

Jip & Janneke

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RESOURCE [EN]

For everyone at Wageningen University & Research

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Food for fitness

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SAFETY AT WORK ACCORDING TO FIEP

Twenty-two drawings by Fiep Westendorp were discovered last month in the store of the Special Collections department at the Forum library. The Dutch illustrator famous for her illustrations of the *Jip en Janneke* books, did the drawings in 1965 for a film about safety at work in the florist's. They were never used, probably because they were thought too frivolous.  RK, illustrations © Fiep Amsterdam Ltd; Fiep Westendorp Illustrations

Read the whole story
on resource-online.nl.

Werk met kleine bewegingen

Make small movements



Ruimte op de werkplek

Space on the workfloor



Benut de zwaartekracht

Use gravity



Vervoer zoveel mogelijk tegelijk

Transport as much as possible in one go



Gebruik het juiste gereedschap

Use the right tools

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KEEP ON DEVELOPING...

OK, OK. I really was determined not to come up with deep thoughts so soon after New Year. But for ten days I've been asked repeatedly what my New Year's resolutions are. I have some but I'm not telling. Nevertheless, I do look back and ahead. I have a resolution that is at odds with what is happening on this campus. I've been driving to work here five days a week for nearly three years. If I look back to 2014, there are at least two large buildings, an amphitheatre, a maze of multicoloured asphalt roads and a marketplace not there yet. For me personally it's interesting to watch the development of such a busy location. It's a tight squeeze in places, like ants in an anthill. WUR has bought more land, including a farm. We are expanding in the direction of the motorway. We editors have got hold of a great kadaster tool: www.topotijdreis.nl, with which you can travel back in time and see how Wageningen and the campus have developed since 1815. Knowing your history can help you prepare for the future. Make a good year of it!

Edwin van Laar



>> **Who's going to furnish 16 new Idealis living rooms? | p.26**

PATENT ON CRISPR TECHNOLOGY IS VALUABLE

WUR is being paid a considerable amount for a patent on modern gene technology. Editas Medicine, an American biotech company, has signed a licensing agreement with three universities for the use of patents in the field of the CRISPR technology. Among them was a patent in the name of Wageningen microbiologist John van der Oost.

Editas is paying 6.25 million dollars to use a total of seven patents in the names of Massachusetts Institute of Technology (MIT), Harvard University and Wageningen University, and another 10 million dollars in exclusivity fees, some of which go to WUR. WUR patent expert Paul van Helvert, who was involved in the agreement with Editas, cannot mention figures. 'But it is the biggest patent-related deal I have ever struck,' he says. The patent fees could increase further if Editas develops successful applications of the CRISPR technology.

The biotech company wants to develop medical applications with the CRISPR technology, for which it wants to use knowledge about the enzyme Cpf1, with which precise changes can be made in the genome. The Wageningen microbiologist Van der Oost discovered how this

enzyme works. 'It is an immune system for bacteria to resist viruses,' explains the professor. 'The enzyme attacks the DNA of viruses, copies a fragment of virus and builds that into the CRISPRs, the recurring pieces of DNA in the bacteria. This way Cpf1 renders the bacteria immune to the virus. Half of all bacteria have this immune system.' Van der Oost and his American colleagues can for instance replace or repair DNA in plants, animals and humans using Cpf1. In 2015 WUR applied for a patent on his discovery.

Subsequently Van der Oost contacted his colleague Feng Zhang at MIT. This American university has several patents related to CRISPR technology under the auspices of the Broad Institute. MIT and WUR decided to cooperate in the exploitation of their combined patent portfolio. Editas Medicine will now get the exclusive worldwide right to medical applications of this CRISPR technology. The expectation is that it can be used to repair genetic defects such as certain forms of cancer in a very targeted fashion.

The universities are looking for other companies for applications in plant biology. Universities and non-profit organizations can just go



PHOTO: GUY ACKERMANS

on using the patented CRISPR technology for scientific research.

What WUR is going to do with the patent revenues is still under discussion. Some of the income will certainly go towards new research, says Van Helvert. Van der Oost would like to use the patent revenues to support innovative biotechnology research in Wageningen. **AS**



JUMPING INTO THE NEW YEAR WITH A SPLASH

Dozens of students and Wageningen residents braved the winter chill on 1 January and dived into the Lower Rhine from the beach near the Wolfswaard house. The New Year's dip was held this year for the seventh time. After a communal warming-up, these hardened souls ran into the chilly water at about three in the afternoon, braving a water temperature of about 4 degrees Celsius. These people of Wageningen were not alone in ringing in the New Year in this way: a New Year's dip took place at more than 200 locations across the country. **LvdN**

Curious to see what Wageningen's New Year's dip looked like? Watch the video at resource-online.nl.



24 REFUGEES IN IDEALIS ROOMS

Since October 24 Idealis has been housing 24 refugees in one of its complexes. The refugees hold temporary resident permits and are all living in rooms with their own facilities.

Attempts to accommodate status holders in student houses with shared facilities have so far come to nothing. 'Residents were given the option of registering if they wanted a refugee as a housemate but we have received only eight responses,'

said spokesperson Hellen Albers. 'That is not many, but it can be explained. Registration is voluntary; every housemate has to agree to it and at some locations, students are living ten or more to a corridor.'

The eight student houses that have registered have not yet been assigned a refugee. Albers: 'On the one hand, this is because no rooms became available at the right moment, but it is also because the status holders showed little interest in a student room with shared

facilities.'

By 1 July, Idealis must be providing accommodation for 50 status holders. This has been agreed with the municipal council. The refugees concerned are young people who speak English and preferably are still studying. Idealis hopes that student houses will sign up even now. The accommodation agency will ensure a good match between the student house and the refugee and extra guidance will be provided.

RLN

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Preventive homesickness

My PhD is like a tired marriage where you stay together for the kids. The first two years were great but then the annoyances started. And meanwhile my journalist urges were getting stronger. But you don't just abandon a PhD.

And so I kept going. I often thought: this is ridiculous, I'm going home. Those weren't very productive days but I stayed put.

