

Fifty complaints

The new schedule doesn't seem so bad after all | **p.6** |

Picking peppers

Sweeper robot can do it, but it is still too slow | **p.15** |

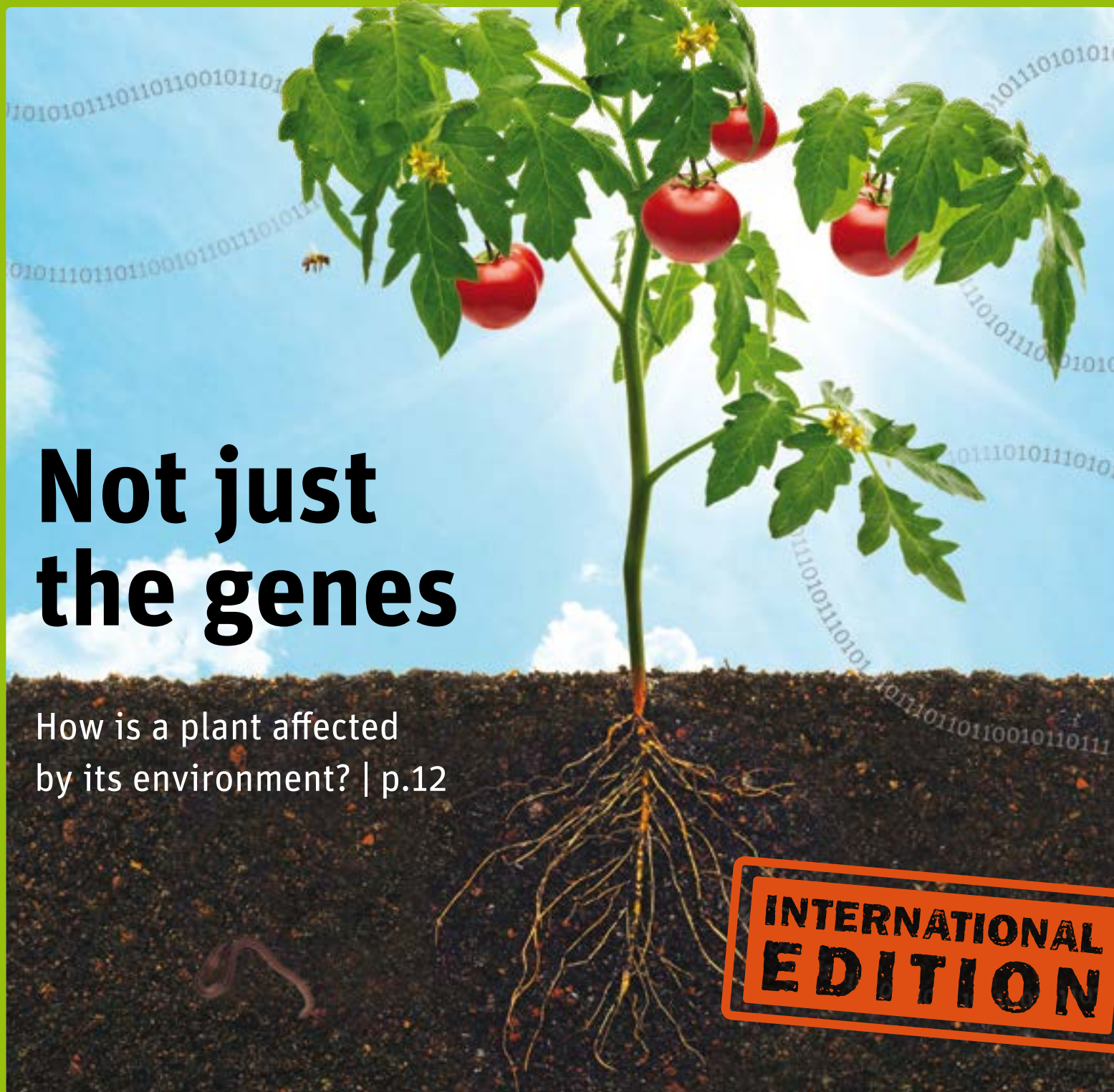
Wave of break-ins

Even Tessa's piggy bank was smashed to pieces | **p.24** |

RESOURCE [EN]

For everyone at Wageningen University & Research

no 7 – 22 November 2018 – 13th Volume



Not just the genes

How is a plant affected by its environment? | **p.12**


**INTERNATIONAL
EDITION**

Julia + Magnefy 14 T MRI-scanner

Julia Krug, PhD student in BioNanoTechnology and Biophysics



ATTRACTIVE MACHINERY

Machines can be irresistible. This one, the Magnetic Resonance Research Facility (Magnefy), literally has powers of attraction. The magnet at the heart of the scanner has a magnetic field strength of 14 tesla, 300,000 times that of the earth's magnetic field and 1400 times that of a fridge magnet. It is not as dangerous as it sounds. Julia Krug uses it to make extremely sharp MRI images of organic material. She studies the potential of this imaging technique at high magnetic field strengths. Here she is putting a sample in the machine.  RK, photo Sven Menschel

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Your grandchildren might never experience it



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'We have lived in seven places in seven months'



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THROWN OUT OF ORION

Students are fed up with all the events in the education building

WAGENINGEN'S EDUCATIONAL SECRETS

For the 14th year in a row, Wageningen University is the best in the Netherlands, according to the *Guide to Universities*. Unlike other universities, Wageningen has managed to offer growing numbers of students quality education. And it certainly is striking: most of the universities score 5.8 or 6.5, while WUR scores 7.4.

What is Wageningen's secret? For years, people pointed to its small scale. There were not very many students and quite a lot of teachers, making it possible to teach in small workgroups and have a lot of contact hours. But student numbers have doubled since then. Wageningen education is under pressure, but that is hardly reflected at all in falling ratings, shows the Guide. So there must be another secret.

If you ask me, it is the power of small steps. Every year, Wageningen teachers make small improvements to their courses. They adapt the reader, bring their examples up to date or change the approach to the course evaluation. These are small steps that you don't read about in *Resource*. Educational quality doesn't come from policy visions and 'excellence tracks', but from day-to-day attention to ways of making our education just that little bit better.

Albert Sikkema, editor

AND MORE...

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UNIFARM TO GET NEW GREENHOUSES

The Unifarm research greenhouses on Wageningen campus are set to get an upgrade. In the coming year, a new greenhouse covering 4000 m² will be built behind Radix. Then the existing greenhouses – which total 10,000 m² – will be replaced.

First, greenhouse builder Bosman Van Zaal will be building a closed greenhouse with 63 compartments and a 'high limitation level'. This means a lot of safety precautions have been taken. This greenhouse will let WUR do research in fully controlled conditions, for example with genetically modified crops and plant diseases. 'Each compartment will get its own access lock, cooling and heating,' says Dolf Straathof, head of Unifarm.

The research greenhouse will be energy efficient as well as safe, says Straathof. The new greenhouse will have thermal energy storage, LED lighting and double glazing. 'Our goal is to be able to heat the greenhouse without using natural gas.' Construction of the greenhouse is due to start next June. It should be ready by summer 2020.

The gradual replacement of the existing greenhouses behind Radix will also start in 2020. Those greenhouses, which were built in 2002, are now ageing and no longer comply with the stricter laws and regulations. 'The air treatment systems are often located in the roof



PHOTO: UNIFARM

▲ Unifarm, the test facility for plant research behind Gaia, Lumen and Radix, will be refurbished and extended.

of the greenhouse so they cast a shadow on part of it,' says Straathof. 'That's no good when you're doing trials. In the new greenhouses, the systems will be installed close to the ground outside the growing compartment so they don't affect the light and it's easier to clean the greenhouses after an experiment has ended.'

The greenhouses will be upgraded a few at a time, during which experiments will move to the other greenhouses. The idea is to have 14,000m² in new greenhouses on campus in seven years' time. WUR will then get rid of the Nergena greenhouses near Bennekom (4000m²). **AS**

Confidential counsellors: complaints mainly about managers

83 REPORTS OF UNDESIRABLE BEHAVIOUR

In 2017, 68 WUR employees and 15 students reported problems with undesirable behaviour, mainly by their boss, say WUR's confidential counsellors in their annual report.

The 14 confidential counsellors received 83 reports of undesirable behaviour in WUR in 2017. A majority of the reports came from women. Staff had problems with verbal and physical aggression and with bullying by managers. Slightly more men than women were pinpointed as perpetrators. The students mainly had problems with sexual harassment. There has been a slight rise in recent years in the number of reports among both students and staff. The counsellors do not give a reason for this in their report.

Some examples of the undesirable behav-

our that was reported were ostracizing employees, withholding information, gossiping, insulting someone and giving them pointless and extremely difficult tasks. There were also reports of managers putting pressure on their department and goading people to compete for money and contracts. Poor financial results and high workloads can easily produce a toxic work environment in which tensions may lead to intimidating behaviour, the confidential counsellors conclude in their report. In half the cases, work conflicts play a role in undesirable behaviour, they write.

The 14 reports of sexual harassment were made before the #metoo movement took off. They included difficult cases, such as PhD candidates who were sexually harassed by their supervisor. Some victims did not dare say any-

thing until after they received their PhD for fear of damaging their career.

Confidential counsellor Martie Wagenaar thinks this is the tip of the iceberg. 'You never know, but we find it hard to imagine that so few people had problems. Research by TNO shows that 6 per cent of the working population experiences undesirable behaviour.'

To get a better picture of the undesirable behaviour experienced by students, WUR has already appointed a second confidential counsellor for students to enable more time to be spent on providing information and raising awareness. Wagenaar advocates more direct support for managers. 'WUR often knows which departments have problems. You should offer the managers there assistance.'

AS

NOS PROGRAMME ABOUT WEATHER ON CAMPUS

The Lumen garden will be the setting for a programme to be broadcast live on 3 December by Dutch television broadcaster NOS. Weather man and WUR alumnus Gerrit Hiemstra and presenter Winfried Baijens will talk for an hour about a very Dutch topic: the weather.

Wat een weer (What weather) is about climate change and how it affects our daily lives, such as the summer drought,

the sunny autumn and the heat records that have been broken recently. The occasion for the programme is the global climate summit in Poland, which starts on 3 December. NOS thought Wageningen was the obvious choice of location for a TV programme about how we need to adapt to such climate changes, says Jac Niessen, science information officer at WUR.

Some short reports will be shown during the pro-

gramme, and Hiemstra and Baijens will talk to experts from around the country about how we can adapt to climate change. Wageningen experts will have their turn too, but it is not yet clear who they will be, says Niessen.

