'I used to share my holiday photos on Instagram but then I thought: there is much more to my life than travelling and enjoying a beer.' [CJ](#)

If this has made you curious, check out @ryzenshine on Instagram.



Plant is prepared for pests

Wild relatives of the black mustard spice plant defend themselves against pests with chemical defences and strong leaves.

When defending themselves against their first enemy, the plants allow for the fact that they will have to ward off other insects later in the season. They are prepared for the most likely sequence of attackers. These findings are from research by Wageningen entomologists published in *Nature Plants*. Plants don't know whether or when they will be attacked, so most plants only invest in defence when they are actually under attack. In the meanwhile, they invest all their energy in growing and flowering. 'Plants

The plants are prepared for the most likely sequence of attackers

know quite specifically which insect is attacking,' says researcher Daan Mertens. 'They know

from the kind of damage to the plant cells, the substances that are released and the insect's distinctive saliva. The plant uses those signals to launch a targeted defence with the production of chemical defences.'

Risk management

But the entomologists discovered something surprising in their research on black mustard (*Brassica nigra*). Mertens: 'They are prepared for the harmful insects to appear in a particular order. So you get one particular aphid early in the season, for example, then a certain species of caterpillar.' The wild mustard plant doesn't use up all its antibodies on the first pest; it makes sure it keep enough ammunition for later threats. Mertens calls this 'risk management' that has developed through natural selection. The plant can cope with the most common sequence of pests.

Plant breeders can use this insight to develop more robust crops, say the researchers. AS

Nature reserves sustain inequality

Private game reserves in South Africa protect not only wildlife, but also social inequality, says Lerato Thakholi in her PhD thesis.

Thakholi investigated the distribution of land use and labour in and around private game reserves in northeastern South Africa, near Mozambique and the Kruger National Park. These reserves are located near villages where about two million black South Africans live under harsh conditions, characterized by limited access to clean drinking water and high unemployment rates.

In a historical analysis, Thakholi shows that the apartheid state granted land to white farmers in the 19th century. Some black people were detained and made to work for free, while

many others were expelled to areas adjacent to these new white farms. Livestock farming proved challenging in these areas due to low meat prices and predators from the nearby Kruger National Park. That is why the area

was converted into a game reserve in the 1960s.

The local population did not benefit from this development, says Thakholi, even after the end of the apartheid regime in 1994. One of the reasons for this was the Game Theft Act of 1991, which turned wild animals into private property and effectively assigned more value to them than to the lives of black people.

Today, Western tourists stay in 5-star lodges, while the black guards, maintenance and hospitality workers are poorly paid and live in shabby staff housing. To reduce this inequality, all employees in the private nature reserve should be paid at least a minimum wage, Thakholi says. But to really reduce inequality, the land needs to be distributed more fairly. 'There is a land redistribution programme, but so far the local authorities and the powerful private landowners have managed to thwart this programme.' AS

To reduce inequality, the land must be distributed fairly



Photo Shutterstock



A Little Wiser

How can marine mammals stay underwater so long?

Humans wouldn't last long underwater without a supply of oxygen. The current record, according to the Guinness Book of Records, is 24 minutes. Most marine mammals can beat that without batting a fin. They can easily stay underwater for an hour without coming up for air. How do they do it?

'Marine mammals have various tricks for doing that,' says Sophie Brasseur, a researcher at Wageningen Marine Research. Diving mammals can store more oxygen in their bodies than non-diving mammals such as humans. 'One of the reasons for that is that they have more haemoglobin in their blood. That is the protein in red blood cells, which transports oxygen,' explains Brasseur. They also have more blood, proportionally, and they have a lot more myoglobin in their muscles, which binds oxygen just like haemoglobin. So they can store a lot of oxygen in their blood and muscles.

But even with all that extra oxygen, it is not easy to dive for such long periods, so the animals use the oxygen economically. 'Their heartbeat slows down when they dive. In a seal, it can slow down from 120 heartbeats per minute above water to 30 per minute during a dive,' says Brasseur. 'Also, the blood only flows to the essential organs, such as the brain and the heart.'

Sperm whales and dolphins sometimes dive to great depths and stay underwater for 40 to 60 minutes, and sometimes even longer. The record was set by the Cuvier's beaked whale (*Ziphius*

cavirostris). Researchers tagged these animals and found that they dived to 2992 metres and stayed underwater for up to 138 minutes. Brasseur: 'Those are the extremes, though. Large marine mammals can dive for longer than small ones because small animals can't store as much oxygen in proportion to their body size. How long a dive lasts has to do with the depth and the animal's activity level. It takes longer to dive deeper, and the less the animal exerts itself, the longer it can stay underwater.'

'Most seals in the North Sea can dive down hundreds of metres, but in many places the sea is no more than 40 to 50 metres deep. In that case, a seal dives for a few minutes, although they are capable of staying underwater for more than 20 minutes.' τ



'The heartbeat slows down during a dive'

Sophie Brasseur, researcher at Wageningen Marine Research

Every day we are bombarded with sometimes contradictory information. So what are the facts of the matter? In this feature, a scientist answers your burning questions. Email us at redactie@resource.nl

Illustration Marly Hendricks



Print your own food

WUR and TNO are going to work with the food industry to print food for the ministry of Defence and for COPD patients.

The project in question (called Imagine) is all about personalized food. At present, people with special dietary needs have to make do with dietary advice. The next step is 3D printing of 'personal' food. A 3D printer makes the product according to a personalized recipe. A consortium of WUR, TNO, food companies and the ministry of Defence are going to work on this idea in the coming three years. The aim is to design such a printer with accessories, and then to test the

'Example of added value is printing fresh food in a submarine where space is scarce'

machine, says project leader Martijn Noort of Food & Biobased Research.

A long process at the ministry preceded the project. 'In that process, various scenarios were identified in which 3D-printing food could have added value,' explains Noort. 'For producing fresh food in a submarine where space is scarce, for example. Or a snack to keep fighter pilots alert.'

'One of the concepts has been worked out down to the level of a recipe for a product,' continues Noort. 'To what extent can we stretch the recipe by varying the composition of carbohydrates, proteins and fats, while keeping the product printable and tasty? We have even done the first consumer study on that.'

As well as the Defence ministry, the printer is also being tested for COPD patients in a hospital. Besides WUR, TNO and the ministry of Defence, others involved in Imagine are the GEA Group, Solipharma, Tate & Lyle and General Mills. Imagine is being developed within the Digital Food Processing Initiative of WUR, TNO and Eindhoven University of Technology. RK

Sheep farming in northern Spain is in a critical phase

Sheep farming in the northern Spanish province of Huesca is slowly dying out. Wim Paas, a PhD candidate in Plant Production Systems, is looking for solutions to that.

The number of sheep in the region was approximately halved between 2005 and 2019. About 15 per cent of the pastures have been abandoned and are now gradually becoming forested, causing the 'sheep landscape' with its typical vegetation and insects to disappear. Schools, shops, and other facilities in the remote villages are also disappearing.

This gradual development could accelerate in the coming years, says Paas in an article in *Ecological Indicators*. Sheep farming is currently not very profitable and not many people are prepared to start farming sheep in the region. The existing farmers keep between 200 and 1000 sheep and sell them for meat, but meat prices are low and expansion is not an option. Farmers are also struggling with increasingly frequent droughts. The only thing that keeps the sheep farms going is the EU subsidy of about 24 euros per sheep per year.

GPS

Are there alternatives? One of the options is more intensive farming methods: more sheep per hectare, purchasing animal feed and ensuring

more meat per lamb through a breeding programme. That seems technically feasible, but this scenario is less sustainable and leads to more competition with other meat sectors. Also, it does not fit well with the EU's Farm to Fork strategy, so it could put the EU subsidies at risk.

The second option is to continue with extensive sheep farming with technological support. This includes GPS trackers and electronic fences to compensate for the lack of shepherds.

The EU subsidy of 24 euros per sheep per year is keeping the sheep farms going

These are extra costs, so the sheep farmers would have to negotiate a better price for their lamb through local supply chains. This technologically extensive system fits better with the Farm to Fork strategy, but also requires a high level of investment. There are no easy solutions, Paas notes. Doing nothing is not an option, so the sheep farmers will have to make choices in the near future. AS



Ducks with unusual offspring

Imagine a Chiloé wigeon mating with a Philippine duck. The result is unusual offspring.