The night before my last conference presentation I decided I would definitely not give my presentation. As I tossed and turned in bed, it seemed the perfect protest against the academic system. But I still went out there and did it. In fact, I suddenly realised that it was going to be my last time.

Since then I've been suffering from preventive homesickness. Every time I run a linear mixed model I feel more nostalgic. Whenever I have to supervise my student, it occurs to me that science is actually rather fun. Sometimes I wince at the thought that I'll soon no longer be able to read scientific papers.

And my affair with an investigative journalism platform is not turning out to be a bed of roses either. The work is fine but after sweating away for ages and finally writing something, I hear on Facebook that a download price of 29 cents is pretty steep. That is when I suddenly feel the attraction of a government salary plus pension.

Or my new colleagues (great guys, don't get me wrong). I get to Amsterdam only to hear that Wageningen is on the other side of the world. That's when I feel homesick for the days of sharing an office with Italians or Chinese people.

I just know it's going to be disaster and I'm going to get so annoyed. But at least these are disasters and annoyances I know. Perhaps a postdoc is not such a bad idea after all. R

Stijn van Gils (29) is doing doctoral research on ecosystem services in agriculture. Every month he describes his struggles with the scientific system.



PHOTO: GUY ACKERMANS

in brief

>> THIRD PLACE

WUR has sustainable university

UC Davis in the US is the most sustainable university in the world. WUR is in third place, says the GreenMetric Ranking by the University of Indonesia.

This ranking is based on the sustainability scores of universities around the world. Universities were allotted points for sustainable transport, including bus and bicycle use, and for reduction and recycling of waste. There were also points for sustainable energy and buildings, and for the attention paid to sustainability in the education programmes.

UC Davis in California tops the ranking with 8398 points, the University of Nottingham in England comes second with 8079 points and WUR comes third with 7658 points. R AS

>> LAST TERM

Tijs Breukink will stop in October

Tijs Breukink will step down as executive board member at WUR on 1 October 2017, at the end of his third term on the board. Breukink will then have served on the board for 12 years. His brief covers operations, finances and campus development. The supervisory board has started the procedure for finding Breukink's successor. At the start of his third term Breukink agreed with the supervisory board that it would be his last. It is not known what he is going to do next. Breukink's crowning achievement has been the development of the Wageningen campus. R AS



>> COLLABORATION

Environmental ministry on working visit

The ministry of Infrastructure and Environment Milieu (I&M) and the national water board Rijkswaterstaat have signed an agreement to collaborate with WUR. This took place in Impulse on Tuesday 10 January. The ministry is mainly interested in Wageningen expertise on the circular economy, climate and energy, spatial planning and ecology. Bram de Vos, director of the Environmental Sciences Group, welcomed the 20 directors from the ministry and Rijkswaterstaat, who included Chris Kuijpers (director-general for the Environment at the ministry) and Jan Hendrik Dronkers (director-general of Rijkswaterstaat). Wageningen researchers presented their research in 'break-out sessions', and the ministry and Rijkswaterstaat outlined which policy issues are currently at stake and what kind of expertise they are seeking. This introduction should lead to new research assignments from the department of the environment and Rijkswaterstaat. R AS

BIG EXPANSION OF EXPERIMENTAL FIELDS

Wageningen plant researchers are set to get a big additional area of experimental fields. This has been made possible by the purchase of a dairy farm on the Langesteeg with 19 hectares of land. The farm in question is Nergena farm at number 21. The head of real estate Eise Ebbelink (Facilities & Services) calls it a strategic purchase. 'The neighbour's land is only for sale once, as the saying goes. This land borders our land, so it is easy to include it in land use plans. That makes it attractive.'

According to Ebbelink, the going rate was paid for the property and the land. As well as the land, the farmhouse and barns were taken over too. The barns will probably be used for storage. What will be done with the farmhouse is not yet clear. Ebbelink: 'What we were interested in was the land. That was crucial to this purchase.' In any case, there is still time to think about how to use it. 'The previous owner still has to close down his business. That will take a few months.'

The land is currently used as grassland. Most of it is perfectly usable, says Ebbelink, and a small area needs some work before it can be used as an experimental plot. A lap of 19 hectares sounds like a lot, but it is not that much, says Ebbelink. For WUR (see map), this constitutes a relatively small expansion. WUR is a major landowner in Wageningen. Through this purchase, WUR now owns all the land between the campus and the Slagsteeg.

The purchase of this land makes it possible in theory to restore the Bornsesteeg to its full former length. The Bornsesteeg used to run all the way to the Nergena farm on the Slagsteeg. That farm appears for the first time on a topographical map of 1870. The road existed until the nineteen seventies, but now the Bornsesteeg is a dead end, ending at the Nergena green-



The purple patch shows the 19 hectares of land bought by WUR.

houses. The cyclists' union has been campaigning for a long time for an alternative rural route between Ede and Wageningen. Now cyclists have to come down the busy Mansholtlaan. A link with the Langesteeg via the tunnel under the Mansholtlaan and the viaduct over the A12 makes a rural through-road to Ede-Wageningen station possible. Ebbelink says there are



The farmhouse and barns at Nergena farm

currently no plans to restore the old Bornsesteeg, however. **✉ RK**

PHOTO: ROELOF KLEIS

EDUCATION TOP-UP

This year it will become easier for staff at Wageningen Research to contribute their expertise to Wageningen education. Their high rates actually make them too expensive for education. A new fund will compensate for the gap in rates.

From January 2017, institute staff can apply to the new fund, to which the executive board will

allocate 250,000 euros a year. 'The fund facilitates the collaboration between Wageningen Research and university education, contributing in the process to One Wageningen,' says the board.