Wat een weer will be broadcast from 20:30 to 21:30. Students and staff at the Environmental Sciences Group are most welcome to be present during the programme. There is space for 100 people.  LvdN

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Evaluating education


In their course evaluations, students can say what they think of the education they are offered. Rightly so; after all, they are paying for a product so they should be able to give feedback on it. Those evaluations are used not only to improve the courses but also in the personal evaluations of the staff members concerned. In fact, the student evaluations are so important that they are decisive: the higher you score in them the better.

If we take a look at the questions in the evaluation system – ‘I could cope with the course; everything was clear to me; I knew exactly how my grade had been arrived at, etc.’ – we can see why coordinators can be

‘Coordinators can be tempted to simplify their courses’

tempted to make their courses and exams simpler and more predictable. Courses with a lot of maths and other tough challenges consistently get lower evaluations.


Why don’t we ask ex-students two years after graduating which course they still clearly remember? Or which course is most relevant to them in their job now? Which teacher they remember best? Personally I think I learned the most from courses I didn’t appreciate straightaway or even courses I thought were dreadful at the time.

Higher education is getting more and more school-like. In the short term that might be nice for teachers and students but in the long term we are undermining the depth of the degree programmes and the autonomy of our students.  LZ

Guido Camps (34) is a vet and a postdoc at the Human Nutrition department. He enjoys baking, beekeeping and unusual animals.

in brief

>> MUST LEAVE Beetle is online


The musical beetle in the pond next to Orion can now be seen and heard around the globe via a live stream. Initiator Marten Scheffer has connected *Must Leave* to the website SparcS, which is dedicated to research on resilience and tipping points in complex systems. The artwork represents migration and the constant renewal that this entails. Sound – determined by the weather and surrounding conditions – can now continually be heard around the beetle.  RK

>> DEAN OF RESEARCH Richard Visser stopping

Professor of Plant Breeding Richard Visser will be stepping down as Dean of Research on 1 January. He will go back to devoting all his time to his job as head of the Plant Breeding group. As the dean, Visser has made a start on improving the alignment between the research strategy of Wageningen University and that of Wageningen Research. It became clear to him though that this could not be done in the limited time available: Dean of Research is a part-time position.



PHOTO: GUY ACKERMANS

Given Visser’s experience, the job profile will be reviewed first before a new dean is appointed.  LvdN

>> GUIDE WUR the best again


Wageningen students are still very satisfied with education here. WUR has come out as the best university in the Netherlands for the 14th time in a row. That is despite growing numbers, which resulted in lower scores at other universities. These results come from the 2019 Guide to Universities. The 71 top degrees according to the guide include 13 from Wageningen. The guide gives Plant Sciences (98) and Forest and Nature Conservation (94) as the best two degrees in all of the Netherlands. There are also some points for improvement. The National Student Survey, which the guide is partly based on, shows a drop in the scores for study areas and teachers’ English skills.  LZ

PHOTO: SVEN MENSCHER



FEW COMPLAINTS ABOUT NEW SCHEDULE

Wageningen University's 12,000 students have relatively few complaints about the new Extended Daytime Schedule. Student party Veste's contact point received 50 complaints in the past three months.

The plans for a new schedule have caused quite a commotion in the student community over the last few years. The student parties in the WUR council objected to the new schedule right up until its introduction last September. Now it is in place, however, students are not complaining en masse.

Most of the 50 complaints were submitted in September, at the start of the academic year. Students mainly complain about the big gap between morning lectures and afternoon ones. That is particularly irritating for students who don't have a room and are commuting to cam-

pus. They find there are not always enough seats in the library or the canteens during the long break. This was already a problem in previous academic years, before the extended schedule was introduced, but it seems to have become even more of an issue, say Aniek de Winter and Leonie Braks van Veste. They manage Veste's info desk about the new schedule.

A second common complaint is that lecturers do not always finish their lectures on time now the periods have been reduced from 45 to 40 minutes. That means the breaks between blocks of lectures are shorter, and some students say they are less able to concentrate as a result. Veste has brought these complaints to the attention of WUR's Education & Student Affairs (ESA) department.

The student societies have a problem with the fact that the new schedule does not really

have a standard lunch break for all students in which students can hold meetings, for example. But there have been virtually no complaints to Veste about this, say De Winter and Braks. They think the number of complaints gives a good indication of students' feelings. 'We have also talked to students and the societies about the schedule,' says Braks. Complaints can still be reported throughout the year to the 'EDS contact point' on Veste's website.

It will become clear next month whether Wageningen's lecturers have any problems with the schedule. ESA is preparing a survey. ESA will also be carrying out an analysis of the effects of the Extended Daytime Schedule after each term. WUR Council will use this to evaluate the schedule at the end of the academic year. **AS**

DISCARDED FOOD IN CANTEENS TO BE WEIGHED

This week and next, students will be standing next to the waste bins in the WUR canteens to help people sort their waste properly. They are helping with a study on food waste.

For this study, the different waste flows from the canteens are going to be weighed for two weeks. This is WUR's contribution to the nationwide Food Waste Monitor, explains Han Soethoudt of Wageningen Food & Biobased Research (WFBR). WFBR has been conducting this monitor since 2009. 'Up to now it mainly looked at the other side of the process, at what came into the waste processing plant. With this analysis we shift the focus to the places where the waste comes from.'

When documenting the waste flows from the four caterers on campus, the study differentiates between kitchen waste, leftover food from displays or dinners, and waste thrown out by customers. When the waste is weighed, a further distinction is made between avoidable and unavoidable waste. The difference lies in its edibility. Soethoudt: 'Banana skins are not edible, for instance, so they count as unavoidable waste. That waste doesn't contribute to food waste.'

Handouts placed near the tray collection points will help students and staff to make this distinction. During peak hours, students will also keep a close eye on things to make sure it is



▲ People who eat in a campus canteen this week are being asked to put their edible and non-edible organic waste in different bins.

done properly. Which is necessary: without supervision, waste regularly ends up in the wrong bin, as lunchtime observation in Orion revealed.

The results of the analysis at WUR, along

with figures from other participants in the Food Waste Monitor, will provide a detailed picture of how food waste comes about, says Soethoudt. Then the government can introduce well-aimed measures to reduce food waste. **RK**

MOST PHD STUDENTS FINISH IN FIVE YEARS

Wageningen doctoral researchers take about five years to get their PhDs. This is bang-on average compared with other universities, show new figures from the universities association VSNU.

The figures show that five years is the average time it takes PhD students to get their doctorates in the Netherlands. Only a small proportion (14 per cent) reach the finishing line within four years. But there is considerable variation among the universities. PhD students at Utrecht graduate six months faster than average, while those at VU Amsterdam and Erasmus University in Rotterdam tend to need extra time.

PhD students at Wageningen take on average a little over five years on their doctoral research, the VSNU figures show. But that figure is deceptive, says WUR researcher Gab van Winkel: 'The average is not a good yardstick because there is a 'tail' of a few people who take a long time, who have a big impact on the average.'

So Van Winkel works with the median. For salaried doctoral researchers, this is 4.8 years, for those on a grant, 4.9 years, and for sandwich PhD students, 5.2 years. 'That's because sandwich

PhD students often do other work in their home countries, such as teaching, alongside their research.' The time taken over a PhD has remained stable for about 10 years, says Van Winkel: 'Of course we aim to shorten the time even more, to make publication in four years the norm.'

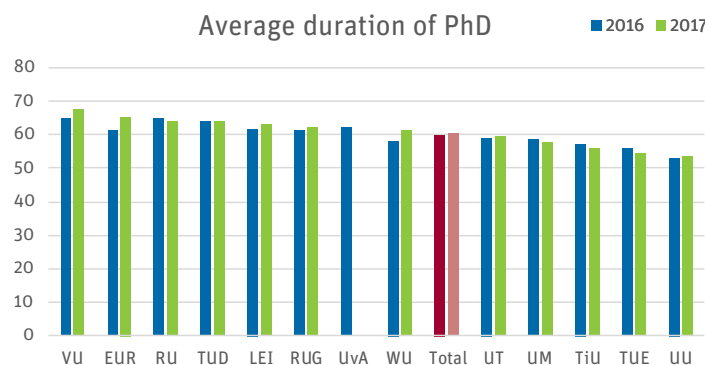
Very few Wageningen PhD students drop out. In 2017, 67 out of 295 dropped out, while roughly 80 per cent of the students who started in 2010 finished their theses within seven years. The University of Maastricht scores highest on this point: nine out of ten of its PhD students finish within seven years. At VU Amsterdam on the other hand, about 40 per cent are still working on their thesis after seven years.

Other news from the VSNU is that the number of PhDs at Dutch universities has gone down for the first time in years. In 2017, precisely 4731 people received doctorates, 200 fewer than the previous year. **HOP, LvdN**



PHOTO: SVEN MENSCHEL

▲ The PhD research duration of around five years has been stable in Wageningen for 10 years or so.



SOURCE: VSNU

▲ The average time spent to get a PhD at Dutch universities, in months. Figures from the UvA for 2017 are missing.

RESISTANCE TO EUROPEAN OPEN ACCESS PLAN

Hundreds of scientists, including the talented researcher and Wageningen associate professor Joris Sprakel, are opposed to the European plans for open access. They have sent a strongly worded letter.

Soon, all scientific articles by Dutch researchers will have to be available for everyone to read free of charge. It will no longer be per-

mitted as of 2020 to publish articles in journals that have a pay-wall. Like France and the UK, the Netherlands supports Plan S, an initiative by 11 European countries aimed at forcing a breakthrough in open access. The idea is that scientists should pay to publish in journals rather than to read them.

Associate professor Joris Sprakel, who works in the Physical

Chemistry and Soft Matter group, is one of the signatories to a letter warning about the consequences. University of Amsterdam professor Bas de Bruin is the man behind the letter, which was signed by hundreds of Dutch and international scientists, mainly chemists. Sprakel: 'One of the concerns in chemistry is that the lack of cost-free options for open access means the costs of publication

will put real pressure on project budgets and cause problems. The budgets for chemistry research are often tight enough as it is.'

Nutrition researcher Martijn Katan, emeritus professor at the VU Amsterdam and former WUR professor, also signed the letter. 'The open access system shifts payment from university libraries to the individual researchers.' **HOP, LvdN**

WATER FLEA GROWS TEETH WHEN THREATENED

Water fleas have a clever defence mechanism against predators: they grow teeth in their neck as soon as a member of their species gets devoured anywhere near them. Researchers have now identified the substances that make this happen.

The larvae of flies and mosquitoes eat water fleas, but they cannot digest their hard skeletons and spit them out, a bit like an owl pellet. 'This releases substances known as kairomones, which cause other water fleas in the vicinity to grow teeth in their necks that prevent the larvae from eating them,' says Bauke Albada of Organic Chemistry. For a long time, the exact identity of these substances was a mystery, until Albada and his colleagues in Germany and the UK figured it out. They published their results in *Nature Chemical Biology*.