The male and female chicks in the nest look different. That is strange, says ecologist Jente Ottenburghs of Wildlife Ecology and Conservation. Both parents are sexually monochromatic, meaning the male and female birds look the same. But that is not the case for their offspring.

Ottenburghs published an article about this in *Ecology and Evolution*. The phenomenon was observed by Jan Harteman in Winssen. Harteman keeps and breeds

water birds. He is not normally interested in cross-breeds, but he knows

The male and female birds look the same, but not in these offspring

Ottenburghs and his research on cross-breeds. So Harteman sent him an email.

'Asking whether I was interested. Otherwise they would end up in a casserole.'

'I asked him to let them mature,' explains Ottenburghs. 'A cross between these two species has never been described before.' That is not surprising. The two duck species are found a long way apart from one another in nature, and they would not normally come into contact.

Reversing evolution

According to Ottenburghs, the two species' evolutionary lines diverged about 13 million years ago. The parents' ancestors were probably still sexually dimorphic and looked different. That difference in appearance disappeared in the course of evolution. Harteman's cross-breed has essentially reversed millions of years of evolution.



The male chicks. Photo Jan Harteman

But this is not a lasting development: the eggs produced by the offspring were infertile. Ottenburghs says the unusual ducks are interesting because they help us understand how colour differences arise. 'In ducks, the female plumage is the result of the production of the oestrogen hormone, regulated by so-called modifier genes.' Given the difference in colour in the offspring, he suspects the modifiers are found on the sex chromosomes. RK

In other news science with a wink

◆ BIDDING

The first bid in a negotiation is crucial, shows research by the University of Technology Sydney. Bidding too far below the asking price is insulting and sours the process. Bidding too high leads to paying too much. The best thing is to decide what your final offer is going to be. You then divide the difference between that and the asking price by two and subtract that amount from your final offer: voilà! Your starting bid. Don't tell anyone else, of course.

◆ DIFFERENT, THOUGH

Humans and chimpanzees are almost identical, genetically. So why are we so different? According

to researchers at Lund University, the difference lies in what is known as junk DNA: the 98 per cent of DNA that doesn't code for proteins. They have concluded this from stem cell research on the development of brain cells. Junk DNA enables the brain cells of humans and chimpanzees to develop differently.

◆ FAMOUS

Fame doesn't last, shows a study by EPFL university in Lausanne. The researchers hit upon this insight by studying how often 2000 public figures were in the news or mentioned on Twitter in the year after their death. The celebrities whose fame lasted lon-

gest were pop musicians or others in the cultural sector who have left a lasting legacy. The researchers' conclusion: the pursuit of fame is vain and pointless.

◆ FILM

The 37-year-old Russian Yulia Peresild is the first actress to have worked in space. She spent 12 days in the ISS space station to shoot the film *The Challenge* ('Vizov'). The actress was in space with the film director. Hollywood is working on shooting a film in space too. The leading actor in this film, which NASA and Elon Musk's SpaceX are involved in, is Tom Cruise. You know, from *Mission Impossible*... RK

Heating soya proteins produces juicier and healthier vegetarian meat

The food industry uses a standard method to extract proteins from soya beans. PhD student Yu Peng altered this industrial process so that the proteins form vegetarian 'meat' that is juicier and healthier.

The consumption of meat substitutes has increased since the 1990s and with it the demand for soya proteins, the key ingredient of these products. But standard soya proteins are not equally suited for all applications. 'Each end product, such as vegan cheese, burgers and yoghurt, requires soya proteins with very different properties,' Peng explains. The PhD candidate hopes that altering these properties will enable the industry to make soya proteins with just the right properties for the product they are used in.

Peng added a step at the end of the industrial process for making soya pro-

tein to increase its juiciness. She heated the purified proteins to 70 degrees Celsius. This alters the properties so that the substance retains more water, like a sponge, and less water runs out of the vegetarian meat when it is fried.

'This heating stage is a promising way to make meat substitutes more meat-like,' says Peng.

Strong bones

Meat substitutes and other plant-based foodstuffs contain little calcium, which is essential for healthy teeth and bones. This is why vegans often don't get enough calcium from their diet. In the standard process, sodium is added to make the proteins pH-neutral and improve their solubility in water. Peng discovered the same result could be achieved by adding calcium hydrox-

Heating enables the product to retain more water, like a sponge

ide, which increases the calcium content of the soya protein.

Does that make extra

calcium in the soya protein the solution for vegans? 'This new extra step ensures that each gram of protein extract contains six milligrams of calcium,' Peng explains. 'That's still not enough, since the daily recommended dosage is nearly one gram. But it is a step in the right direction.' NVTWH

The soft song of the zebra finch

You hardly ever hear zebra finches singing in the wild. Why not? Birds sing loudly to attract a partner or to mark their territory, or so the theory goes. But the zebra finch, an avian model for research on birdsong, challenges this idea. The most extensively researched songbird in the world pretty much whispers, discovered PhD candidate Hugo Loning.

Loning conducted his research on the zebra finch's song in Australia, the home of this little bird, which is also a popular pet. Loning recorded the song and calls of the birds, edited his recordings to obtain a standard sound, and measured how far the different frequencies of that sound carried.

Simultaneous brooding

He then compared the picture he got to the zebra finch's hearing threshold, which had been determined in previous research. And what did he find? Zebra finches cannot

They only hear each other at nine metres away

adds. 'At nine metres, you hear only some of the song.' Loning also studied the distance between the birds when they sing.

That distance averages just one and a half metres, an observation that is supported by the measurements.

So the zebra finch's song is too soft to communicate across distances. Which is not something they need to do, as these birds are not territorial. Nor do they use their song to attract a potential mate: zebra finches are monogamous and faithful by

hear each other from more than nine metres away. 'And that is the detection range,' Loning

nature. Most of the singing happens once a partner has already been found.

So why do zebra finches sing? Loning: 'My hypothesis is that they time brooding this way. There are advantages to having their young at the same time. It makes it easier for young birds to find mates, for example.' RK

 resource-online.nl **FULL STORY ONLINE**



Photo Hugo Loning

GREEN HERITAGE ON THE CAMPUS: THE DASSENBOS

Right next-door to Aurora is an ancient wood. For a while, the provincial government of Gelderland was threatening to sacrifice it to the ring road, but that plan has definitely been scrapped now. The wood has been saved. What now? *Resource* delves into the history and the future of the Dassenbos.



Text Stijn Schreven

We are standing on the edge of the wood between two rows of old pollarded alder trees on an amazingly sunny October day. Patrick Jansen walks ahead of me over the last bit of unpaved road on the Binnenveld, the Buissteeg. He is associate professor of Wildlife Ecology and Conservation, and a history lover. To our right, trees grow on wide ridges interspersed with narrow ditches. This is the Dassenbos (Badger Wood), a nature area in the western corner of the campus which was very nearly sacrificed to a ring road. Jansen fought against that road as the then chair of Vereniging Mooi Wageningen (the Beautiful Wageningen Association). In October 2020, the province of Gelderland chose an alternative route, and the Dassenbos was saved. Jansen: ‘You can see the Dassenbos on a 1752 map drawn up by the Wageningen and Bennekom *Dijkstoel* (the predecessor of today’s water boards, ed.). It forms the last remnants of De Hooge Hoef estate, along with the hedgerow along the Bornsesteeg.’ What is special about this wood is in its soil, says Jansen: ‘It is one of the best examples of a ‘rabatten wood’ in the area, complete with an embankment around it, which is still clearly visible.’ A rabatten wood is a drainage system of ditches and mounds on which coppiced oaks are grown. The Binnenveld used to be a lot wetter than it is now, and the land

the Dassenbos is on was not suitable for agriculture. It was even too wet for coppicing, but not if you dug ditches and piled the earth from them in mounds. The oak bark provided tannin for tanning leather, and the stakes that grew out of the stumps were used for firewood. Every eight to ten years, the trees were chopped down and new shoots grew. ‘On aerial photos from 1945, the Dassenbos is bare: the wood had been harvested. Logical, because there was an acute shortage of firewood. After the war, one or two shoots per coppiced stump were allowed to continue growing into the trees we see today. So these shoots are over 70 years old, and the stumps they grew from much older than that.’