Hiring staff from Wageningen Research to teach on courses has proven difficult. They are obliged to charge an integral hourly rate which is higher than that offered for teaching. The

fund stipulates that the institute staff member should teach for no longer than three months. Other arrangements exist for a longer period of teaching, says the education institute. The fund is a result of the strategic planning round of 2014, when the executive board did the rounds of all the science groups. DLO staff indicated then that they could not teach at Wageningen University because of internal barriers. **✉ AS**

PERCENTAGE OF FEMALE FULL PROFESSORS DOUBLED

The number of female full professors at Wageningen has increased considerably. In fact, in one year the ratio of women to men has doubled. The university's target is for one quarter of all professors to be women by 2015.

More than two years ago, Wageningen was lagging behind: in terms of fulltime jobs, only 7.6 percent of full professors were women. The latest Women Professors Monitor, which has just been published, shows that the percentage had gone up to 11.9 by the end of 2015. This puts Wageningen ahead of the technical universities of Delft and Eindhoven, and of the Erasmus University Rotterdam.

The most up-to-date data is even more positive. In the past year several new women professors have been appointed at Wageningen. The counter stands currently at 15.6 percent. This means that the proportion of women full

professors has doubled in two years. Five of the eight full professors appointed this year were women.

Besides the full professors, the survey counted personal professors, who also have permanent contracts, unlike professors by special appointment. At the moment, 23 percent of personal professors are women. This brings the total percentage of women professors (both full and personal professors) to 17.8. This total percentage has only gone up by a few percent, in spite of the increase in the number of women full professors. This is down to the appointments policy for personal professors: of the ten new personal professors this year, only two are women.

Wageningen brings up the rear among Dutch universities when it comes to the gender ratio among associate and assistant professors. Only one quarter of associate professors and one third of assistant



PHOTO: KOEN GUKING

Communication prof Noelle Arts is one of Wageningen's well-known women academics.

professors are women. For both categories, this puts Wageningen in 11th place nationally. This is in sharp contrast with the proportion

of women PhD candidates: 4.4 percent. On this front Wageningen scores the highest of all Dutch universities. **RK**

COVER PRIZE 2016 THANKS TO LOCAL FISHER

Audrie Jacky Siahainenia won the Cover Prize 2016. The cover of his thesis on 'Fishing pressure' got one third of the 1718 online votes. The runner-up was Janneke Ouwerkerk ('Akkermansia'), with almost one quarter of the votes (23 percent). And in third place with 10 percent of the votes was Ynte van Dam ('Thinking and doing').

Jacky Siahainenia was happily surprised by the news that he had won. He did research on the effects of small-scale fisheries on the protected mangrove regions off the coast of East Kalimantan. The cover shows an edited photo of a local fishing boat. The golden-coloured boat stands out clearly against the blue background.

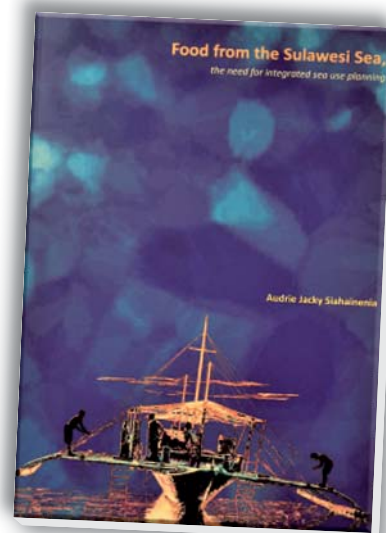
'The photo was taken by the

captain of the boat when we were doing fieldwork there,' Siahainenia explains. In the middle of the thesis we see a small figure of a man. This is Siahainenia, who seeks 'to get to understand the dynamics and complexity of the mangrove system in this part of the Sulawesi Sea.'

Siahainenia marshalled a lot of people to vote for his cover,

through Facebook, LinkedIn, WhatsApp, the two chair groups he's involved in, his social circles in Wageningen and at home in Indonesia, and the fishers of East Kalimantan with whom he worked a lot. With so much support he could hardly fail to win the prize.

Siahainenia got his PhD in August and is still living in Wageningen. 'I would like to carry on with research in an organization which works on the management and conservation of marine resources, which are so essential for feeding future generations. But the future of a PhD graduate is always uncertain.' **RK**



SUPERMARKETS PROFIT FROM PRICE FLUCTUATIONS

If food prices fall on the retail market, supermarkets do not hesitate to pass on the lower prices to farmers and market gardeners. But if the price of pork or vegetables go down due to a surplus at the start of the food supply chain, the supermarkets do not pass on much of the benefit to consumers. Like this the retailers use their power on the market to increase their profits, notes the Wageningen doctoral researcher Tsion Taye Assefa.

De bedrijfseconome uit Ethiopië onderzocht The business economist from Ethiopia studied how market players deal with price fluctuations on the food supply chain, focussing specifically on the German market for pork. Her study revealed that the supermarkets push down the price of pork at the abattoir when supply is high or demand is low, and the abattoir passes on the cut in price to pig farmers. But they do not translate that lower price into a lower consumer price in the shop, thus increasing their margin. 'The greater the volatility (price fluctuations), the bigger the margin the market leaders can get like this,' says Tsion.

The familiar pig cycle, which meant pig farmers saw good years with low supply and high demand alternate with bad years with high supply and lower prices, is a thing of the past. 'The market has changed utterly,' says Miranda Meuwissen, one of Tsion's supervisors. 'In the past a low supply of pork on the Dutch market led to higher prices; nowadays it leads to more imports and persisting low prices.' This is because of globalization, on account of which supermarkets and abattoirs are less able to compensate for a fall in meat supply with increased imports. For the same reason they do not have to compensate farmers with their buying prices for rising costs resulting from higher transport costs and environmental measures.