The researchers put water fleas and larvae in a pot and left it alone until all the fleas had been eaten. Then they analysed which substances were present in the water and compared that with the substances in water which

had housed only fleas, only larvae, or neither of the two. From those differences they could deduce which substances were probably involved in the formation of neck teeth. 'And we knew from previous research that we were looking for a small, relatively simple molecule,' says Albada.

The researchers were eventually left with a few potential candidates. They then replicated these 'suspect' substances in the lab, and tested them one by one on the water fleas to see whether they grew teeth. It turned out that not just one but several substances played a role in this. And that all the substances contained the amino acid glutamine.

These results can be used in all kinds of other research, says Albada. 'Chemical signals are very important, especially for creatures that lack good vision. Water ecosystems consist of a very complex network of signals of this kind.' He sees a possible practical application, too: 'Theoretically, you could imitate these substances in a more stable form and add

them to water in higher concentrations so that mosquito larvae are starved of food. No more mosquitoes.' **TL**



NO MORE WINTER WONDERLAND IN EUROPE

Thanks to climate change, there is much less snow in the winter than there used to be. And the trend has been going on for 50 years. As a result, having fun in the snow threatens to become a rare experience. So say Wageningen researchers in *Geophysical Research Letters*.

Their article is based on an analysis of a huge mountain of European data about snow over the past 60 years. The Spanish Master's student Adria Fontrodona Bach (Earth & Environment) collected that data - with the help of the KNMI - and extracted trends from it.

The results are fairly shocking. In large areas of Europe snow cover has been declining for 50 years by an average of 12 per cent per 10 years. There are places, the Netherlands among them, where the rate of decrease

is almost one quarter per decade. The maximum depth of snow in Europe also fell by an average of 11 per cent per decade, although there are places where climate

change has actually led to more snow: northern Norway, Sweden and Finland.

The fact that it does still snow in spite of the strongly falling

trend is because the trend line is exponential and does not go down to zero. And of course there are always exceptions. But it is alarming that the above-mentioned trends have become stronger since the mid-1980s. Fontrodona Bach's supervisor, Ryan Teuling of Hydrology and Quantitative Water Management, is surprised by the strength of the identified trends, and calls them worrying. 'This is one of the biggest ongoing changes and it has not had enough attention. There is a big shift in when water becomes available. In the past, the snow melted in the spring, now that is already happening in the winter. So you lack that water in the summer just at the moment when nature needs it the most.' Less snow also means additional warming. 'Snow is white and reflects sunlight. That has a moderating effect on warming.' **RK**



▲ The snow cover has declined over large areas of Europe by an average of 12 per cent per decade.

HOW DO YOU ASSESS ANIMAL HAPPINESS?


A dog wagging its tail, a purring cat and a grunting pig all seem happy to us, but are they really? WUR researcher Laura Webb wants to assess the happiness of animals. To do that, she must first define happiness and how she can study it in animals.

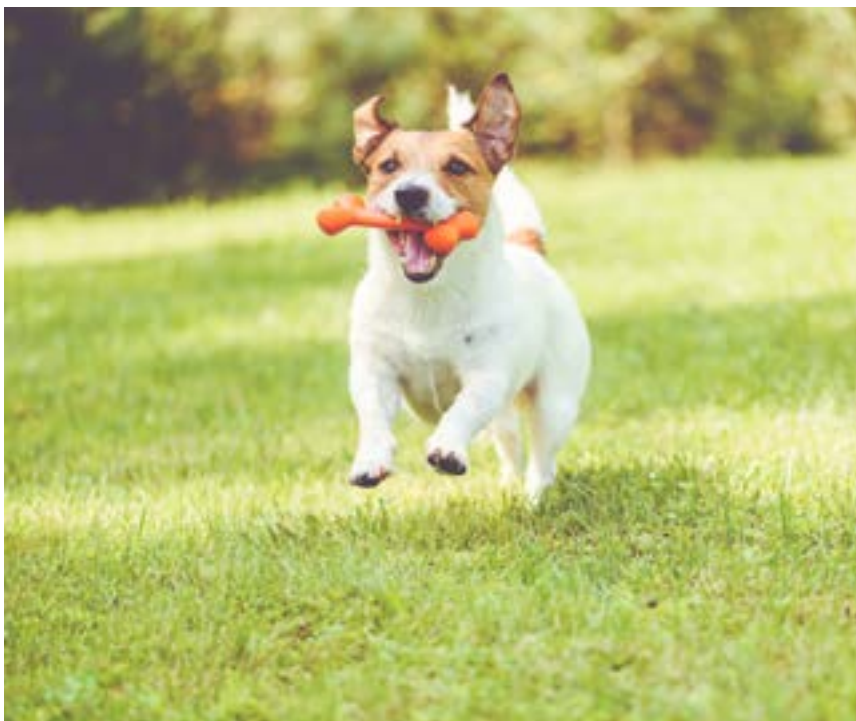
The definition of animal welfare has changed in recent years, says Webb, a postdoc researcher in the Animal Production Systems chair group. At first, researchers tended to define animal welfare in negative terms, as the absence of hunger, thirst, pain, disease, discomfort, anxiety and stress. If you could take away all these – measurable – negative factors, the animal would have a good life. A later addition was that animals should be able to display their natural behaviour. And nowadays, increasing importance is given to stimulating positive experiences.

What make it difficult, though, is that it is not clear exactly what happiness means in the case of animals, says Webb. Working with a sociologist, a philosopher and an ethologist, she analysed research on happiness in humans. People can feel happy (affective happiness) and they can think that they are content-

ed with their lives (cognitive happiness). Given that most animals probably cannot reflect on the hard life has dealt them, we can only speak of affective happiness in their case.

But how do you then measure that affective happiness? Webb: 'For humans you might make an app and ask seven times a day for a week: how are you feeling right now? Using these data you can draw up an 'affect balance', a ratio of the number of times people felt good and the number of times they felt bad.' To apply that kind of affect balance to animals, we first need to be able to measure their emotions at many different moments, says Webb. 'A method that is being studied a lot at the moment is to get an idea of animals' emotions using behaviour assessments and tests.'

Her scientific article on animal happiness in the *Annals of the New York Academy of Sciences* sketches 'a conceptual plan for how to approach the happiness of animals,' says Webb. 'We want to use it to develop methods of measuring animal happiness'. In order to get more researchers involved in the study, Webb wants to run an international PhD course on emotions in animals in February 2019.  AS



VISION

'No need for nuclear power to achieve climate goals'

Should nuclear power make a comeback, as suggested by VVD party chair Klaas Dijkhoff in parliament this month? According to Niklas Höhne, special professor in Environmental Systems Analysis, nuclear power is too expensive and not flexible enough.


Do we need nuclear power stations in order to achieve the climate goals?

No. We've got better and cheaper alternatives such as solar and wind energy. Now that the production of these installations is being upscaled, the costs are going down. Whereas the costs of nuclear power are going up because of problems of safety and of waste disposal. Renewable energy is cheaper and will enable us to achieve the climate goals faster. Nuclear power stations are enormous and it takes at least 10 years to plan and build them. Another disadvantage of nuclear power stations is that they must run at 100 per cent capacity to be efficient. What we are going to need in future is flexible energy systems, which are compatible with large amounts of variable, renewable energy.'

So where do the scenarios come from that are said to show that nuclear power is indispensable?

'They are based on models and if you give a model the option of nuclear power, it will take it. But there are other models too, which exclude the option of nuclear power. The model replaces nuclear power with something else and creates a comparable scenario using wind and solar energy. Those scenarios show that you can keep the global temperature rise to well below 2 degrees Celsius without nuclear energy.'

So is it possible to get all our energy from renewable sources?

'If all the houses in Europe had solar panels on their roofs, that would be enough to generate all the electricity we need. Wind energy is a bit trickier as there are some objections on sustainability grounds, when the turbines are close to a nature reserve or housing, for instance. When it comes to sustainability, I think there are far fewer objections to renewable energy than to nuclear energy. The latter produces waste that we'll have on our hands for thousands of years.'  TL



MEAT CONSUMPTION NO LESS AFTER THREE YEARS

More and more people in the Netherlands describe themselves as flexitarians, and the market share of meat substitutes is going up. Yet the country's meat consumption has stayed the same over the past three years.

Why this is so is anyone's guess, but the figures speak for themselves in an analysis by Wageningen Economic Research done for the animal rights organization Wakker Dier. In 2017, the Dutch consumed about 38 kilograms of meat per head of population, just as much as in the previous two years. The average Dutch person therefore eats much more meat than is advised in government guidelines for a healthy diet (25-26 kilos per year).

'This is odd,' comments consumption sociologist Hans Dagevos, one of the researchers involved. 'Because the topic of reducing meat consumption is getting a lot of attention in society. And in several surveys, Dutch people say they are trying to eat less meat.'

Dagevos does not have a readymade explanation. 'We know that when people say they want to eat less meat, it doesn't automatically mean that they do so.' It is also possible that fanatical

meat-eaters make up for the people who are eating less meat. 'A kind of division grows up, with a group of people who start eating even more meat, or more often, and that cancels out the effect of the part-time vegetarians.' A third possibility is that the 'self-licensing effect' is at work. 'That means that you reward yourself for doing something good. So you might go a couple of days without meat, but then you

compensate for that by treating yourself to extra meat.'

RIVM also recently investigated meat consumption. That study showed that meat consumption fell by 8 per cent in the Netherlands between 2007 and 2016. The different outcomes are possibly due to differences in the methodology and the fact that RIVM looked at a different period to the WUR study. **TL**



LIQUIDS SPLASH IN SHAPE OF EIFFEL TOWER

Upward splashes of water are always shaped like the Eiffel Tower and physicist Cees van Rijn has discovered why: it is because of the surface tension.

Van Rijn's research on fluid jets, the little towers that appear when a drop falls into a liquid, is a sideline, admits Van Rijn. An interesting diversion from his main work as extraordinary professor of Microfluidics and Nanotechnology in Nutrition and Health. The phenomenon of the water jet has never been satisfactorily explained, in his view. He began to suspect that this was because none of the existing scientific accounts gave a role to surface tension as a dynamic force. 'So I delved into the literature and started doing experiments.' The result is a theory which does assign a major role to surface tension.

The trick is, says Van Rijn, to see the water jet as a mass of water in free fall. When the column of water falls downwards, there is no gravity in the jet. 'The surface tension pulls the falling water downwards with greater acceleration.' That additional acceleration is what causes the pressure in the jet to differ at different heights. The higher in the jet, and the narrower the column of liquid, the higher the pressure.

The pressure differences and the surface tensions between them cause the Eiffel Tower-shaped curve in the jet. By applying a Young-Laplace equation, Van Rijn obtained an approximation of the curve. The Young-Laplace equation determines the shape of a vertical or horizontal droplet in a gravitational field. Van Rijn has demonstrated that an adapted

form of the Young-Laplace equation can describe other water phenomena too.