Hands-off

‘The trees here are not just of an indigenous species, but are of local stock,’ adds Jansen. ‘The seed originated in this district. There aren’t many places left in the Netherlands where that is the case.’ Which is why the Cultural Heritage Agency of the Netherlands has designated the wood as green heritage. Jansen: ‘Sadly, that heritage is not well protected. It is gradually getting damaged all over the Netherlands.’ The ring road has been scrapped but now the wood is in danger of losing trees to a cycle path (see inset, ed.), says Hans Brons, a member of the board of Mooi Wageningen.



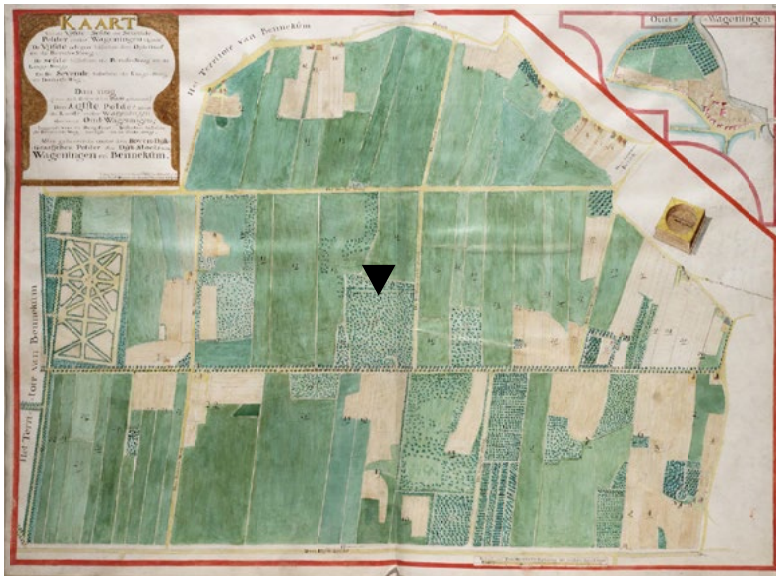
A peep at how you can prepare a small, unique part of the campus for the future • Photo Guy Ackermans

‘IT’S LIKE CUTTING OFF A STRIP OF REMBRANDT’S NIGHT WATCH’

He would prefer to see the wood come under different ownership, such as the Dutch Society for Nature Conservation, Natuurmonumenten. ‘Then it will be protected for ever.’ Patrick Jansen doesn’t see the need for that, as long as WUR leaves the wood alone: ‘Hands-off management is management too. Just wait and see what happens; you don’t always have to intervene.’ To compensate for the felling of trees for the cycle path, Lex Roders of Facilities and Services is working on a plan for replanting around the wood. Roders: ‘We want to improve the wood on the northern side, as well as plant shrubs to the south and north to discourage people from going into the woods.’

Facilities and Services always involves ecologists in plans on the campus – a singularly WUR approach, according to Roders. But the compensation plan doesn’t go down well with Patrick Jansen: ‘It’s like cutting off a strip of Rembrandt’s *Night Watch* and sticking a piece the same size on the other side of it. That’s not how this works. These trees and the embankment are part of cultural history. They are irreplaceable.’ Ecologist Wieger Wamelink sketches two long-term scenarios. ‘The first option is to keep things as they are now.’ Of course, you allow for rejuvenation of the wood when a tree dies, or you plant a new one. Wamelink: ‘That is appropriate to this forest, which was planted in the first place. That way it can last another couple of centuries, because those oaks can grow to be 200 years





Patrick Jansen: 'You can see the Dassenbos on a 1752 map drawn up by the Wageningen and Bennekom *Dijkstoeft*. (see arrow)

old. That is inexpensive and doesn't take much effort.' Wamelink would go for this option, personally. A second option is an intensive restoration of the original coppiced wood, he says. That would not be easy because the area has largely been drained. He explains: 'You would then (a) have to restore the mounds and (b) find a way to make the wood swampy again without making the Noordwest neighbourhood any wetter.' What is more, you would have to harvest the wood regularly. Wamelink: 'That would change the wood a lot, making it much more open. I don't know if that's what anyone wants.'

Undisturbed research

'A lot of common woodland birds brood in the wood, such as blackbirds, robins and tits, as well as green and pied woodpeckers,' says Henk van der Jeugd, a researcher at the Centre for Avian Migration and Demography (at NIOO-KNAW). Van der Jeugd has been ringing birds in the woods on behalf of the centre since 2013. He and his colleagues collect data on birds and their role in transmitting infectious diseases such as the Usutu virus. He is pleased about the planned replanting: 'When we first went into the woods in 2013, the northern section was a beautiful swamp with reeds and young willows, coarse vegetation varying from tall oak trees to smaller trees.' In the same year, that coarseness gave way to grassland. 'It would be nice to have that natural buffer zone back.'

The trees themselves are being studied too. Harm Bartholomeus, assistant professor at the Laboratory for Geo-Information Science and Remote Sensing: 'It's brilliant to have a place on your own campus that you can walk to in your lunch hour to take measurements or read sensors.' Bartholomeus' group has been measuring the structure and light in the wood for years, using lasers and cameras. With these methods, they

FELLING TREES FOR A CYCLE PATH

At the beginning of this year, Facilities and Services at WUR felled 14 trees between the Dassenbos and the bus lane for a cycle path past Aurora. Lex Roders of Facilities and Services: 'Every day, thousands of cyclists come to buildings north of the bus lane from the Mondriaanlaan. We want as few of them as possible crossing the bus lane because that is dangerous. So we want to get cyclists from the Mondriaanlaan to the northern side of the bus lane straightaway.'

'We were not allowed to create a cycle path without planning permission because the location is designated as Greenery,' says Roders. 'It is not part of the Dassenbos, which is designated Nature. We reported the felling plan to the province, and they agreed to it.' The province did say, however, that historical maps show that this was old woodland, on which trees have grown for at least 100 years without interruption. On such woodland, replanting is required on the same land. If the woodland is younger, replanting can take place elsewhere. Facilities and Services got Eelerwoude consultancy firm to sample the soil around the felled trees. The consultants concluded that it was not old woodland soil.

Patrick Jansen and the Mooi Wageningen association disagree. The trees were on the embankment, which is why Mooi Wageningen objects to the planned cycle path. Jansen: 'That embankment is part of the rabatten structure, and there is a drainage plan behind it. WUR felled those trees without a licence, and then removed the stumps. Brons: 'Eelerwoude's conclusion conflicts with the cadastral maps and other studies, which were done by WUR in fact.' A 1983 report on the Dassenbos by the then landowner DLO (now Wageningen Research) mentions the embankment and calls the Dassenbos a 'fine example, and a unique one in this area, of old coppiced rabatten woodland.'

calibrate satellite images. He hopes the trees will survive with the wood, because the greater the timespan, the more useful the measurements. He would like to see the woods being used more broadly for research, including in the education programme: 'Last year, our students took detailed measurements of the Dassenbos. A wood like this is perfect for final year students who want to take frequent measurements.' The Executive Board says the Dassenbos has important value as nature on the campus, and WUR therefore wants to keep its designation as nature in the zoning plans. Research will continue to be possible in the wood. But in order to preserve it, it will not be made accessible for recreational purposes: there won't be any paths through the wood, and natural barriers such as shrubs will be put in place. The board will follow the plans described in the Green Vision of 2019 and Facilities and Services' replanting plan (memo on Strengthening the Dassenbos, 2021). ■

Colour blind

I'm holding a report that promises to unfold the mystery of my personality. As I read it, I realize that the mystery will prevail. Based on 25 questions, a computer has generated inconsistent sentences: 'You're adventurous and you avoid new situations.' It's also filled with platitudes that everyone can relate to. A horoscope. Such an HR horoscope is required for academics at our university who wish to be promoted. The one I had to take divides humanity into four colours. How wonderfully clear. All the complex layers of personality reduced to four boxes. This four-colour personality test was created by someone from show business. He was fascinated by Jung's typologies, on which these colour assessments are based. There seems to be little scientific evidence

'Dividing humanity into four colours. Wonderfully clear'

for the claims made by these personality tests. Yet they represent a lucrative industry consisting of training courses for coaches and tests for clients. This might lead to some cognitive dissonance: once you have spent a lot of time and money on learning something, you start to believe in it even if the facts belie it. Since everyone is

using it, people start to believe that it must be reliable, and it becomes a self-reinforcing process. All very well for the business world to follow fads, but incomprehensible for universities, where we promise to critically observe the world with probing intellectual rigour.