Food producers have four ways



PHOTOS: SHUTTERSTOCK

of coping with price fluctuations, says Tsion. The most usual approach is one of survival: minimize the losses, cut costs and reduce production or draw on your capital. The second is flexibility: take things one day at a time, seeing whether you should buy or sell. Follow the mar-

'In the past a low supply of pork on the Dutch market led to higher prices; nowadays it leads to more imports and persisting low prices'

ket. The third is hedging: cover yourself with insurance, fixing the sales price for six months, for instance. And the fourth approach is control: signing a contract with a fixed price. Such a contract often also states when you should deliver the goods and what the quality should be. A contract offers more security, but it can give a false sense of security, is Tsion's assessment. 'If you agree on a fixed sales price, but your input prices still vary, you could lose your margin just like that.' Insurance is tricky too, adds Meuwissen. 'A popular form of insurance in the US is revenue insurance, with which producers insure both the profits and the price. You might think this combi-insurance would be cheap, be-

cause prices are high when supply is low and vice versa, so you always get a decent profit. But this market mechanism isn't working anymore at national level. As a result, this kind of insurance has become very expensive.' Tsion demonstrated this by calculating the premium for this kind of insurance for the Dutch potato sector. The premium was much higher than you might expect.

So what should food producers do? The only way around this reality is to produce quality products for a niche market, says Tsion. Something else which helps is for the farmers to get together in cooperatives in order to be a more powerful player on the market. Tsion compared the market positions of Dutch and Spanish tomatoes, and saw that the position of the Dutch tomato growers was a lot stronger. On the one hand, that is because they can control their yields better in their greenhouses with climate regulation, and on the other hand it is because they have clubbed together in a growers' association. With that association they can negotiate directly with supermarkets about product volume and price. Then they have to deliver added value, adds Meuwissen. But it is often very difficult to monetize that added value on the anonymous export market. In that case producers are better off going for the flexible approach, says the Ethiopian PhD candidate. 'Go with the market.' **AS**



HUMAN NUTRITION JOINING FORCES WITH NIJMEGEN BRAIN SCIENTISTS

The WUR Human Nutrition department will be collaborating closely in the field of nutrition, cognition and the brain with the Donders Institute at the Radboud University in Nijmegen. Kees de Graaf, professor of Sensory Science and Eating Behaviour, says they were already collaborating but now they will have joint employees and PhD candidates.

The nutrition and brain researchers at Wageningen and Nijmegen are already cooperating in the NWO project 'Satisfaction' in which they investigate the effects of conscious and unconscious eating. 'We discovered that concentrating on eating makes you feel full sooner,' says De Graaf. 'If you eat a packet of crisps in front of the TV, you'll finish it without noticing. If you sit down to a meal, you'll feel satiated sooner. The Donders Institute does neurobiological research on what happens in our brain while we focus on the effects of chewing and exposure to flavours.'

De Graaf is also working with the Donders Institute in a project funded by the European Regional Development Fund on whether you can taste the energy in your

food. That turned out to be the case, says the professor, but only if you chew the food and taste it on your tongue. 'If that food is on your tongue, you can perceive whether it contains energy. But if you quickly down a soft drink, you won't get a chance to detect the energy.'

De Graaf is very satisfied with the collaboration. 'The Donders Institute is a top act in the field of brain research while we are a leading group in nutrition studies. The collaborative venture will create a strong combination so that we can tackle major research questions.' The professor has in mind such topics as the design of healthier foods and a food environment that can reduce obesity.

The new combination is aiming for a research turnover of ten million euros over the next five years. Two researchers from the two institutes will be working part-time in both Wageningen and Nijmegen. They will supervise PhD candidates exploring research issues at the interface of nutrition, the brain and cognition. De Graaf: 'We have to generate that turnover ourselves. We will be writing research proposals together for NWO, the EU and the top sectors.' **AS**

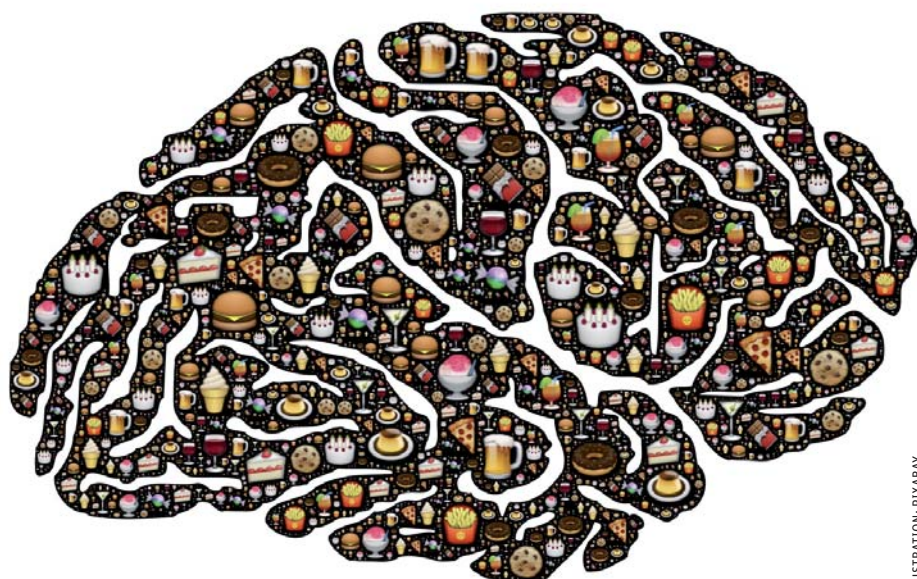


ILLUSTRATION: PIXABAY

VISION <<

Meaty names for vegetarian products

The German minister of Agriculture wants to ban terms such as 'vegetarian schnitzel' and 'vegan sausage'. The use of meaty-sounding names for vegetarian or vegan products is seen as misleading. The VVD party in the Netherlands agrees, and MPs Helma Lodders and Erik Ziegls have asked minister of Public health, welfare and sport Edith Schippers to discuss the issue with the manufacturers of meat substitutes.

A lot of fuss about nothing, thinks Hans van Trijp, professor of Marketing and Consumer Behaviour at WUR.

Is the term 'vegetarian schnitzel' misleading?

'I don't know exactly what the legal position is. If the legislation says something clear about it, then I think it's right to ask questions about it in parliament. But I doubt it. Consumers have a right to accurate and complete information, and it is possible that false expectations might be raised. I would think that's unlikely, however, since supermarkets clearly separate the vegetarian versions from the non-vegetarian ones. I can hardly imagine that anyone would look in the pan at home and think, 'Hey, this isn't not meat!' So I don't think it's misleading. If you buy artificial grass you realize it's not plant matter too.'