The question remains as to why the Eiffel Tower is shaped like a water jet. Van Rijn reckons that this is no coincidence. 'The tower

was built in 1887, and the first photos of water jets were taken 10 years before that. I wouldn't exclude the possibility that Gustav Eiffel got his inspiration from there.' **RK**



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PROPOSITION

‘We could make better use of our differences’

PhD graduate Fokje Schaafsma dedicated one of the propositions in her thesis to differences between men and women. On our way to greater equality, we shouldn't seek to erase these differences, she feels. ‘Precisely the mix in a group is important.’

‘Sometimes I get the impression that people think gender equality means that men and women have to be the same. Or in fact, that women have to be the same as men, or even a bit more “masculine”. I feel that underlying this is the idea that certain ‘feminine’ qualities, such as being emotional, vulnerable and caring, are forms of weakness. Whereas such feminine qualities aren't necessarily at all disadvantageous. There are studies, for instance, that show that more empathy and consideration for each other, rather than acting very directly and competitively, lead to better business results in the end.’



Fokje Schaafsma graduated with a PhD on 16 November for her study of the role of sea ice in marine ecosystems.

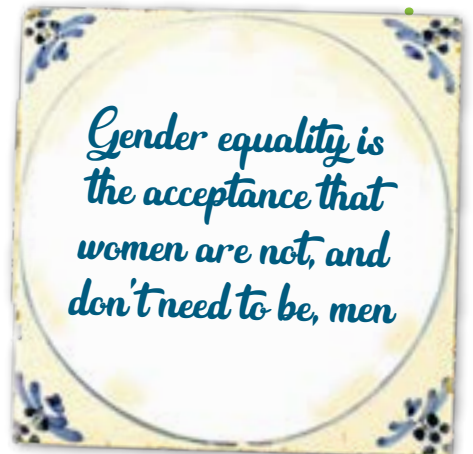
The mix in a group is precisely what's important. Of course the difference is not a matter of black and white, and of course there are men who are very empathic and women

who are very direct. And I certainly don't mean this as an attack on men; I just think we could value our differences more, and make better use of them.

Luckily for me, I don't feel I am taken less seriously at my work because I'm a woman. Al-

though I wouldn't easily mention that I'm suffering from period pain, because I feel like you are supposed to keep that sort of thing to yourself. And you do hear stories, for example about employees who see it as inconvenient if women get pregnant. Of course it might be inconvenient sometimes, but it's just part of life.

I think it's important to distinguish between being equal and being the same. In the Netherlands we get equal opportunities but I think the image of women as the “weaker sex” still persists. Both among men and women. It's gradually changing and it's already a lot less than it used to be. I hope we can change our thinking in future, but I think it will take more time.’ **TL**



New research centre for phenotyping starts up

Genes + environment = plant

A complex interaction between genes and environment determines the characteristics of a plant. That interaction is the focus of a big new research centre: the Netherlands Plant Eco-phenotyping Centre. With the knowledge acquired there, scientists hope to breed robust lettuce. Or salt-resistant potatoes.

text Albert Sikkema *illustration* Geert-Jan Bruins





Standing in the greenhouses at Unifarm on the Wageningen campus is a huge metal cupboard. ‘This is the Robin,’ says Rick van de Zedde proudly, indicating the Robin PSI Plant Screen System. The cupboard contains three sensors which can perform very precise measurements on plants. They measure the photosynthesis capacity, the number of leaves and the surface area and colour of the plant. ‘The Robin is mobile. We drive it to a compartment full of plants, put the plants in one by one and measure them.’

22 MILLION

The Robin marks the start of the Netherlands Plant Eco-phenotyping Centre (NPEC). This spring this phenotyping centre received 11 million euros from research financier the Netherlands Organization for Scientific Research (NWO). The participating universities, Wageningen and Utrecht, are putting 11 million euros into it between them. In the centre, researchers can study plants under different environmental conditions. This can be done in the Robin, and soon also in its big brother, the Robin 2, through which plants roll on a fully automated conveyer belt. There will also be advanced climate cells, a research greenhouse, and drones for measuring the effect of the environment on all kinds of crops. Van de Zedde, a robotics researcher in the Plant Sciences Group, is developing Wageningen’s branch of the new centre (see inset)

together with programme developer René Klein Lankhorst and Wageningen plant researchers. The centre will be finished in two years’ time and then all Dutch plant scientists can make use of its facilities for a fee.

P IS FOR PHENOTYPE

The phenotyping centre can be summed up in a formula: G+E=P. Here, G stands for the plant’s genotype and E for environment. Combined, these two determine P, the phenotype. ‘If you breed the same variety in different climatic zones, you often get different plants,’ explains Klein Lankhorst. ‘Now we can determine the genotype quickly and cheaply, but we don’t know enough about how environmental conditions influence plant development.’

For this reason, the centre plans to set up climate cells that simulate a variety of environmental conditions. Plants can be exposed to temperatures ranging from -5 to +42 degrees, while the light intensity and composition, the CO₂ level, the humidity and the growing conditions can be programmed precisely in each climate cell. This enables the researchers to measure things like the impact of drought and salt on plant development.

ROOT GROWTH

WUR already has a climate cell in which it is possible to ascertain the photosynthesis, growth and development of hundreds of plants at the same time. With this ‘Phenovator’, researchers of Genetics and Horticulture have already been able to identify

‘COLLABORATION THANKS TO NWO’

The Netherlands Plant Eco-phenotyping Centre is to be a national research facility which all Dutch plant scientists can use. It is funded from funds the Netherlands Organization for Scientific Research (NWO) reserves for large-scale scientific infrastructure. Half of the centre will be located in Wageningen and the other half in Utrecht.

‘This is a collaboration made possible by the NWO,’ says programme developer René Klein Lankhorst. ‘Both Wageningen and Utrecht had submitted proposals for a phenotyping centre to the NWO, which responded that a single proposal would stand a better chance. Then the two parties put their heads together.’

Utrecht and Wageningen are now developing complementary facilities. Utrecht concen-

trates on the interactions between plants and microbes, such as underground bacteria and fungi, while Wageningen concentrates on the interaction between plants and abiotic stress factors such as drought and salinization. NPEC Wageningen will be run by Unifarm and co-financed by WUR’s Shared Research Facilities, which manages and rents out expensive research facilities. Wageningen researchers who want to make use of NPEC pay a fee, just like external users. ‘But not the full rate, because NWO, WUR and Utrecht University are contributing too,’ says Klein Lankhorst. He calls on Wageningen researchers to orientate themselves to possible phenotyping research. The new centre will open in two years’ time, but certain facilities are already available.

several genes in the model plant *Arabidopsis* that drive plants' adaptation to changing light conditions, says Klein Lankhorst. These groups can expand the research in the new facility, because it will have four new climate cells with the latest sensors, in which key decorative plants, vegetables and field crops can be scanned as well.

The NPEC is also going to design a rhizotron, working closely with Professor Christa Testerink of Plant Physiology. This piece of equipment will be used to measure the effect of environmental conditions on plant roots, so researchers can find out how salinized soils hamper root growth or how seed germination in the soil is affected by cold.

GREENHOUSE AND TRIAL FIELDS

Besides the climate cells, the phenotyping centre will also have a new research greenhouse. This greenhouse of 32 by 28 metres will contain four compartments in which the lighting, the CO₂ level and the temperature can be regulated independently of each other. New equipment will then record the effects of those variable conditions precisely. Van de Zedde: 'To measure the effect of environmental interventions on plant growth, we used to have to pick the leaves and have them measured by researchers. In this greenhouse, the plants are moved to sensor equipment, and sensors go to the plant. This means we can determine the total leaf mass of a plant automatically and with great precision.'

Finally, NPEC is going to monitor the plants in the open air. 'We want to analyse plants in different regions under different climate conditions,' says Klein Lankhorst. 'We therefore want to place a mobile sensor network in the trial fields that collects data about the soil, temperature, rainfall, light exposure, and the like. A vehicle with cameras and GPS will provide data about the development of the plant and we can compare the data from the climate cells with the crops' performance in the field.'

BIG DATA

Since the cameras and sensor will generate large amounts of data, and the researchers prefer to process that data fully automatically into applicable information, NPEC is in fact a Big Data project as well. So Dick de Ridder's Bioinformatics chair group has been consulted. 'We've decided that every machine will have its own data storage and that we shall link all the data at a higher level,' says Van de Zedde. To this end, NPEC will further develop a European data platform created by French institute INRA. The advantage of this is that NPEC does not have to reinvent the wheel. Working closely with the French, the centre is now going to establish agreed definitions and parameters for phenotyping, so that researchers can record all the data unambiguously. 'We must make sure we can compare experiments and reuse data.' 

ROBUST LETTUCE AND SALT-TOLERANT POTATOES

It will take another two years before phenotyping centre NPEC is fully operational, but it is close to having its first client. Professor of Plant Physiology Christa Testerink wants to use the new facility for her research project LettuceKnow, which aims at developing more robust and stress-proof lettuce varieties. 'We want to sow and phenotype 500 varieties of lettuce seed. That means we shall measure how robust the various types of lettuce are and monitor how they cope with different kinds of stress such as salt or drought, how the roots develop and how the plant's growth and architecture proceeds. You need a facility like NPEC to carry out these kinds of measurements on a large scale.'

Testerink also wants to breed potato varieties in brackish soil in the planned rhizotron at NPEC. 'That will be unique research because then I can measure both the underground and the above-ground development of hundreds of potato plants at the same time, fully automatically. Some potatoes suffer a lot from salt stress, and others less. I want to trace that back to the potatoes' DNA. To do that, you need a large number of plants – hence NPEC.'



ILLUSTRATIONS: HAANS INDUSTRIAL DESIGN



▲ The Wageningen branch of the phenotyping centre NPEC will consist of climate chambers, a new research greenhouse and trial fields, all equipped with mobile sensors that record the development of the plants.

Sweeper picks peppers

(but not fast enough yet)

Picking sweet peppers is still manual labour at present. But it is only a matter of time before robots such as Sweeper take over the job. Only the Wageningen brainchild must first learn to get a move on.

text Roelof Kleis *photos* Sweeper EU and Guy Ackermans



Sweeper is the youngest harvesting robot in the Wageningen agro robotics family. It resides in Phenomea, the demonstration facility next to Axis. When it is standing still it is a clumsy-looking piece of machinery. Not much more than a large, narrow, yellow chamber on wheels with a robotic arm attached to the carrier. But just wait until it comes to life. You can see it best in the promotion video made in the greenhouse at De Tuindershoek sweet pepper farm in IJsselmuiden. The YouTube film is the Plant Sciences Group's blockbuster of the year, says Jochen Hemming of Wageningen Plant Research (Greenhouse Horticulture). It's been seen 25,000 times in just a few months.