As a scientist who studies biodiversity, I understand that you need categories to make sense of life. However, if you make the categories too broad, you lose nuance. For example, if all trees, grasses and flowers were grouped together under the heading 'plants', the Amazon could not be distinguished from our campus. Furthermore, I suspect that categorizations of personalities may be culturally determined. Bear in mind that Jung's work was not entirely free of discrimination either. Although those tests are not intended to be discriminatory, they do make it easy for people to sort their colleagues into simplistic stereotypes: 'He is such a blue.'

In a time when universities are eager to tackle structural biases and promote inclusivity, these personality tests should be submitted to some serious scrutiny.



Lisa Becking

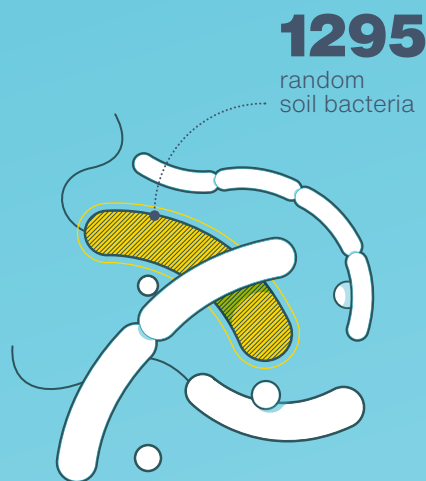
Lisa Becking is an assistant professor at the Marine Animal Ecology Group, a researcher at Wageningen Marine Research and a board member of the national Young Academy, partly under the auspices of the Royal Netherlands Academy of Arts & Sciences. She has an eye for art above and below sea level.

IN 5 STEPS

FINDING NEW ANTIBIOTICS

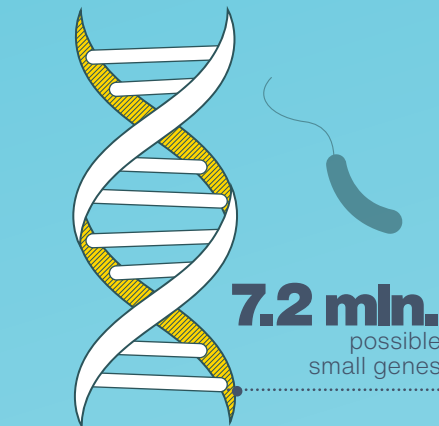
Until now, scientists have looked for new antibiotics among the relatives of bacterial strains that are known to make antibiotics. WUR bio-information scientist Marnix Medema and his Leiden colleagues are now using artificial intelligence and algorithms to look for new antibiotics in thousands of bacteria at the same time.

Text Albert Sikkema • Infographic Pixels&inkt



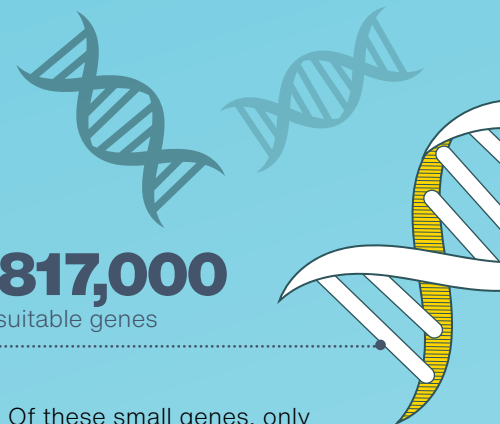
1295
random
soil bacteria

1 The researchers collect a large set of bacterial strains from a soil sample. In the example used here, they isolate 1295 soil bacteria at random, some of which are known to make antibiotics.



7.2 mln.
possible
small genes

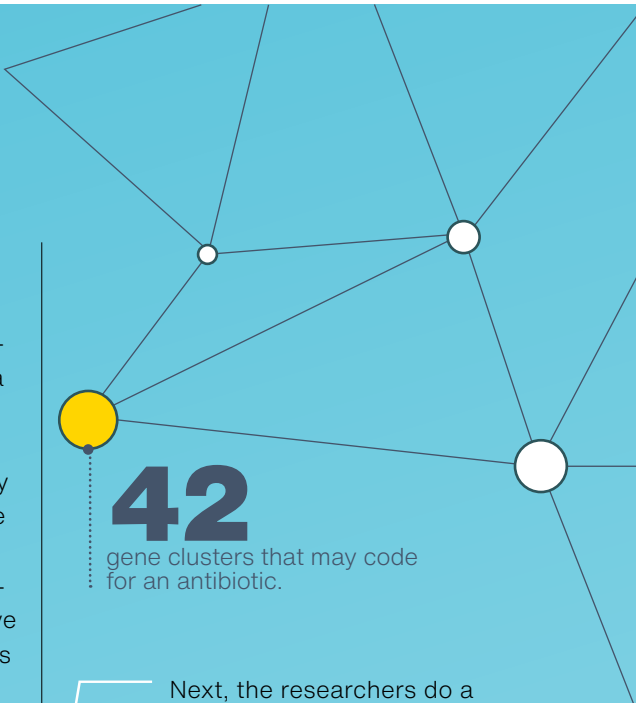
2 The researchers select small genes and fragments of DNA that may be small genes from the genomes of these bacterial strains, because it is known that such small genes can code for the 'raw materials' for antibiotics. By doing this, they obtain 7.2 million possible small genes from the 1295 bacterial strains.



817,000
suitable genes

3 Of these small genes, only genes with particular amino acids and characteristics can make antibiotics. The researchers have created an algorithm that 'learns' to recognize and select these genes. This leaves them with 817,000 genes.

4 Not all bacteria can make antibiotics, as this is a specialized function. So if you compare the DNA of bacteria, the antibiotics gene is a variable gene. The machine therefore selects the variable genes from the 817,000 genes and checks where they are located on the genome. If they are surrounded by other variable genes, that suggests an antibiotic. This is because an antibiotic gene needs to have genes around it that code for enzymes that can 'taper off' the antibiotic. So the machine selects variable gene clusters that make enzymes too. There are 2471 of those.



42
gene clusters that may code for an antibiotic.

5 Next, the researchers do a network analysis to rule out duplicates. They end up with 187 unique gene clusters that may make antibiotics. After that, they check to see which of those gene clusters are already known. This leaves them with 151 new clusters and this group is assessed further manually and on the basis of literature. Some months later, the researchers have 42 gene clusters that may code for an antibiotic.



2471
variable genes

Many variable genes together suggests an antibiotic



Usable antibiotic

Medema and his colleagues have studied one of the 42 highly promising gene clusters. They characterized the molecule made by this gene cluster. That molecule may be an antibiotic. They also studied the enzyme route: the chemical reactions of the supporting genes that lead to this molecule. Medema does not yet know which bacteria switch off this molecule and whether it is therefore a usable antibiotic. That will require more research into the way the molecule works.

HOW TO CATCH A MOSQUITO... OR NOT

It's not easy to swat a mosquito in full flight, Antoine Cribellier discovered. The swatting movement actually helps the creature escape. A paradox? Not really, in-depth research reveals.



Text Roelof Kleis

only a better trap and a company but also a PhD with distinction.

In the trap

Mosquitoes are attracted to the CO₂ we exhale and to the odours we emit. 'They only start to use visual clues when they are a few metres away,' Cribellier explains. 'This includes mosquitoes that hunt at night, such as the malaria mosquito. It is seldom totally dark at night. There is often some moonlight or artificial light. When they are just one metre away, they also use humidity and warmth to identify a landing spot on their prey.'

And that is where Cribellier's work starts. He studied the behaviour of mosquitoes around their 'human' host – in this case actually the Suna mosquito trap. Functionally, this trap resembles a human. Around its cone-shaped edge, the trap emits a mixture of CO₂ and the scent of humans. An airflow in the opposite direction inside the cone subsequently sucks in the mosquito, much like a vacuum cleaner. The trap was designed five years ago in collaboration with Wageningen entomologists.