Why do producers choose these names?

'When a product is named, a noun indicates what the product is or does. Then an adjective is added to indicate what is distinctive about it. For example, a barbecue sausage is a sausage that barbecues well. In marketing terms we call this "categorization". It determines whether you call something a 'vegetarian schnitzel' or a 'schnitzel-like meat substitute'.

So, vegan sausage: yes or no?

'I think the quality of the current generation of "plant-based meat substitutes" deserve to position themselves as genuine alternatives to animal protein sources. This is a contribution to the protein transition we need, and the name can help with that. So I am all in favour of vegetarian schnitzels and vegan sausages.' **TL**



POSSIBLE LINK BETWEEN EMULSIFIERS AND INTESTINAL CANCER

Two emulsifiers used in food products turn out to cause an inflammatory response in mice that increases the risk of intestinal cancer. 'That is the first sign of a possible link between emulsifiers and intestinal cancer in humans,' says Ellen Kampman, professor of Nutrition and Disease.

In the study at Georgia State University in the US, published in *Cancer Research*, mice were administered polysorbate 80 (E433) and carboxymethyl cellulose (E466) via their food. They were given dosages corresponding to high levels of consumption of the processed foods that

contain these emulsifiers. The diet led to a change in the gut flora in the mice, causing mild inflammation that made the mice more susceptible to the development of intestinal tumours.

Kampman qualifies the results by pointing out that this is just one study. 'You always need multiple studies, including research on humans, before you can draw any conclusions.' But Kampman does think it is interesting research and the first sign of a possible link between emulsifiers in food and intestinal cancer. 'I think this needs to be investigated thoroughly in further studies.'

For the studies in humans, she would be interested in a comparison of the gut flora in people with a high intake of emulsifiers via their food with the flora of people who hardly consume any emulsifiers. A clinical trial could then show what happens to the gut flora and intestinal inflammation in people with a high intake of emulsifiers when they are put on a diet with almost no emulsifiers.

It has been known for some time that intestinal cancer can be caused by inflammation in the intestines. A link has also been demonstrated between changes to the composition of gut flora and intestinal cancer in humans. 'But we don't know whether that is a consequence of the disease or the cause,' says Kampman. Her group is working on a study of 1500 patients with intestinal cancer to get a better understanding of this.

Should we be avoiding emulsifiers as a precautionary measure? 'There are other E-numbers that have been shown to be carcinogenic in animal testing but that humans consume in such small doses that they don't lead to intestinal cancer. Predicting the effect on humans from animal tests is always very tricky.' **R AJ**

Mayonnaise contains lecithin, an example of an emulsifier in food.



PHOTO: SHUTTERSTOCK

POULTRY MITE COUNTER CATCHES CHICKEN VAMPIRE

Monique Mol at Livestock Research has developed a mite counter with which poultry farmers can detect the red poultry mite in the barn.

The red poultry mite, a vampire that is hard to control, is the chief pest for laying hens around the world. This little vampire hides in cracks and holes in the poultry barn and crawls out at night when the hens go to roost. It climbs up the roosting poles to the hens' necks to feast on their blood. A population of mites can grow fast in the barn – just one mite can have 2600 descendants. The mites depress the chickens' immune systems, affecting their wellbeing, spreading diseases

and in extreme cases causing death. The mite costs Dutch farmers about 35 cents per hen per year, according to the poultry sector.

The mite counter is intended as part of integrated pest control targeting the poultry mite. Without a good monitoring system – a mite counter – it is hard to keep track of the progress and control of a mite plague. Mol developed a detection box which proved to work well. A company is currently testing a prototype and working on upscaling the poultry mite counter.

The counter works on a simple principle. Mol: 'The poultry mite has a hotel, a crack in the barn, and a restaurant, the chicken's

neck. We have to catch them on their way between the hotel and the restaurant.' Because the vampire often reaches the chicken via the roosting pole, the little square gadget hangs under the roosting pole in a PVC casing. There is a tiny hole in the plastic, and thanks to a processor it emits heat. The mites are attracted to that, crawl into the gadget and are counted by a sensor. 'In a trial experiment the gadget counted one to two percent of the population,' says Mol. 'That makes it possible to determine the total number of poultry mites. It is a good indicator of whether the plague is growing or shrinking.'

The poultry sector sees the usefulness of the vampire coun-

ter, says Mol. It is often hard to get a good overview of a mite plague. Also, it is not known how long a pesticide remains effective against poultry mites. The plague can be controlled better with the poultry counter. The study is funded by the Poultry and Eggs product board and the ministry of Economic Affairs. Mol thinks other sectors would benefit from a fully automated pest counter too. 'Dutch horticulturalists employ scouts to monitor the progress of plagues in their greenhouses. These workers control outbreaks of red spider mite, for instance. We should use our method to make a spider mite counter and a thrips counter.'

R AS

New Year is a time to take stock of the year that's gone by. And that is what the bloggers did have their say every week on the website.

MEANWHILE ON...



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HOPES FOR 2017

It was such a disappointment, 2016. If you believe (like I do) in an open world, where a free flow of capital, people and ideas inspires governments rather than frightening them, then this whole year seemed to consist of one loss after another.

Brexit is but one example. The Syrian crisis and its victims being abandoned by the world. Russia's anti-gay propaganda law, which allows for horrific abuse of homosexuals. The Philippines' war on drugs, with thousands of murders and a president who boasts about personally shooting criminals. The year's nadir materialized in the form of a man with an ugly pompadour and a mean tongue, who our American friends, or Unitedstatesians as

the rest of America calls them, elected as a leader. Even right here in the Netherlands, a country known and loved for its long-standing tradition of cultural diversity and tolerance, you'll find flourishing politicians bidding newcomers to reject their beliefs. The far-reaching rise of nationalism around the world makes next year seem an even more vexed prospect.