What the film shows is this: the Sweeper robot moves down the rows of sweet peppers, stops by a pepper, scans the surroundings, approaches the vegetable from the appropriate side, cuts through its stalk, catches it in its hand and puts it in a crate. It takes an average of 24 seconds to do all this. A world record, if you compare it with its predecessor, Crops. Three years ago, this first-generation sweet pepper harvesting robot, another WUR creation, took 90 seconds to get a pepper into the crate. That won't get the harvest in on time.

SIX SECONDS

But the same goes for Sweeper, a joint project by WUR and Swedish, Israeli and Belgian colleagues. The robot may be four times faster than its predecessor, but it still can't keep up with a human being. We can pick a pepper in about six seconds. And we pick all the peppers, not just those hanging within easy reach. The Sweeper cannot do that yet.

'The robot only sees some of what's visible,' explains Hemming. 'It doesn't notice clusters of peppers. Sometimes there are leaves in the way. And peppers on the inside of the plant are not very accessible. In fact, it can only harvest the peppers hanging on the outside.' So in today's commercial greenhouses, Sweeper will only manage to harvest 55 per cent of the ripe peppers, and only



▲ Jos Balendonck (left) and Jochen Hemming with 'their' Sweeper.



after they have been 'declustered' and some foliage has been cleared that is in its way. Even that is an improvement though: Crops only spotted one in three ripe peppers.

VIABLE


Project leader Jos Balendonck of Wageningen Plant Research (Greenhouse Horticulture) nevertheless sees some future in a commercial application of the robot. 'The growers want a robot that scores 100 per cent because there is such a shortage of labour. We don't achieve that with the Sweeper yet in today's growing sys-

Want to see Sweeper at work? Watch the video on resource-online.nl/video



tems. But I think that we have a good business case even with a robot that gets in half the harvest. People can do the other half, and that option could be viable too. As long as the robot speeds up. Preferably to the same speed as a person. All the stages in the process need to get faster. I think we'll manage that within three to five years. We'd like to do that in a follow-up project.'

In the longer term, over five to ten years, it should also be possible to create a robot that can pick the entire har-

vest, thinks Balendonck. But that will require more than just an improved Sweeper. 'Then the cultivating system needs to change too. The plants are now grown up wires hung in a V shape. So they are double rows and the Sweeper can only access one side of the V. You'll have to switch to a system with single rows of plants. Breeders can also develop varieties that work better for a harvesting robot. Plants with fewer clusters and less foliage to get in the way.' 

GRIPPER WITH EYES

Sweeper has a long robotic arm with a combination of a head and a hand. Its visual system is in the head, where two cameras in the central eye record colour and depth images. Four infrared lamps around the central eye give the light needed for the depth image. Rows of bright LED lamps around the edge of the head provide uniform flash lighting for the colour image. This way the camera creates 20 images per second. The sweet pepper is viewed from several sides to give Sweeper a good impression of the surroundings. This detection system was developed by Ruud Barth, who recently got his PhD with distinction. The head/hand then approaches the pepper and a fast-moving knife cuts it off. The Sweeper's blue 'fingers' capture the fruit and deposit it in a crate. The robot has been tested on yellow peppers but it can work just as well on other colours.



FLEXCRAFT: SELF-LEARNING ROBOTS

Robots are good at endlessly doing the same things in the same way. They cannot deal with variation. According to Professor Eldert van Henten of the Farm Technology Group, this is an obstacle to developing robots for agricultural purposes. After all, there is a lot of variety in nature. This problem is going to be addressed by the new FlexCRAFT programme, a joint venture of the four technical universities, including Wageningen, that form 4TU, the University of

Amsterdam and businesses. The aim is to find a way to teach robots basic skills that they can use to carry out new tasks. In four years' time, that should produce new applications such as a better Sweeper that can pick tomatoes as well as peppers. Or a robot for packing fillets of chicken or sweets. WUR is leading the four-million-euro project. In his group, Van Henten can employ two PhD students and two postdocs to work on it.



POETRY POP

Performing in a packed student room is something a bit different for Wageningen band Bergolf. On Thursday 15 November, Rachel Schipper and Thijmen van Loon (Jochem Schelfhout was off sick) played their 'poetry pop' in student house *Onder de Magnolia* as part of RoomService 2018. During this event, 13 acts performed in student rooms and houses across the town. Studium Generale was organizing RoomService for the 11th time.

📷 photo Sven Menschel

Watch the video at
resource-online.nl/video



International PhD students struggle to find housing

Living out of a suitcase

Staying with friends, moving repeatedly or paying ridiculous rents. These are the only choices many foreign PhD students have now they no longer get priority on the Wageningen student housing market. 'I found it hard to concentrate on my research and fell behind as a result.'

text Tessa Louwerens illustration Geert-Jan Bruins

Forced to stay with friends

Lerato Thakholi, sandwich PhD student in the Sociology of Development Change Group, from South Africa

'When I started my PhD in 2016, I got a room through Idealis. I left for a year in between to do my fieldwork in South Africa. When I returned I couldn't find housing. Everyone knows about the housing crisis in Wageningen, but students who come from far away feel it more acutely. I cannot begin to explain the insecurity and uncertainty that engulfs you when you are in a new country, without your friends and family and with no place to call home. I'm lucky that I already knew people here who let me stay with them, but there are many people who do not have this advantage. Besides stress and uncertainty, being homeless creates practical problems. In order to register with the municipality and receive a BSN number and a bankcard, you need a residence permit and a home address. I want to know where I and other international PhDs with this problem can go for help. In my contract it states: "WU will assist the PhD candidate in finding housing in Wageningen for the period that the candidate resides in Wageningen." But what does that mean in reality? I received a link to Idealis and other housing sites. Is that the assistance? The university is accepting more and more students without taking the available housing into account.'



Seven addresses in seven months

Marcos Dominguez Vierra, guest PhD student at Development Economics, from Mexico

'I did my Master's in the UK and it was quite easy to find housing there. I had heard it would be difficult in the Netherlands, but it's still hard to imagine exactly what to expect. My wife and I came to Wageningen from Mexico in March this year. I figured we'd find accommodation

once we started meeting people. So I focussed on my application process and arranging my scholarship. But it turned out to be harder than I thought and we stayed in seven different places in the first seven months. Each time the end of the rental contract came in sight, I was worried that we wouldn't be able to find something

else. It cost a lot of time and energy. I had trouble focussing on my research, and I fell behind.

When I asked for help, I was always told to look for a house on the private market. But that is not a viable option for many people on a scholarship. I had some savings, but they were gone after a couple of months because we had to stay in places that were too expensive. Now at last, we have found a flat where we can stay, and that is a huge relief.

I am not blaming the university but I do think it should make clearer what PhD students can expect. The information you get is fragmented. Maybe it would be possible to work more closely with the supervisors, so they can offer all this information in one package. Or maybe the university shouldn't let people come until they have found a home.'



Nomads in Ethiopia don't have internet

Getu Alene, sandwich PhD student in the Sociology of Development Change Group, from Ethiopia

'When I was doing my fieldwork I had to start looking for housing before I returned to the Netherlands. It was very difficult because I was moving around a remote district of Ethiopia with nomads. To get to the nearest town with internet access meant 125 kilometres by motorbike. So I asked a friend of mine to apply on my behalf, but that didn't work out very well because he didn't understand the system. So when I got back I spent the first two months doing nothing but look for somewhere to live. It was very stressful and I couldn't focus on my work. I am now sub-renting a room. It is temporary but with a bit of luck I can take over the room. WUR has an excellent academic reputa-

tion and I'm proud to be studying here. But if the university wants to keep up its international reputation, it is important to solve this housing issue. Because it is not very practical to let more people come to Wageningen when they have no place to live.

Perhaps the university could set up a separate department for housing. I studied in Norway before I came here and there housing is provided via an international relations department. I think communication could be improved too. It might be best if you got all the relevant information before you arrived, maybe via your supervisor.' **R**



PHD STUDENTS WITHOUT SALARIES

Many Wageningen PhD students are salaried WUR employees. But WUR also has sandwich PhD students who do part of their research in their own countries and part of it in Wageningen, and guest PhD students who are often attached to a university or research institute in their own country. These PhD students – of whom there are currently 736 out of a total of 2022 – live on scholarships. Until May this year they had priority on the waiting list for an affordable room from Idealis student housing provider. Now they are dependent on the private housing market, where the prices are often so high that their allowance falls short. The Executive Board is currently looking into how this problem can be solved, says spokesperson Simon Vink.



IS ORION NOW A CONFERENCE CENTRE?

With its good catering and plentiful space, Orion is a popular place for lunch or to work in. But there are also frequent events in the building, and then students and staff have to make way. Sometimes they can access part of the building, and sometimes they are directed to a tent for a takeaway lunch. There is some grumbling on those days. Wasn't Orion an education building? Or is it a conference centre as well?

text Tessa Louwerens, Luuk Zegers, Gina Ho *illustration* Henk van Ruitenbeek

Léa Dolimier



MSc student of Organic Agriculture

'I don't want Orion to be reserved for conferences. **I eat there every day because the food is better than in other buildings.** It's hard to find a table when everything is reserved for conference guests. We are usually quite large groups too.'

Ton van Lierop



Events staff at Orion

'As it happens, we discussed this internally last week, because we are hearing more and more negative reactions too. Per year, about 100 events are organized in Orion. Almost 90 per cent are internal, such as symposiums, Studium Generale, student events and this year a lot of activities in connection with the centenary. Along with the Forum, Orion is one of the few buildings whose size and location lend themselves to large-scale events. The Wageningen Dialogue Centre, to be built next door to Atlas, will only be finished sometime in 2020, and that will also partly take the place of the Aula. So I don't see any good alternatives in the short term. And it is only going to get busier. This week there are three Bachelor's graduation ceremonies on the agenda, and I'm already working on bookings for October next year. **At the moment I only have two rules for bookings: the timetable comes first, and first come first served.** Maybe we need to set some limits. Perhaps by only giving up a maximum of one section of the canteen at lunchtime. But we have to make clear agreements on that first.'

Garreth Kratz



MSc student of Organic Agriculture

'I don't care a whole lot because I usually bring my own lunch. I am happy as long as I can buy soup and I can get that in other buildings as well. However, **it sucks if you can't get a table in Orion because it's a good place for group work.**

Marcel Gerritsen



Building manager at Orion

'I haven't been working very long as site manager at Orion, so I can't say much about trends. But I can see that there have been a lot of events this year, so that there is indeed a lot of pressure on the lunch facilities. One of the main tasks of a site manager is to make sure that the various user groups can make good use of the building. Orion is primarily an education building, so that should have priority in the management of it. Events are certainly important too, but I sometimes get the impression that the interests of students get squeezed out. Orion is also an important lunch facility for both students and staff, and WUR only has a few of those. **I shall certainly discuss this and see whether there are already any guidelines on it, and if not, whether we**

should draw some up. And I shall keep my finger on the pulse to see if this gets better once the events connected with 100 Years of WUR are over.'