He hates mosquitoes, actually. Even now, after studying their flight behaviour in detail for four years, and graduating recently with a PhD with distinction. Antoine Cribellier, a biomechanics specialist at WUR, swats them without remorse – although he does admit to finding them a bit more interesting nowadays. Because of their flying behaviour. Ever since he started studying the spiralling flight of a maple seed at secondary school, Cribellier has been fascinated by biomechanics. That led him to study physics, which eventually led him to Wageningen and Florian Muijres' group. Muijres has been unravelling the mosquito's flight for years, using high-speed cameras. A considerable body of knowledge on this has already been amassed.

This fundamental knowledge has its practical applications too. The better we understand the mosquito, the better we are able to fight it. By designing better traps, for instance. Cribellier therefore focused on the flight patterns of mosquitoes as they approach a trap and (all too often) escape it. This yielded not

An extensive field study on the Kenyan island of Rusinga proved its efficacy in the fight against malaria.

In Cribellier's experiments, a suspended Suna trap caught eight per cent of the released mosquitoes. This is increased to 30 per cent if you place the trap upside-down in a standing position. How is this possible? The standing trap attracts more mosquitoes, Cribellier says. 'This could be because of the way the scent spreads, or because the standing trap is visually more attractive.' Whatever the case, many mosquitoes were still able to escape. So there was room for improvement.

Mechanical swat

In collaboration with industrial designer Henry Fairbairn of Delft University of Technology, Cribellier designed an improved model that has now been put into production by the start-up company PreMal under the name M-tego. The M-tego simulates a human host even better by emitting humidity and warmth. The design has been updated too, with excellent results. Cribellier:



Antoine Cribellier studied how mosquitoes behave when close to humans ♦ Photo Guy Ackermans

‘There is a reason why a fly swatter has a meshed surface’

‘The standing trap seems to be more attractive and therefore more effective’

‘Even without the added warmth and humidity, nearly three times more mosquitoes were trapped. And, with these added signals, it catches nearly five times as many as the old model. Video recordings show that the mosquitoes are attracted to the trap’s edges more effectively and remain there longer. The trap appears to be more attractive and therefore more effective.’

Cribellier went on to focus on the role of the airflow in the trap. Could it be that it triggers an escape? To find out, he designed a nifty device that could be considered the pinnacle of his research: the

mechanical fly swatter. The contraption looks like a transparent cylinder with a piston. The device functions much like a ‘hand’ that swats a mosquito that is released in the cylinder. A rapid infrared camera registers the mosquito’s attempts at escape at a speed of 12,500 frames per second. This enabled Cribellier to register countless escapes by both nocturnal and diurnal mosquitoes in darkness, twilight and full daylight.

Analysis of the mosquito movements and the induced airflow led to interesting discoveries. ‘The two types of mosquitoes use the visual and airflow signals differently. Nocturnal mosquitoes rely more on their flight behaviour than their sight, while diurnal mosqui-

toes do the exact opposite: they escape more frequently the brighter it is.’ Not surprisingly, mosquitoes see less in the dark than in daylight. In their attempts to escape, mosquitoes use the airflow generated by the attack. The flow doesn’t just push them away, it also triggers an active reaction. Cribellier: ‘About 40 per cent is passive surfing, but 60 per cent of the movement is generated by the mosquito itself. During its escape, you can clearly see an increase in velocity away from the “hand”.’

‘So, if you swat a mosquito, you are actually helping it escape’, Cribellier concludes. ‘And this is not even all that surprising; there is a reason why a fly-swatter has a meshed surface. This is to limit the displacement of air.’ In the current state of research, it is not easy to apply this knowledge. ‘It is hard to drum up ideas that make use of the airflow. But we gain something by knowing that the airflow plays such an important role in the escape.’ ■

WUR experts deliver their verdict

How sustainable is Shell's new biomass plant?

Shell intends to produce biofuels in a new factory with inputs including waste streams from agriculture. Jacco van Haveren and Wolter Elbersen, who do research on biofuels for Wageningen Food & Biobased Research, assess Shell's options.



Text Albert Sikkema

Shell is going to build a large factory for biofuels in the Port of Rotterdam. The company wants to produce 820,000 tons of biofuels per year, mainly aviation fuel and biodiesel. As raw materials, Shell aims to use waste streams from agriculture and the food industry, such as deep-frying fat and animal fats, possibly supplemented with rape seed oil. Is this factory a sustainable alternative to fossil fuels? Or will it lead to food crops being squeezed out and biodiversity being lost, as Friends of the Earth fears? Biofuels researchers Jacco van Haveren and Wolter Elbersen assess the eight options Shell has for making biofuels out of biomass.

Electricity

The biggest substitute for fossil fuels in the world is not going to be biofuels, but electricity, says Jacco van Haveren. In future, our cars will run on electricity and hydrogen, and not on biodiesel. But it is difficult to fly planes on electricity,

so airlines will have a need for bio-kerosene. The same goes for the shipping industry. 'So it is sensible of Shell to aim mainly at producing biofuels for the aviation industry in its new factory.'

Plant-based and animal oils

The main biofuel for aircraft is HVO (Hydrotreated Vegetable Oil). To make this biodiesel, a technique is used that converts plant-based and animal oils and fats into hydrocarbons. Van Haveren: 'In theory, the technique can convert all plant-based oils into good quality biodiesel and bio-kerosene. Shell is probably going to use this existing technology.'

Deep-frying fat

Shell is going to use deep-frying fat as a raw material. A good choice, says Wolter Elbersen. Once a ban was imposed in reprocessing this fat or using it in livestock feeds, it often used to end up in the sewerage system. It is much better

to reuse it as fuel. The EU has a subsidy for the use of deep-frying fat for biofuels, as a result of which many countries now export their used deep-frying fat to the Netherlands. Soon, Shell's biofuels factory will be positioned at the end of that import route. Elbersen thinks the subsidy is too high, actually, because it makes the used deep-frying fat more valuable than the unused oil, making it tempting to abuse the system.

From deep-frying fat to aviation fuel

Van Haveren and Elbersen estimate that there are about five million tons of used deep-frying fat in the world. That is not as much as it sounds, given that 200 million tons of aviation fuel and five million tons of diesel are used annually in the Netherlands alone. 'You could get all the diesel vehicles in the Netherlands running on deep-frying fat,' says Elbers-

en, 'but then you would have to get every last drop of used fat to the Netherlands. It's a finite supply.'

Rape seed

There are oil crops that could be an alternative raw material. Palm oil is a very suitable raw material for bio-kerosene, but Shell is not getting into that because of the link between palm oil plantations and deforestation. Shell is interested in using rape seed oil, however. Is that sustainable? It depends, says Elbersen. In the 'valorization' of biomaterials there is a kind of hierarchy: first use them for food, then for chemicals and livestock feed, and only then for biofuels. So if rape seed oil is in short supply, you don't use it as a biofuel, but if there is a plentiful supply it makes a good addition to the

It is sensible of Shell to aim mainly at biofuels for the aviation industry

mix in a biomass plant. Then you help create a stable production level for oil seed rape, which is good for food security as well.

Algae

New biological methods of oil production are not yet profitable. WUR has been doing research for years on algae for the production of chemicals and biofuels, but those systems are still not efficient or cheap enough for the production of biofuels.

Potato peelings

But it should be noted that only five per cent of the biomass in the world is plant-based oil or fat. If we want to make enough biomass available to meet the demand, we need to be able to use the other 95 per cent of biomass as well. This includes waste products such as potato peelings, straw and waste streams from sugar beet and sugarcane.

New processing techniques are required to convert these fibrous plant materials into fuel.

Next level

Wageningen Food & Biobased Research is working on new processing techniques for making bio-kerosene out of potato peelings and organic waste. Researchers are examining processing in which bacteria first ferment the biomass into alcohols, which then serve as the chemical building blocks for biofuels. Van Haveren calls these 'next-level biofuels'. They are still under development. If you want to get results on a large scale before 2030, you will have to rely on existing techniques.

Conclusion

In short, to meet the targets for 2030, Shell does not have all that many options for extracting biofuels from biomass, and it is opting for an existing technique. Deep-frying oil is a logical choice of raw material but is in limited supply. If Shell uses a variety of oil crops, the production of bio-kerosene does not have to squeeze out food crops. But if Shell also wants to meet the climate targets for 2050, the company must now invest seriously in new technologies that also convert plant fibres into a new generation of biofuels. ■



Shell will be using deep-frying fat as a raw material. A good choice? • Photo Shutterstock

‘YOU ARE TURNING THE PIG INTO A SOURCE OF SPARE PARTS’

For the first time, surgeons have managed to successfully transplant a pig’s kidney into a human. A medical breakthrough or a step too far in the use of genetically modified animal organs? *Resource* put the question to animal ethics specialist Bernice Bovenkerk.