I have been in contact with dozens of differing cultures and opposing views, and I've come to realize one thing: how similar we are.

2016, how discouraging! But wait. Let's focus not only on the bad, noise-making news. Let's focus on the small things, the everyday folk you never hear about. Let's focus on places like Wageningen.

During my year here, I met people from all around the world and explored other cultures without ever visiting their place of origin. I left a small piece of my heart with every person I encountered, and in return, they left a piece of theirs with me. I have been in contact with dozens of differing cultures and opposing views, and I've come to realize one thing:

how similar we are. It matters not if you eat tacos, pasta or falafel; or if you dress this way or that. No one will mind if you pray to one God or another or none. Nobody mocks whom you choose to love. People here unite in their search for what is beautifully stated in our university's motto: for quality of life. For everyone, that is, not only our own. It is while thinking about the people I've met, their warm embrace and day-to-day small deeds of kindness, and by bearing in mind they will be the ones who shape the world to come, that I say: Yes! The good still outweighs the bad. Yes! This is a marvellous place. Yes! There is still a chance for love.

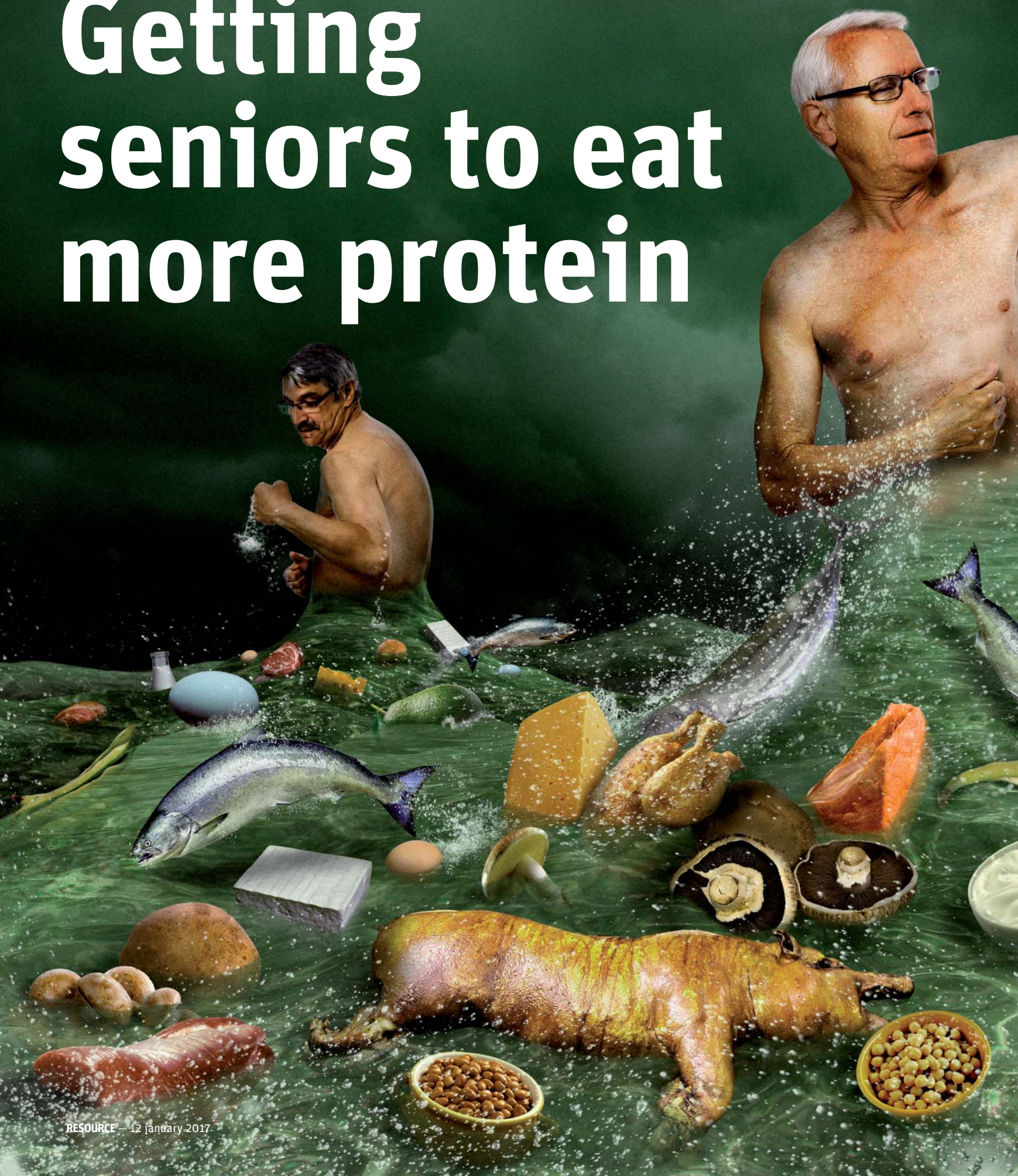
BLOG



Leonardo Medina Santa Cruz



Getting seniors to eat more protein





A combination of extra protein and more exercise keeps up muscle tone and strength in the elderly. This much is clear. The question is, how do you make sure seniors actually get enough protein and exercise? A series of Wageningen projects aims at answering this question and bringing lasting behaviour change a step closer.

text Joost Visser illustration Pascal Tieman

‘A candle isn’t dimmed when you use it to light another candle,’ said the 13th century philosopher and mystic Mevlana. And this is the motto of the thesis for which Canan Ziylan received his PhD at Wageningen University on 9 December. ‘You don’t lose anything by helping other people to make progress,’ says the young doctor about his choice of text. ‘And a lot of people worked selflessly on this thesis too.’ You could apply the same idea to the topic of Ziylan’s study too: the significance of protein-rich meals for vulnerable seniors. His study is one of a broad range of studies at WUR, all aimed at preventing seniors from losing muscle mass and strength too fast, at the expense of their physical performance.