Sophie Galema



Chair of the Student Council

'Orion is first and foremost an education building so all the facilities, including the Spot, the restaurant and the dining rooms are meant to be for students and staff. The Student Council receives complaints that there is often not enough space in Orion, and conferences and other events make it even busier and cause a seating shortage. It is also not always clear what the link is between a particular event and Orion's function as an education building. We don't think that's the idea. **Thanks to the new timetable, students have more free periods and they need places to have lunch, chill out and study.** So it's not practical if some or all of the rooms in Orion are reserved for events. In short: it's not a good situation. Although we do expect it to calm down soon, as a

'There is a shortage of venues for events on campus at the moment'

lot of the events this year were to do with the WUR centenary. The Student Council is now investigating why so many events are scheduled in Orion, and what the agreements are. If the policy is that an education building is genuinely meant for students and teachers – and therefore not for events – we will try to make sure the policy is adhered to. After all, events can easily be held at other venues such as Impulse or Plus Ultra.'

Evelien Joosten



Catering manager at OSP Orion

'On the one hand, as caterers we want to make our regulars welcome. And at the same time it is nice to host occasional events. It livens things up and brings in a lot of new guests. **I understand that it's annoying for students that we can suddenly be full, which is why we try our best to keep them informed about events.** We do that through screens in the building, and Facebook. We also let the caterers in the Forum know that they can expect more people, and we provide takeaway food. But it is annoying if you've been turned away three times because you didn't know there was an event. We understand that. We are open to feedback on how we can be communicate more clearly, so if you have a good idea for improving this, just come and see us. As a catering company, we can't just turn clients away. At the moment there is a shortage of venues for events on campus. There is going to be new building for them but until it is built, Orion is a popular venue for events.'

Wave of break-ins in Wageningen student houses

When the student's away...

A friendly, safe little town. That's Wageningen's reputation. And yet in a period of six weeks this autumn, there were 16 break-ins in student houses. 'I had closed the big window, but the little hinged window was ajar.'

text Luuk Zegers illustration Inge van der Wal

When she came back from a weekend at home and opened the door of her room in Hoevestein, Tessa van den Bemt got quite a shock. Cupboards open, her stuff all over the floor, footprints on the bed and the window forced open. The burglars had taken jewellery and a Bluetooth speaker. Van den Bemt's piggy bank lay in pieces too. 'Luckily I'm not very materialistic,' says the 21-year-old Master's student of Biology. 'The main thing is, it's a nasty idea that they went rifling through my things.' She estimates the total value of the stolen goods at about 200 euros. 'I had my laptop and phone with me, luckily, so they couldn't take those.'

SHORT DAYS

Van den Bemt is one of 16 Wageningen students whose rooms were broken into between 27 August and 14 October. 'You see it every year at the end of the summer,' says Jos Smits of the Wageningen police. 'As soon as the days get shorter, the number of break-ins goes up.' But this year's spike was extraordinary, says Smits. 'Sixteen break-ins in six weeks is an awful lot. You can call that a burglary wave.'

In the whole of 2017, 20 break-ins were reported to the police by students; the running total for 2018 is already at 28. And it could still go up, although the burglary wave seems to have died down. Smit: 'In November there has only been one break-in so far.' But of course every break-in is one too many. A bit more awareness and alertness wouldn't do any harm, says Smit. Van den Bemt: 'Students often think burglaries don't happen in little Wageningen. I thought that too. We all fall for it.'

FORENSIC RESEARCH

After the break-in, Van den Bemt wanted to clean up her room as soon as possible, but she had to wait until forensic research had been completed. 'It took two days before they came, so I had to wait two days before I could tidy up. As soon as the research was finished, I started washing, vacuuming and scrubbing. It's a nasty idea that you don't know what they have touched.'



'The worst thing is, it's a nasty idea that they went through my things'

Tessa van den Bemt, Master's student of Biology





3 TIPS FOR PREVENTING BREAK-INS

Wageningen neighbourhood policeman Jos Smits gives a couple of simple tips that can help you make things as difficult as possible for burglars:

1. Lock all doors and windows before you leave, even the little hinged windows. They are often used to 'fish' to open big windows.
2. Don't leave valuable items visible. Thieves are less likely to break in if they get the impression there's nothing worth stealing.
3. If you live in one of the tower blocks and you go out via the fire escape, close the door behind you. Otherwise thieves can easily get into the building.


Smits has more tips, which you can see in a video on the Resource website.



Van den Bemt lives on the first floor of Hoevestein. 'The burglars probably came up the fire escape, the door of which is often open, right onto the walkway,' she says. Because one of her curtains was open, the thieves could look in to see whether there were any valuables in the room. Even though there was no laptop or phone in sight, they still thought it was worth going in. 'I had closed the big window but the little hinged window above it was ajar. They forced that wider open and then they could open the big window.'

A LOT OF HASSLE

Although burglars usually choose moments when people are not at home, as happened to Van den Bemt, a few crooks are brazen enough to strike when people *are* at home. That happened to Cecilia Casonato (24) recently. The Master's student of Food Safety lives on the Droevendaalsteeeg. 'I came home from work and opened my bedroom window to air it. Then I went to have dinner with my housemates. Twenty minutes later my backpack was gone, with everything in it. Laptop, telephone, papers, my proof of enrolment. Luckily I had my passport on me.'

There were six people at home when the bag was taken from Casonato's room. 'That's not a nice feeling. You want to assume that everyone is respectful. But apparently there are people who see an open window as an opportunity. That's sad. Apart from that, it's a lot of hassle and takes up a lot of time. Blocking bank cards, credit cards, and all that. I'm a cautious person. But this shows you can never be cautious enough.' 



How do thieves get into your room?

Watch the video reconstruction on resource-online.nl/video

COFFEE

The more sensitive we are to the bitter taste of caffeine, the more coffee we drink, Australian scientists discovered. That's strange because in nature bitter means 'Keep away'. So why don't we do that? Because while drinking, we discover the pleasures associated with consuming caffeine, say the scientists. A question of swallowing the bitter pill.

HUMAN

Orcas are similar in character to chimps and humans, say Spanish researchers after studying 24 orcas living in captivity. The researchers used the same scoring tables as for primates. According to the scientists, the similarity is because orcas live in close-knit groups, just like we do. And that leads to complex behaviour.

NOISE IS FATTENING

There seems to be an association between traffic noise and obesity. This finding comes from a cohort study by the Barcelona Institute for Global Health among 3796 adults. The risk of obesity increases by 17 per cent with every 10 decibels of traffic noise. The researchers don't know why this is, especially as noise from planes and trains has no effect.

CUBOID POO

Wombats have cube-shaped poo. They are the only members of the animal kingdom to manage this. Researchers at Georgia Institute of Technology have figured out that the cube gets formed just before the poo leaves the intestines. The elastic properties of the intestines are responsible for the shape. It has a purpose too: the poo contains odour signals and the cube shape means the turds are less likely to roll away from the carefully chosen spot.



International lunches in Forum

Caterer Cormet has expanded its lunch range. It will be running a trial until the end of the year with meals from Wageningen takeaway Food of Cultures on Mondays, Wednesdays and Fridays.

The takeaway, which is run by Iranian Dutchman Masood Eslami, has already been selling evening meals for nearly a year in the Forum, between five and seven on Mondays to Thursdays. That service is now being extended to lunches.

Until now, international lunches in the canteens usually meant Chinese food. Chinese dishes are on sale every day in both the Forum and Orion.

Cormet hopes that by bringing in Food of Cultures, it can offer more choice, to WUR's many international students and staff in particular.

According to Cormet's site manager Ron Nagtegaal, they turned to Food of Cultures because it is locally owned, and because of owner Eslami's socially responsible approach to business.

Eslami started his takeaway on Churchillweg over three years ago. His business explicitly aims to take on former refugees and people with a weak position in the labour market. 'We are a company, but we're also a social enterprise. That is the essence of our business. We have Lebanese, Syrian and Afghan



PHOTO: ROELOF KLEIS

chefs. It's so lovely to see that collaboration between cultures.'

The food in the Forum isn't just Iranian. 'We serve food from all over the world,' says his daughter Mahan Eslami. 'That means vegetarian on Mondays, African on Tuesdays, Middle Eastern on Wednesdays and South American on Thursdays. There's no fixed schedule for the lunches.' The lunches cost 4.95 euros. 'And the food is halal, gluten-free and lactose-free.' The lunch pilot will continue until the end of the year at least. **✎ RK**



PHOTO: SVEN WENSCHER

See the photo series on resource-online.nl/fotoserie

Festive finale

Twelve Wageningen study associations joined forces for the Gala of the Century on Friday 9 November in the Junushoff Theatre. There were three podia from which live bands and DJs treated students to dance

music. The evening started with a workshop run by student dance society Wubda. The dancing party for students was the final event in the WUR centenary celebrations. **✎**

Shopping, eating cake and singing for a good cause

Next week, the Wageningen Red Cross student desk will be collecting for the Serious Request fundraising campaign.

'You can do your bit all week in a fun way, for example by shopping or requesting pop songs,' explains Health & Society student Nina Jager, who is one of the organizers. 'You will be helping protect people from natural disasters.'

Each year, the students of Wageningen Red Cross take part in Serious Request, a nationwide campaign in which DJs raise as much money as possible for charity. There are three charitable causes this year: emergency aid in wars and conflicts, resuscitation in the Netherlands and protection from natural disasters. Jager: 'We chose protection from natural disasters because that cause is closest to Wageningen's mission.'

Serious Request will take place in the week before the Christmas holidays but

that is exams week here. 'That's why we are already holding our campaign in the week of 26 November,' says Jager. There will be a fundraising event every afternoon and evening of that week. 'For example, a clothes market, a resuscitation course, a pub quiz and a party. We will also be selling cakes, collecting empty beer crates from student houses and running a lottery with great prizes, such as a subscription for the Swapfiets bike scheme.'

Last year, the Wageningen students raised around 3900 euros. Jager: 'Of course we'd like to better that this year.' On 23 December, the Red Cross student desk will hand over the money they raised to a Serious Request DJ team visiting Wageningen. 📍 LZ

To see the programme, go to resource-online.nl or the Facebook page of the Wageningen Red Cross student desk.



▲ The Wageningen Red Cross students.