How do you see this?

‘The ethical debate is not so much about animal welfare as whether you, as a human, want an animal’s organ in your body. That is something animal ethics specialists are less worried about, though, because we don’t see a sharp dividing line between humans and other animals. From an animal ethics perspective, I have problems with the way animals are instrumentalized. You’re turning them into objects, created to serve our needs. The pig is simply a source of donor organs, spare parts. That ignores the fact that an animal is a living, sensate creature with its own interests and goals in life.’

But we eat pork, so what’s the difference?

‘I understand this argument, especially given that donor organs can save lives. In fact, raising pigs for organ donation is perhaps easier to justify than raising them for meat. What is more, we use technology to adapt the animal to suit our purposes in livestock farming too. I see some overlap, but this goes one step further because we are genetically modifying an animal specifically so that it can serve as a donor. That might be a minor genetic modification from a medical perspective, but in animal ethics it is the intention that matters. Moreover, these pigs have to live completely sterile



Surgeons examine the pig's kidney that will be used as a donor organ • ANP Joe Carrotta

lives to make sure they are not exposed to pathogens. That raises the question of whether they can still exhibit natural behaviour and what it means for their welfare, an aspect that I think is paid more attention in livestock farming.’

Aren’t the interests of humans more important than of pigs?

‘People take an anthropocentric view of the world. That means we set the standard based on what we think is important. That standard is fairly arbitrary. If we

were to measure moral status based on swimming speed, for example, things would

‘You can’t say from a neutral standpoint that a pig’s life is worth less’

look very different. Animal ethics works on the assumption that species characteristics should not be the determining factor for moral status. Some people are cleverer than others but we don’t think

that means clever people should be allowed to do what they want with stupid people. Babies can’t talk yet, but we don’t believe we should experiment on them. We’re trapped in our ideas of what we find important in our lives and that is why we attach more value to human lives. That is wrong. From a neutral point of view, you can’t say a human life is more valuable than a pig’s. Ironically, pigs can act as donors precisely because they are so similar to us. The question is also whether animals should be used to solve our shortage of donor organs. It’s our problem. We have this idea that we should do anything we can to live as long as possible, but death is part of life. Perhaps we should accept that. At any rate, I hope the position of the animal is considered in the ethical debate. But I fear ethics will be overtaken by technology, as so often happens.’ TL

Use this QR code to read the full story



HOW TO FILL 1000 VACANCIES

WUR is flourishing. Student numbers continue to grow and Wageningen Research is securing more contracts for research projects. So more staff need to be recruited.

WUR will be advertising more than 1000 new jobs this year, estimates Johan Kanis, recruitment manager at WUR. An increasing proportion of vacancies are hard to fill as there is fierce competition from other universities and knowledge-intensive companies in the job market. That means recruiting new staff takes longer. Kanis cannot give an exact percentage for the vacancies that remain open for a long time. 'That is difficult to say. Sometimes we extend the application period if we haven't found anyone. Or we repost the vacancy online with different requirements to increase the chances of getting someone.'

Domain

What is causing the shortage of candidates? 'WUR operates in a high-impact domain: there are a lot of societal issues relating to agriculture, the climate, biodiversity and the biobased economy, for

instance,' says Kanis. 'Other universities are increasingly involved in this domain, as are food companies and engineering consultancies. They are all fishing in the same pond.' Organizations were cautious about taking on new staff during the coronavirus crisis, but now we seem to be seeing a catch-up effect.

Senior positions are particularly hard to fill. Wageningen Economic Research is looking for experienced staff with a background in economics and knowledge of the domain, but such people have been in short supply for some years. Other science groups such as Food and Biobased Research are now experiencing recruitment problems too.

'They won't look for us; we need to find them'

Companies in the life sciences are also hiring lots of new staff and they often offer better terms and conditions than Wageningen Research.

Searching

Furthermore, senior staff usually already have a job and are not actively looking to move. The Recruitment Team, which was set up in 2019, therefore needs to come up with new ways of finding candidates for senior positions. 'They are not looking for us so we need to find them. We already have an online campaign on LinkedIn and Reddit, but we want to do more to come into contact with experienced employees who might be interested in joining us. For each science group, we are looking at where we can find them.'

The chair groups and WUR support groups such as ICT and Finance are also finding it difficult to recruit senior staff. But the recruitment of young graduates is not a problem. That segment of the job market is international and dynamic, with a lot of temporary contracts. 'We can attract talented scientists with our good reputation and maybe a Tenure Track, and offer them a long-term employment contract,' says Kanis.

Ageing workforce

Over 1000 vacancies for a workforce of just under 7000 is a lot when you consider that hundreds of new employees were hired in recent years. The new hires are needed not just because WUR is growing but also because more staff are leaving. That is due to the ageing workforce — the baby boomers are close to retirement — and because WUR staff are increasingly being poached by other employers. AS



For each science group, we are looking at where they can be found • Photo Shutterstock

Five tips for making the world a better place

A lot of Wageningen students want to help make the world a better place. But how do you do that? Alumnus Nine de Pater, the Friends of the Earth campaign leader in the climate case against Shell, gives us her tips.

Text Albert Sikkema • Photo Shutterstock

1

‘Think carefully about what you see as the heart of the problem. Where should you go to tackle the problem? Who has the power, who is in control? Those are the people your actions should target. The issue I focus on is the climate crisis. I target policymakers and companies because between them, they are keeping the problem of CO₂ emissions and environmental pollution going. But maybe what you want is more vegetation in your neighbourhood. The question is still: which parties control the switches and could make that happen? You can find that out by doing some research, reading up on it and talking to people.’

2

‘Don’t act alone. There are already lots of activist groups. Join the movement that matches your objective and chosen tactic. There are numerous student groups that want to change the university, but there are also local activist groups outside the university, and broader ones such as Friends of the Earth and Extinction Rebellion. Join the group that’s the best fit for you.’



3

‘Choose tactics that suit you. Are you good at writing? Then write stories about your issue. Are you good at public speaking? Then present your action points. Do you like being physically active? Then join in demonstrations. Choose a tactic you enjoy, that you can persevere with and that you feel comfortable with. I’m highly analytical, for example, and good at communicating complex issues. That’s why I’m a researcher and campaign leader in the climate case against Shell. But there are many ways of addressing societal problems. You could also become a lobbyist or an artist in order to make your point.’

4

‘Be bold towards people with more power and experience than you. As a young person, you have a right to speak up. After all, your future is at stake. Be daring. I really had to learn that when I started out. I am critical and unconventional, but it’s not in my nature to seek out conflict. What’s the right moment to make a stand? Sometimes, if you want to make other people think, or to confront them, you have to step out of your comfort zone and engage in conflict.’

5

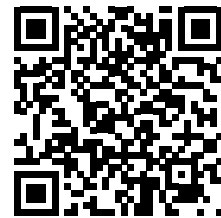
‘Celebrate your successes. Reformers always set the bar high and are not easily satisfied. So specify your intermediate goals and celebrate when you achieve them. For example, when I was a student at Wageningen, we ran a petition for making the university more sustainable. When we had gathered the first 200 signatures, we went to the pub together to celebrate that. And we went again when we reached 2000 signatures. Such celebrations help campaigners to keep up their spirits. A lot of activists forget that, because you do experience setbacks as well. You can’t always be positive; there’ll be sadness and frustration as well. Don’t ignore those feelings, channel them into action. Don’t give up: change is possible.’ ■

‘BE BOLD TOWARDS PEOPLE WITH MORE POWER AND EXPERIENCE THAN YOU’



WE WANT
A FUTURE

Read an interview with Nine de Pater about her work as campaign leader in the climate case against Shell in *Wageningen World* via the QR code.



More and more research proposals (and rejections)

Universities are not doing enough to reduce the number of research proposals submitted to the Dutch Research Council (NWO) and boost the chances of research funding.