VULNERABLE SENIORS

It was Michael Tieland who showed in his Wageningen PhD study ProMuscle (2013) that the combination of protein supplementation and strength training could combat this loss of muscle mass and strength – known as sarcopenia. In one of his intervention studies over 60 vulnerable seniors followed a strength training programme for six months. Half of them were given a supplement of 15 grams of protein a day; the other half were given a placebo. The muscle power of both groups grew by 40 percent in those 24 weeks. However, the muscle mass of the control group hardly changed, while that of those who had received protein as well had increased by an average of 1.3 kilos. Conclusion: long-term strength training is an effective way of improving the physical performance of fragile seniors, but extra protein consumption is necessary to actually increase their muscle mass.

‘So there is room for improvement among seniors who are not active and whose protein intake is not optimal,’ says Lisette de Groot, professor of Nutrition of the elderly, and one of Tieland’s supervisors. ‘It is not true that it no longer makes any difference once people are old.’ Her own research is focused on all four determinant of the performance of elderly people: cognitive decline (which can lead to dementia), osteoporosis (reduced



PHOTOS: SHUTTERSTOCK

tion) and sarcopenia. With reference to the latter, she notes that muscle mass is active tissue. The 'turnover' – the incorporation and release of proteins – is quite rapid. 'A senior who is bedridden, for instance, loses muscle mass quickly. If that happens frequently, the decline is progressive. Strength training can slow that process, in combination with adequate protein intake.'

MEAL DELIVERY SERVICE

It has repeatedly been demonstrated that this is the best combination, agrees Ziyland, whose research was also supervised by De Groot: 'But that was always in the context of academic research, with motivated participants. The question is how you can reach seniors living at home who don't look after themselves properly and are much less motivated.' For one of the four studies in her thesis, she interviewed over 300 vulnerable seniors, all of them dependent on a meal delivery service. A little over one fifth (22 percent) of them turned out to be undernourished, and another seven percent were at risk of becoming so. Why is that? The meals – on average 45 grams – turned out to be too big for most of the customers, and they also suffered from a loss of appetite. Ziyland: 'The older you get, the fewer signals you get that you are hungry or thirsty. People's appetites also diminish because they get less exercise. And for some of them food stops tasting good, sometimes because of the medicines they take.'

The solution was obvious: small meals with extra protein. For a laboratory study involving 120 seniors living at home, Ziyland and a ready meals producer developed a few popular meals (such as chicken with spinach and mashed potato), each in four variants. There were large (450 gram) and small (400 gram) portions, with normal (25 gram) and extra-large (30 gram) servings of protein. It took a while to find the right formula. 'At first we used protein powder, but when you heat that up in a microwave the puree changes into something resembling wall-

paper paste. The only way to make it work was with milk powder and extra milk or water.' Regardless of the size of the meal, the test subjects (who didn't know anything about the four variants) – always ate 85 percent of the meal. So without realizing it, those who got a large, protein-rich meal ate the most protein. A disadvantage was that these people had a satiated feeling for longer than the others. They might therefore compensate by eating less at the next meal, or by skipping a snack, which would cancel out the effect of the extra protein.

DIETICIAN

This led to a last, double-blind study in which 42 seniors living at home were served one of 16 meals every day for two weeks. The meals were all the same size but 8 were normal and 8 protein-rich. The meals went down well, whether they were enriched or not. Nor did the enriched meals lead to the feared 'compensation', as an analysis of diaries handed out beforehand revealed. All in all, people who had had the protein-rich meals had consumed 87.7 grams of protein per day, including the protein-rich bread served for breakfast and lunch. The others stayed at 73.1 grams, a difference of 14.6 grams. 'It is important to pick up a protein deficiency in seniors early,' concludes Zijlan. 'By asking them to write down what they eat for a few days, for instance. A carer can then see what goes wrong, and can refer seniors to a dietician in good time. That doesn't happen often enough at present.'

Zijlan's findings are in line with those of Janne Beelen, who got her PhD two months previously for a similar study. In the *Cater with Care* project, which WUR is involved in, she studied the effect of specially developed protein-rich foods such as bread, juice and soup on the protein intake and physical performance of seniors.

'It is important to pick up a protein deficiency in seniors early'

While they were inpatients at the Gelderse Vallei hospital, 147 seniors were on a menu including such products. Of the intervention group, 79 percent achieved the target of 1.2 grams per kilo of bodyweight per day, as opposed to 48 percent of the control group. Half of the participants wanted to carry on with the study at home. In the 12 weeks of the follow-up study, 72 percent achieved the target as opposed to 31 percent of the control group.

FOUR DAYS

Extra protein combined with strength training is not just effective for vulnerable seniors; it can also be useful for patients who get less exercise than desirable in their daily lives, and who are due to undergo an operation soon. 'From a physiological point of view, a major operation lasting a couple of hours is the equivalent of strenuous sport,' says Maria Hopman, professor of Integrative Physiology at the academic hospital Radboud UMC and 'figurehead' at the innovation centre *Eat2Move*. She

supervises PhD research intended to establish whether protein and exercise will help patients of 50 to 70 years of age cope better with – in this case – a bowel operation. A randomized controlled trial is planned for next year in the Gelderse Vallei hospital. The prospects are promising: preliminary studies showed that in just two to four weeks the muscle power of inactive seniors can be boosted considerably with the help of protein and exercise.

Hopman, who works in Wageningen one day a week, is best known for her study of walkers in the four-day walking event the 'Nijmeegse Vierdaagse'. For next year she has plans for a study of the effect of extra protein on the muscle mass and strength of the countless fit 60-somethings who take part in the walk and of whom it is known from surveys that they consumer less than 1.0 grams of protein per kilo per day. About 120 walkers will be taking part in the study, half of whom will be given a daily protein drink and the other half a placebo. They have to drink the mixture at breakfast (usually the least protein-rich meal of the day), straight after their daily walk. Hopman: 'We will start in April and carry on until the four-day event itself. On those days we will monitor whether the walkers who had the extra protein get less muscular pain and recover faster, as we expect.'