MEANWHILE IN... MEXICO

'10,000 refugees should be no problem for the US'

Since mid-October thousands of Central American citizens have been marching from their home countries through Mexico towards the United States. They are fleeing from severe unemployment, poverty and violence. President Trump has announced that 5200 American troops will be stationed at the border with Mexico to stop the caravan from entering the US.

'Central Americans fleeing to the US is not a new phenomenon; we've been seeing it since 2013 or maybe even earlier. There are a lot of problems with corruption, violence and drugs in Central America. We hope that a group of people will stand up and fight these problems, but it takes time and a lot of effort. It is reasonable and understandable that people want to get out of there, because it is very dangerous for them.'

As reported in the news, there are only about 10,000 people in the caravan. Let's do some simple sums: there are 127 million registered citizens in Mexico, so these migrants do not even make up one per

cent of our population. The US is a big and international country too. I don't see how it would be a big problem if the US accepted the refugees. They are just people in despair



Elias Hernandez Valera, an MSc student of Urban Environmental Management from Mexico, reflects on recent events in his country.



PHOTO: VIC HINTERLANG/SHUTTERSTOCK.COM

who are looking for help for themselves and their families. From what I can see, many of them are well-educated; only those with a certain level of prosperity can afford to migrate. They are disappointed with the very limited opportunities in their home country. This is a similar situation to that of refugees from the Middle East and Africa who fled to Europe. I really like what European countries did. They managed the situation and enhanced international relations by opening up the borders and accepting them. In my opinion, the US could approach this in a much better way than sending troops to the border. I really hope the migrants do not have to face more violence at the border.' 📍 CC

YOU ON CAMPUS

The trees on campus are slowly shedding their leaves. Outside the Forum, a few last students are savouring the weak autumn sunshine. One of them is Tim van den Lienden (22), who is killing time before going to a meeting with his fellow beer brewers.

'At the beginning of this year I joined Wageningen Student farm, a small group of people who run a vegetable garden on a plot of land near Dijkgraaf. And I joined the beer brewers there too. We make several kinds of beer with our home-grown hops.' Gardening and brewing are new hobbies for Tim. 'I've never had a vegetable garden, but it's nice to work with your hands. Now I'm a bit further into my degree programme, I was ready to try something new. WSF suits me fine, it is a very welcoming organization with a lot of different kinds of students in it.'

Tim belongs to Biologica study association as

well. Before he became actively involved in WSF, he spent time organizing weekends and a two-week trip for Biologica. 'I only organized fun things; I love travelling. That is actually why I like my subject so much: marine biology. I like swimming, travelling and animals, and in marine biology all three come together.'

'We make several kinds of beer with our home-grown hops'

Right from the first years of secondary school, Tim knew he wanted to study marine biology, and his father encouraged him. 'He said, "Do what makes you happy". He also gave me my first snorkelling set.' Now Tim wants to go a bit deeper under water. 'I am saving up to get

my diving qualification. I want to do it in the Netherlands; that's the quickest option for me.'

For his studies, Tim swapped vibrant Nijmegen for Wageningen. He doesn't regret it. 'There is not as much night life here, but I like the atmosphere. It's a bit cosier, and a bit more focussed. I meet up with friends and I walk, swim and read. In fact, I do whatever I feel like doing.' And nowadays, that includes raking, weeding, harvesting and brewing. **AVdH**

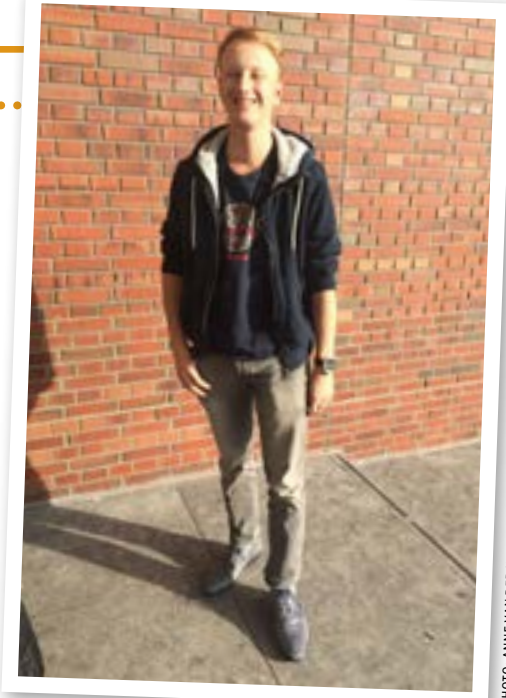


PHOTO: ANNE VAN DER HEIJDEN

'The cyclists thunder through the Tarthorst like a mudslide'

Blogger Geert van Zandbrink is one of the many students who brush aside all the rules of the road as they cycle through the Tarthorst neighbourhood to campus. 'I don't feel responsible as one of the crowd. But it's certainly dangerous.'

'Every morning in the minutes before 8:20, a phalanx of students rush across Wageningen on their way to the campus. The procession that comes from the town centre attracts particular attention for the way it cuts right through a residential neighbourhood with a shopping centre. Like a mudslide, a torrent of 'Swap bikes' and rickety old bangers thunders through the Tarthorst. That's what

mudslides do: take the shortest route. Even the 10 metres you can gain by cutting across the unloading area for trucks at the Jumbo supermarket is worth having.

And everyone has to get out of the cyclists' way. Zebra crossings don't exist in those minutes before the first lecture, and students have right of way at any point on a roundabout. Cars don't even count as traffic and the STOP signs actually say, "Just go on, you've got to get to class in time".

TREATING SYMPTOMS

It is bizarre, actually, but the phenomenon is self-perpetuating: if the cyclist in front of you pushes in, you might as well follow suit.

And of course I do it myself too. I don't really feel responsible as one of the crowd. But it's certainly dangerous.

That's why the police and the municipal council regularly take issue with students' choice of route. In Facebook posts or by policing traffic lights. Treating the symptoms, if you ask me. So I was amazed by an email from WUR informing all students about the creation of a cycle path past the Jumbo. The shortest route is temporarily blocked. So people are now taking the fastest route available – going right, not left, around Jumbo.

MAGNET

Creating a cycle path is like putting

BLOG



Geert van Zandbrink studies Economics and Policy. Read all his blogs on resource-online.nl/blog.

up a sign saying, "Hey, students, cycle this way!" A mudslide magnet. No doubt it improves safety at that spot. But what about the rest of the route? What about the congestion at the traffic lights by the Bornsesteeg? And the – often justified – complaints from local residents? I wonder, and only time can tell. **B**

Wageningen Master's students do internships and thesis research all around the world, getting to know their field and other cultures. Here they talk about their adventures.

THE WORKS 



Who? Marretje Adriaanse (25), MSc student of Aquaculture and Marine Resource Management
What? Thesis research with the BiogenInk project
Where? Kaş, Turkey

Diving for science

'I didn't really intend to go abroad. And yet I ended up in Turkey this summer. I came across a flyer somewhere about WUR's BiogenInk project in Turkey. It was exactly the sort of thing I was looking for. So, along with another student, I went off to spend three months in Kaş, on the southern Turkish coast.

SPONGES

The objective of BiogenInk is to research how you can combat water pollution caused by fish farming, and make aquaculture more sustainable. The farmed fish are kept in net cages in the sea. The fish feed and their faeces pollute the surrounding sea with nutrients and bacteria. I looked into the extent to which sponges are capable of filtering this out of the water. We did various underwater experiments. In one of them, we placed the sponges in closed chambers. We took a water sample at the start and again after 10 minutes. Then we tested water samples to see what effect the sponge had had on the water quality.


PARAGLIDING

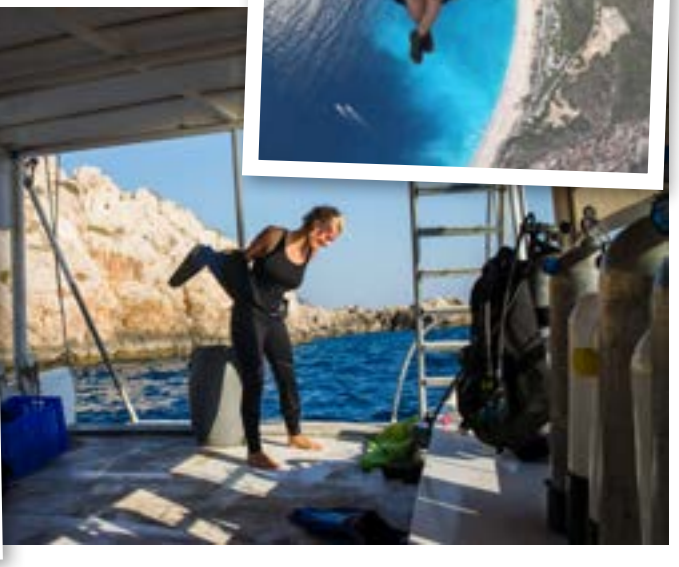
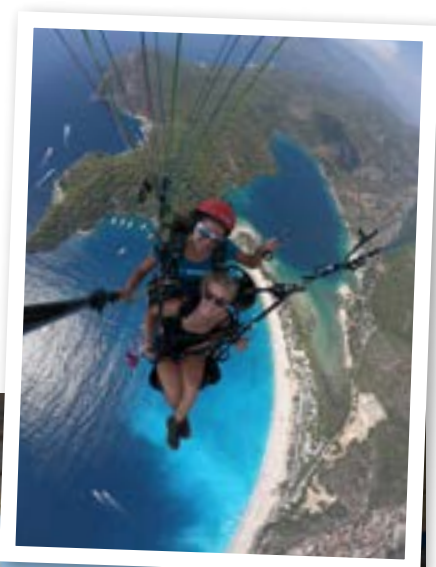
Even though Turkey is not all that far away, it really is another culture. The food, the music... you really are away from the Netherlands. Of all my expectations of the country, maybe one quarter matched the reality. For example, I expected to meet a lot of religious people, but most of the people I knew in our village were not religious.

The region where we were was very modern and very like Greece. The landscape was stunning too; that surpassed my expectations.

We shared an apartment with the Turkish PhD student we were working with. When we had a day off, we enjoyed going off on adventures. We went to a Turkish bathhouse, and we rented a car to go into the mountains. The PhD student had a lot of friends in the area and took us on several boat rides and other trips, like paragliding and visiting ruins by scooter. And we also went to a real Turkish wedding, of a friend of his.