Text Albert Sikkema

For years, Dutch researchers have been complaining that they have to submit endless research proposals to funding bodies, without success. In the Talent programmes and National Science Agenda run by the Dutch Research Council (NWO), for example, only 15 to 20 per cent of all applicants get funding. The rest have then written their proposal for nothing. The NWO and the universities have been saying for years that something should be done about that low success rate. In 2017, they agreed that the universities would make a pre-selection of research proposals so that fewer proposals would reach the NWO, increasing the success rate of those that were submitted. Four years later, it appears that nothing came of that agreement. In 2017, the universities submitted 5730 research proposals between them, NWO figures show. In 2020, that number was up to 6803 proposals. Wageningen University submitted 299 proposals in 2017, and 273 four years later. So WUR did not contribute to the rise in proposal numbers, but it can hardly claim to have been selective. So what is holding the universities back? They are not interested in playing at being a mini-NWO, because that costs money without increasing their income

from research. What is more, they are in a catch-22 situation: if you start pre-selecting and other universities do not, you are likely to get fewer research projects funded by the NWO.

Quota

Nevertheless, the universities have been supervising the process more over the past four years, says Henrieke de Ruiter, who coordinates the applications for NWO funding at the WUR Grant Office. The NWO has established quota in several large research programmes such as the Gravity Programme and the Long-term Programme (LTP). That means that if there are a lot of candidates, the universities are forced to assess and select from their own proposals.

WUR has also set up an internal procedure for researchers applying for a Veni or Vidi grant from NWO. The Veni grant is personal funding for recent PhD graduates, and the Vidi is for experienced ▶



researchers. Applicants can take a course on what to pay attention to in an application, and a panel of experts assesses their proposal before it goes to the NWO. This approach pays off, says De Ruiter. The success rate of WUR researchers who applied for a Veni grant in the past three years is much higher than the national average: 31 per cent as opposed to 14 per cent. The success rate for the Vidi grants was 29 per cent for WUR, compared to a national average of 18 per cent. The internal WUR procedure focuses mainly on improving research proposals, rather than selecting them.

But the majority of NWO programmes do not have quotas, nor do the universities have procedures for them, so researchers are still taking a scattergun approach, too many research proposals still come in, and the universities are still talking to the funding body about how to stem

A lot of researchers don't take the time to read the guidelines of research funding bodies carefully

the tide of applications. The big question is: can the universities coordinate and select applications without taking over the work of the NWO?

Stepwise

At present, the usual approach to channelling the enormous stream of proposals is a stepwise procedure in which researchers or research groups write a brief proposal that is assessed in the first round. A small selection of these goes on to the second round, for which a fully

worked-out proposal is required. This is a handy approach for large programmes with many partners who need plenty of time to coordinate their research. But even by this method, the NWO still receives a lot of applications, and honours few of them.

What else could be done? The researchers at the universities could make more effort to write fewer – and better – proposals, thinks De Ruiter. A lot of researchers don't take the time to read the guidelines of research funding bodies carefully. They submit proposals without really knowing what the funding body wants to know, which research framework and jargon is required, and what conditions apply for obtaining funding. It can help to seek advice from experts at the Wageningen Grant Office. A less scattergun approach leads not only to better proposals but often also to fewer proposals. ■



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15–19 November 2021



For WUR students

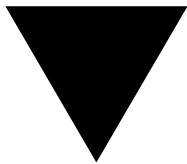
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WAGENINGEN
UNIVERSITY & RESEARCH



Key people: Sterre Wiersma

They are indispensable on the campus: the cleaners, caretakers, caterers, gardeners, receptionists – the list is long. Resource seeks out these key people. They are not all staff – students do their bit as well. This time, meet Sterre Wiersma (23), student and receptionist at Atlas and Gaia/Lumen on the Wageningen campus.

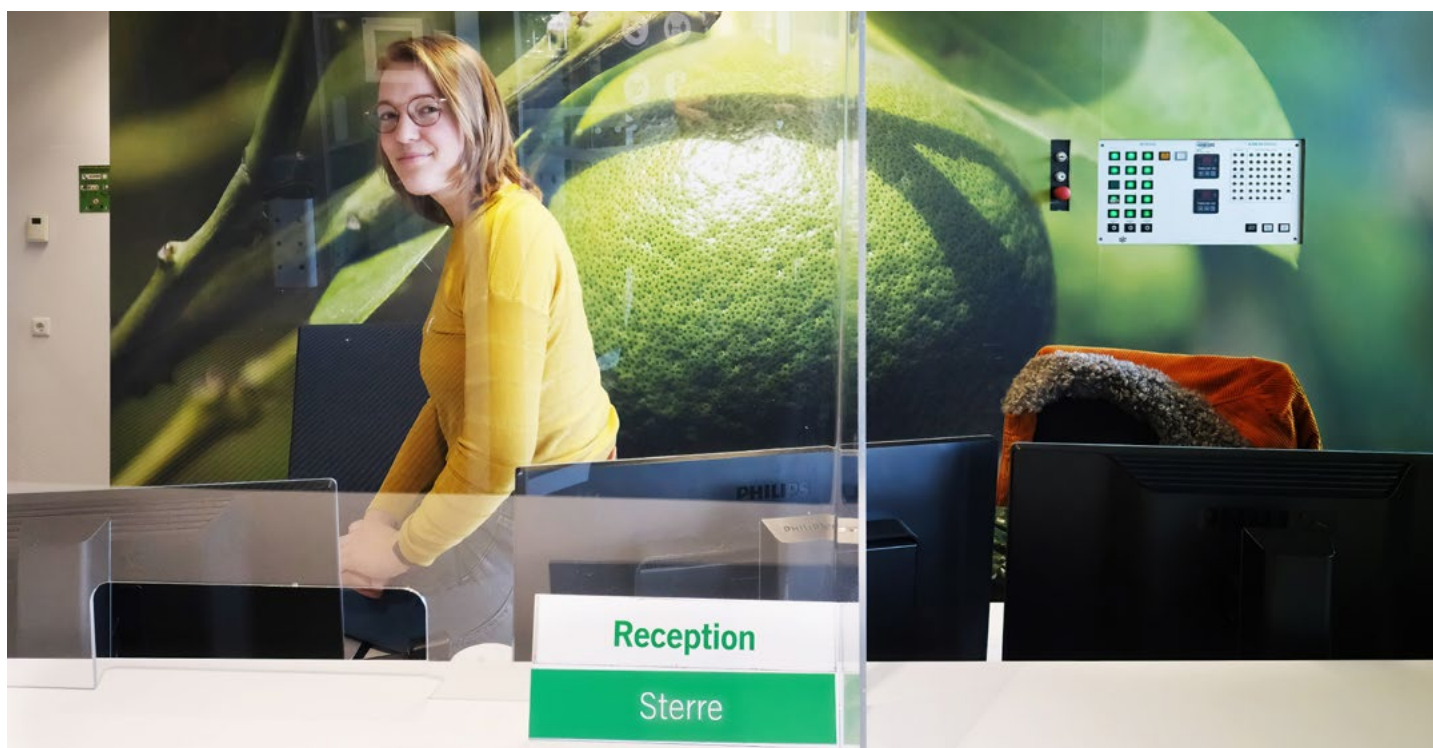
Text Marloes Klaasse • Photo Guy Ackermans

‘We start at 6:45 in the morning, which is extremely early. The receptionists open the doors, switch on the lights, empty the post boxes and see to the room reservations. But the main job of a receptionist is to answer questions, both at the reception desk and by email. We often know the answer and if we don’t, we can refer people to someone who does know. As I look quite young, people don’t always come to me with their questions because they don’t think I’ll know the answer.’

‘What I like best is to help solve a variety of problems’

In Atlas, which is more of a management building, we are the first people anyone sees on entering. This is also where you meet and greet more official visitors. I was here for example when the new mayor of Wageningen came for a visit, although I must admit I didn’t recognize him. Other things happen in Gaia/Lumen and it is busier there because there are more students. Every building is a bit different. As well as these day-to-day tasks, we are the contact point as first-aiders during emergencies. We get alerted, and we inform the right people and make sure

they have the information they need to take action. I once experienced a fire alarm in Gaia/Lumen. The building had to be cleared. Afterwards it turned out that a butterfly had landed on the fire alarm sensor, making it go off. Fortunately, there was nothing wrong that time, although it was a shock for a moment. I hate being on reception with nothing to do. Then you sit there wondering where the work is. What I like best is helping to solve a variety of problems. To do that, the main thing is to know where you can find the answer, and otherwise to look for it yourself first. And it is important not to be afraid of giving people a call to ask them things. Sometimes you only find the answer after four phone calls, and that feels a bit like detective work. Then you’ve really solved something.’





Campus ♦ residents

Witteveen+Bos

The engineering and consultancy firm Witteveen+Bos, which has been in Plus Ultra II for a year now, has much in common with WUR. Location manager Willem Hendriks sums it up: his company makes use of biobased materials in infrastructure projects and seeks WUR's advice on that. The firm employs Wageningen ecologists and hydrologists in the 'Room for the River' programme, as well as working with WUR on climate issues and sustainable land use, and with Wageningen environmental technologists on water projects.

This common ground has been there a long time, but it was last year that Witteveen+Bos (75 years old, a global staff of 1400, headquarters in Deventer) decided to set up an office on the campus. 'We want to intensify the collaboration with WUR,' says Hendriks. The firm is now working with WUR in the Expertise Centre for measuring ammonia levels in livestock

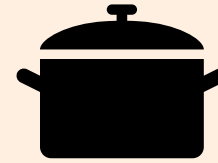
barns. Witteveen+Bos also supervises ACT (Academic Consultancy Training) groups from WUR. These student

The firm has a lot in common with WUR

groups supply the company with new contacts with professors and potential WUR clients, and of course with talented young professionals. About 15 people work at Witteveen+Bos's campus office, most of them staff who live in Wageningen or have a project here. The number will increase, Hendrik thinks, because the company is growing fast. There is a lot of work to be done in the areas of sustainable land use, the transition in the countryside, biobased materials, and waste streams, environmental technology and nature-based solutions in the city and the delta. as

There are about 100 companies on campus. We introduce them to you in *Resource*. This time, Witteveen+Bos in Plus Ultra II.

All the flavours of the world can be found in the WUR community. Michael Sergiev (18), Bachelor's student Environmental Sciences, shares a recipe for the Bulgarian version of moussaka.



Flavours of WUR

Moussaka

'Moussaka is enjoyed in many variations throughout the Balkan region, but I think the Bulgarian version is the best because of the combination of meat and potatoes, together with the tasty topping. The best addition to the moussaka is Bulgarian yoghurt, one of my favourite products. I enjoy this dish very much, especially when my grandmother prepares it.'

- 1 Peel the potatoes and cut them into cubes. Pour 2 tbsp oil and 4 tbsp mashed tomatoes into a dish, add the potatoes and salt, mix lightly and put in an oven preheated to 180C. Bake for 15 minutes.
- 2 Chop the onion, heat 5 tbsp oil and fry the chopped onion in it for a minute.
- 3 Add the minced meat and fry over medium heat for about 5 minutes.
- 4 Then add the seasonings and the remaining tomatoes.
- 5 Remove the potatoes from the oven and place the minced meat on top. Pour 250 ml hot water into the dish. Mix well and bake for 30-40 minutes at 180C.
- 6 For the topping, heat the oil, add the flour and fry for half a minute. Pour in the cold milk and bring to the boil, stirring constantly.
- 7 Then beat the eggs in a bowl and pour the hot mixture over them, stirring constantly.

Ingredients (for 2 persons) :

- 1kg potatoes
- 600g minced meat
- 1 onion
- 250g mashed tomatoes
- 5 tbsp oil
- 1-2 tsp salt
- 2 tsp paprika
- Ground black pepper to taste
- 1 tsp savory

For the topping :

- 6 tbsp oil
- 3 tbsp flour
- 500ml fresh milk
- 3 eggs

- 8 Add the topping to the baked moussaka, return the dish to the oven and bake for 15 minutes.
- 9 After removal, leave for 10 minutes before cutting and serving. Serve with yoghurt if wished.



Michael Sergiev (18)
Bachelor's student
Environmental Sciences



UNIQUE houses

There are student houses and then there are weird and wonderful student houses. In this feature we visit those UNIQUE houses.

Laurens: 'The house is more than a hundred years old, and it has been a student house for 35 years. Well, student house... At the moment, there's only one student actually. The others are doing a PhD or have another job. In the last ten years, the house gradually changed from being a student house to a more... er... adult house?'

Isa: 'It's still the same though, we just have money now, haha. So, we can have ice cream for breakfast and go to the movies. And there are not as many parties as there used to be.'

Adria: 'The difference from other houses, I think, is that many people stay here for a long time. Some of us have been here for six or seven years. Or people lived here for some time, moved away and came back. We have grown with the house.'

Laurens: 'That's why we have a strong connection with the house, and each other.'

Hestia: 'We take care of each other and the house. There's always someone cooking, we eat together every night. It's never a question of whether there will be food. And if something breaks down, you can't just call Idealis to come and fix it. So we learn quite a bit about the maintenance of an old house.'

Isa: 'Because there are a lot of us living here, it soon gets very lively. We often have friends over and there's always something going on. We have pancake breakfasts and organize parties regularly, with good food and live music. A new tradition is to run workshops within the house.'


House :
The Farm

Residents :
Adria Lopez Nadal, Alba Bofill Izquierdo, Angel Chacon Orozco, Foskea Raavel, Hestia Zinsmeister, Ilsa Phillips, Isa Miralles, Laurens van den Berg and Louis Konig.

The owner has his own place on the land.

Unique because :
It is an old farmhouse in the Binnenveld

Alba: 'That happened once!'

Adria: 'Just like on a real farm, we have lots of animals: chickens, turkeys, a goose, cats and horses. And then, of course, the wild animals living on the land.' 

If you too want your UNIQUE house in *Resource* send an email to resource@wur.nl



From left to right: Isa, Hestia, Foskea, Laurens, Alba, Adria and Louis • Photo Guy Ackermans

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Colophon

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Broke

I'm delighted we can party again at last and go to the pub. And I've been doing so regularly with friends and classmates in Wageningen. But alas, it's affecting my bank balance: I'm broke before the end of the month. Does anyone have tips for managing my money better without putting a stop to my social life?

F.d.G., Biology student
(name known to the editors)



Free activities

'Understandable that you want to make use of all the possibilities there are now the Covid measures have been relaxed. To limit your spending, I would advise you to swap activities that cost money for things that are free or cheap. Go for a walk with your friends, for instance, or play sports, play board games, watch a film or cook together. That way you can maintain your social life and still have enough money left. Take the initiative and propose one of those free activities; or talk about this with your friends and open up the subject.'

Roselinde van Nee, PhD student of Marketing and Consumer Behaviour

Bookkeeping

'It is quite possible that your money doesn't just go on partying, but also on unnecessary costs. Keep track of your spending for a month on paper or on your phone. Then you'll discover exactly how much you spend on fixed costs, groceries, sport and leisure activities, and you'll see where you could save money. Instead of shopping every evening, or when you get hungry, shop just once a week with a shopping list. Then you'll avoid impulse buys and stick to the items you really need. Good luck!'

Nicole van 't Wout Hofland, online editor

Fixed budget

'Set a budget for each social activity beforehand. For example, before a night at the pub or a party at a student society, make an agreement with yourself not to spend more than 20 euros that evening. You could even consider leaving your bankcard at home and only bringing cash, so you will not overspend. This approach takes discipline, but it will make you more conscious of how much money you spend and how many drinks you can allow yourself.'

Klaas Daalderop, Master's student of Urban Environmental Management

Store-bought drinks

'Not everyone has the same means, and it can be tricky to follow your wealthier friends around if your bank account cannot keep up. If most of your spending is on beer and other drinks, I suggest partying - or at least starting the party - at home with cheaper store-bought drinks. That way you buy fewer when you are out. When you go out dancing at a club, carry a small bottle of water in case you get thirsty.'

Chloe Girka, Master's student of Geo-Information Science

Job on the side

'Look for a nice weekend job. Then you will earn a bit of extra money and on weekdays you'll have both the time and the money to take part in fun activities.'

Bas Volkert, Bachelor's student of Business and Consumer Sciences

NEXT WURRY

Winter blues

'I'm a student from India and I'm suffering from the winter blues, especially now the clocks have gone back. I'm permanently sleepy and ready for bed by 7 pm. I find it difficult to motivate myself to do things, even fun stuff like a meal with friends. How can I keep my spirits up?'

A.S., Master's student
(name known to the editors)

Do you have advice or tips for this WURrier? Or could you use some good advice yourself? Email your tips or your question (100 words max) by 9 November to resource@wur.nl subject noWURries.