DIVING CERTIFICATE

Just before I left I got my advanced diving certificate. When we got to Turkey, the other student and I got our Rescue Diver certificates as well. I loved the diving and I got a lot better at it. I learned most about safety, communication and the importance of being well-prepared. But however well you prepare, you always encounter problems under water. And you often have to come up with a solution on the spot. We couldn't talk, of course, so we did it all through sign language.'  EvdG



More interviews on resource-online.nl

Announcements

VOLUNTEER VACANCY, OTHERWISE

Within our Research Mediation Program, OtherWise acts as a facilitator, connecting grassroots organizations and Wageningen students. We collect questions and topics from practitioners, help translate them into thesis or internship assignments and try to match these with interested students. Your work as a volunteer for about 2 hours per week includes identifying and approaching organizations and assisting with the formulation of thesis/internship projects. Interested? Send a short email explaining your motivation to otherwise@wur.nl.

OTHERWISEWAGENINGEN.NL

KNAW ACADEMY ECOLOGY FUND

The KNAW Academy Ecology Fund offers financial support for collecting ecological data in the field both in the Netherlands and abroad, and for ecological research at overseas institutes. Young researchers can submit an application themselves, accompanied by a reference. Senior researchers can submit an application for part of their fieldwork or research

that is conducted by young researchers. Deadline: 15 December 2018.

KNAW.NL/NL/PRIJZEN/FONDSSEN

FABLAB WAGENINGEN: A WORKPLACE FOR ALL

Fablab Wageningen has digital high-tech machinery such as a laser cutter, a cutting plotter and 3D printers. You can use them to make things that were impossible or unaffordable until recently. Fancy having a go? You can! Every Saturday afternoon from 14:00 to 16:00 you can come by and use our machines under supervision. Come and be a maker too!

FABLABWAG.NL

STUDENT SAFARIS TO SOUTHERN AFRICA

Next year there will be student trips to southern Africa again (Capita Selecta, 3 ECTS points) in February, July and August. You go on safari with a group of enthusiastic and motivated fellow students, and explore the nature and wildlife of Africa. You are most welcome at the info meeting on Tuesday 27 November, 12:15-13:30 in room C104 in the Forum. More info: www.twana.com or studentsafaris@gmail.com

WANT TO GET A GRIP ON YOUR DIP?

Depression is a common ailment, among students as well as others. You might be having a lovely time at university but what with all the changes (a new course of studies, town, friends), there is nothing strange about going through a period – long or short – of not feeling too good or suffering from anxiety: can I cope with it all, do other people like me, why do I feel so down while everyone around me seems so happy? You are not alone in feeling like this! If you seek help and advice in good time, the risk of a full-blown depression is much smaller. To lower the threshold for seeking help, two Dutch websites have been developed through which you can get free help anonymously, via email or an online group course led by mental health professionals. Courses start every month.

GRIPOPJEDIP.NL AND KOPSTORING.NL

CYCLE THE WAGENINGEN 'GEO PATH'

GeoPad Wageningen is a cycling route of seven kilometres along which you can learn about the history of the Wageningen landscape and its unique

environment. The cycle route came out of collaboration between De Casteelse Poort museum in Wageningen and the World Soil Museum on the WUR campus. You can cycle the route independently with information on your smartphone, or in the company of an expert guide (apply through educatie@casteelsepoort.nl). You can also download the description of the GeoPad on the website.

CASTEELSEPOORT.NL/FIETS-WAGENINGSE-GEOPAD

Agenda

Thursday 22 – 30 november

FILM HOUSE MOVIE W

Leaning into the Wind: a Scottish artist makes you part of nature in a most extraordinary way. *The King*: a musical road trip with a mix of Elvis facts and American history. *The Ancient Wood*: the award-winning work of biologist and documentary maker Mindaugas Sulvila, who leaves viewers of this unusual nature film totally free to interpret the natural spectacle as they wish. There is no commentary, just the rich, almost tangible sounds of the Lithuanian primeval forest and its diverse residents. A film that is best compared with a

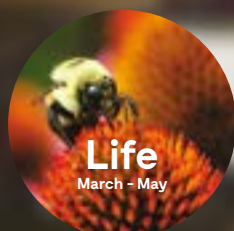


WAGENINGEN
UNIVERSITY & RESEARCH



LOOK BACK AT 100 YEARS WUR CELEBRATIONS AT WWW.WUR.EU/100YEARS

Relive our anniversary programme with the after movie.



gorgeous forest walk. Location: Wilhelmijnaweg 3A, Wageningen. €6.50/€5.

MOVIE-W.NL

Monday 26 November, 18:30-20:00
BOERENGROEP: INFO-SESSION ON RESEARCH OPPORTUNITIES IN FOOD FORESTRY

We aim to match students, researchers and practitioners and provide some food forestry and agroforestry case studies in the Netherlands and abroad. Food forestry is a system related to agroforestry, agroecology, permaculture, mixed agro-ecosystems, regenerative agriculture, etc. There are many research opportunities to investigate, on topics such as soil quality, carbon sequestration capacities, aboveground and belowground biodiversity, productivity, complex systems' design, policy frameworks, socio-ecological interactions, and more. Get informed and join the info session in Orion (west wing). Info via Facebook.

Monday 26 November, 20:00
EMMA'S COMEDY NIGHTS #28: TACKLING TITTING TOILETS

Another funky funny stand-up comedy night in English! Join MC Emma Holmes and five amazing comedians from around the Netherlands. Doors open at 19:30. Tickets €5 (€4 ISOW & 1xESN-students). Venue: Café Loburg, Molenstraat 6 Wageningen.

Thursday 29 November, 12:30-13:20
LUNCH WORKSHOP WAGENINGEN WRITING LAB / WUR LIBRARY 'REVISING OF TEXTS'

It is a myth that a well-written text is written in one go; revising is crucial! At first you fully concentrate on the content of your text, and only in the second stage on all the other aspects of academic writing. We will offer you practical strategies to revise your text. Do bring the draft version of your text with you! Free access. Be on time, as participant numbers are limited to 20. Venue: Forum C0656. Info: info.wageningenwritinglab@wur.nl.

Thursday 29 November, 20:00
LECTURE AND DISCUSSION: BEYOND PERSONAL SUFFERING! IS THIS POSSIBLE IN AN AFFLICTED WORLD?

Are you suffering when you see an unfair world? Are you curious if this personal suffering is useful? Can we really suffer less? Discover how you could answer these and more questions yourself. 'Everyone has the tools to stay Beyond Suffering, you only need to open the toolbox!' The interactive lecture and discussion is organized by SPECTRUM and led by Master's student Sergi Domenech Carbo. Venue: Building with the Clock, room 2007.

SPECTRUM-WAGENINGEN.COM

Thursday 6 December, 10:00-16:00
WRITE FOR RIGHTS 2018: AMNESTY WAGENINGEN

Every year around 10 December, International Human Rights Day, Amnesty International supports human rights activists in many countries through writing events held worldwide. Writing gatherings will be held at several locations around Wageningen. You can write on campus in both the Forum and Orion between 10:00 and 16:00. In the afternoon, we are in the public library from 14:00 to 17:30, and we are in THUIS on Stationsstraat from 16:00 to 22:00. This year we are campaigning for nine women human rights activists from all around the world.

WAGENINGEN.AMNESTY.NL

Thursday 6 December, 12:30-13:20
LUNCH WORKSHOP WAGENINGEN WRITING LAB / WUR LIBRARY 'CITING AND REFERENCING'

To avoid plagiarism in academic writing, it is essential to cite and reference the sources you used. But what sources exactly, where to put an in-text citation, and how to make a reference list? These questions will be addressed in this workshop, together with different citation styles and how tools like EndNote can save you countless hours of formatting reference lists. Admission free. Be on time, as participant numbers are limited to 20. Venue: Forum Library Room 259. Info: info.wageningen-writinglab@wur.nl.

Colophon

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In memoriam

Dr Judith Zwartz



Dr Judith Zwartz passed away at the age of 93 on 1 November. Soon after obtaining her PhD degree in Wageningen in 1967,

she joined the newly established Department of Human Nutrition in 1969. Her PhD work was on the identification of potato proteins. Proteins, food production and the importance of nutrition in developing countries remained the focus of her work at the university up until her retirement in 1990. In 1983, she got involved in the inter-university cooperation between Wageningen, Utrecht and Amsterdam and the agricultural faculty of the University of Benin. Besides nutrition and food technology, this collaboration also covered sociology, extension science, and economics. Many nutrition students did their internships in Benin.

Nearly 10 years after her retirement she took the initiative to establish the Dr Judith Zwartz Foundation. Initially the focus was on helping African PhD students cover the printing costs of

their PhD theses – with a preference for supporting female scientists. The sentence 'Financial support from the Dr Judith Zwartz Foundation for printing this thesis is gratefully acknowledged' has appeared in many theses and other publications. Later on, the foundation made funds available for public lectures and for travel grants for junior scientists from Human Nutrition, to facilitate working visits elsewhere in Europe and the US. Until three years ago, Jupie showed up at many social events in the Department of Human Nutrition and at other festivities such as the *dies natalis*. She was a very active member of several organizations and societies. The secretariat at Human Nutrition knew that one of the first things to do on Thursday was to ensure that *Resource* was posted to her. We will remember Dr Zwartz's active and stimulating involvement in many activities in the department and the university community.

Kees de Graaf, Division of Human Nutrition & Health

Jo Hautvast and Fré Pepping, Dr Judith Zwartz Foundation

>>TYPICAL DUTCH




ILLUSTRATION: HENK VAN RUITENBEEK

Give the Dutch their daily bread

You often hear that you get to know a country by eating its traditional food. In the case of the Netherlands, this results in a simple list of no more than 20 items. Go to any market and eat *stroopwafels*, *haring* or *kibbeling*, or maybe wait for a cold winter night to eat any variation of *stamppot*, *oliebollen* and *pepernoten*. However, what caught my attention most was the intimate relationship between the average Dutch person and bread. Yes. Bread.

Brood is the main component of the fast, efficient and cheap diet of these ever-hurrying creatures. Never mind the time or the weather, you can often see them with a bag of bread and something to put on it – hummus, *kip-joppie*, potato salad, or the infamous *hagelslag*. During class, riding a bike, on a boat, it really doesn't matter.

The only thing that matters is that the bread is 'fresh'. And to combine this freshness with Dutch efficiency and avoid having to go to the store every day, the Dutch commit the sacrilege of keeping their bread in the freezer. Yes! You read it right, the freezer! They say it's just a matter of seconds in the toaster and, 'while I eat one slice the other defrosts.' Of course I don't blame them. They just don't know any better. They say that for me to get the Dutch seal of approval I'll need to put my bread in the freezer too. Let's see how long I can withstand this pressure in a corridor full of these amazing creatures.  **Juan Camilo Arias, MSc student of Animal Sciences, from Colombia**

'Brood is the main component of the fast, efficient and cheap diet of these ever-hurrying creatures'

Do you have a nice anecdote about your experience of going Dutch? Send it in! Describe an encounter with Dutch culture in detail and comment on it briefly. 300 words max. Send it to resource@wur.nl and earn twenty-five euros and Dutch candy.