IN PRACTICE

Back to ProMuscle, Michael Tieland's pioneering study. It was done in a controlled setting: the participants came to the university and received their training and protein drink, as well as guidance from the researcher. The approach is different in the follow-up project, ProMuscle in Practice, which started last month. Until the autumn of 2018, about 200 vulnerable seniors of 65 and older will take part in the project, half of them in an intervention group and the other half in a control group. They will be divided into five groups started in succession, in five municipalities in the Veluwe area. After a baseline measurement, the members of the control group will carry on as usual until the final measurement 24 weeks later. Meanwhile, their counterparts in the intervention group will first get 12 weeks of strength training from physiotherapists at a health centre in their municipality. After that they will proceed as an 'exercise group' to the local sports club for another 12 weeks of training – in the hope that they will then continue with this later on their own initiative.

'The focus of the training is on the leg muscles,' explains Nick Wezenbeek, one of the two PhD researchers working on the ProMuscle studies. 'People push against a surface with their legs, or push a weight upwards. Depending on their strength, one might start with 40 kilos and another with 100 – but for all of them the weight is gradually increased a little bit every time.' Besides these trainings, the participants get personal nutritional advice from a dietician. The aim is for every participant to be consuming at least 25 grams of protein per main meal: breakfast,

lunch and dinner. Wezenbeek: 'Our main aim is to increase the amount of protein eaten at breakfast and lunch. Not by giving them a protein drink but with standard products you can buy at the supermarket. That way it is easier for people to change their habits.'

BEHAVIOURAL CHANGE

After 24 weeks the researchers will see whether the participants in the intervention group really have made progress, compared with the others. 'In this measurement we look especially at physical performance,' says Wezenbeek. 'What is these people's walking speed? How fast can they get up out of a chair? What is their balance like? We also look at muscle strength and at muscle mass and bone density, using a DEXA scanner.' The participants' healthcare costs are scrutinized as well: is there a difference between the two groups in terms of visits to the doctor and the physiotherapist? Or in terms of their need for home-based care and rehabilitation? Wezenbeek: 'We reveal not just what the programme costs, but what it saves. If the balance is positive, it could perhaps be implemented elsewhere as well.'

The research on the effect of protein and exercise on the performance of seniors has clearly developed since it started in the laboratory. Now it takes place mainly in the context of everyday life, and the seniors involved are no longer passive test subjects but active participants. Which brings behavioural change a step closer – and that was precisely the idea. **R**





HAPPY MEMORIES

The green bow around the pebble on the bureau gives away the fact that it was a gift. 'I got it from students after field work,' says soil science teacher Gert Peek. 'It is a piece of marl limestone from South Limburg. The stu-

dents bought it, because you can't just pick up something like that in the field.' The stone means a lot to him, as do all the other mementoes Peek's office is decorated with. The photos on the noticeboard, a gilded soil

drill in the corner. Tokens of appreciation after a week of fieldwork. 'Unfortunately I haven't been getting them so often in recent years. I don't know why that is. Maybe it's something to do with individualization in



society. You used to get a speech, some applause and sometimes a memento. Nowadays they just walk off at the end.' It can't be a reflection of his teaching. Gert Peek is one of Wageningen's top teachers, and was twice

elected Teacher of the Year. He's also got two bronze plants on his desk, received for 'excellent education'. 'Known unofficially as the dickhead,' says Peek. 'Got it for the course I coordinate, but they were for the whole team

really.' Peek likes having all these mementoes around him. 'Your workplace should be a nice place to be, and have atmosphere. It's the place where you spend a big part of your day.'

© RK, photo Margriet van Vianen

Weaving with roots



Normally, roots go their own way. Hidden from view, they do their own thing. That is, unless they fall into the hands of artist Diana Scherer. A veritable plant tamer, Scherer forces roots to grow the way she wants them.

text Roelof Kleis photos Diana Scherer

Anyone who has ever dropped a pot plant gets the picture. The clump of white roots has taken on the shape of the broken pot. Petrified life force. Quite beautiful really. This is more or less how it started for the German artist Diana Scherer. 'I was fascinated by it and I took pictures and hung them up in my studio. Then I thought: what can I do with this?' This turned out to be the start of a quest, the results of which so far can be seen in *Impulse*, where Scherer's intriguing root art will be exhibited for another month.

The clumps of roots inspired Scherer to create a series of root vases: flowers in vases made out of their root systems. 'What happened was that I discovered that every plant has its own type of roots. Every root system is different in shape and structure. Chamomile, for instance, has rough, very woolly roots. Grass has silky, white roots. One plant only makes thick ropes while another makes those tiny little hairy roots, making it rather cuddly.'

Scherer spent two summers experimenting in her studio in Amsterdam. 'And that was not easy at all. Not every plant wants to be forced into any old vase. I had to really research that, and lots of things went wrong at first. Roots that rotted away, for instance, because it was too wet. In the end I made a book containing 32 different plants.'

EXPERIMENTING

But the real manipulation was still to come at the point. It became clear to Scherer that she wanted to carry on working on the roots after the vase phase. At some point it occurred to her that the roots could be used as yarns. 'Then I got the idea that I wanted to weave. I thought: that's cool, I'm going to make a textile out of this.' Because if roots can take on the shape of a vase, why not another form imposed on them from outside?

It took Scherer over a year of experimenting before she 'had something to show for it that looked a bit presentable.' Exactly how she managed that is her secret. 'I worked on this for a very long time and I don't want other people imitating it. If someone wants to do it, they'll have to figure it out for themselves. It's a bit like a painter who worked for three years to get the perfect blue. That's a trade secret, I'm not giving it away. What is more, there is potential here for new materials.'

'Also, as an artist I feel it detracts from the magic if you know how I did it,' adds Scherer. 'I feel I'm betraying my work if I tell people how I do it.' Without going into details, then, what it boils down to is that Scherer gets roots to grow in a template-like mould. And the roots do

that, she explains, because they are continuously searching for food. 'What they really want is to grow downwards in search of water and nutrients. They search in every direction and go wherever I give them space to go. The dynamics and power of the growth process are incredible.'

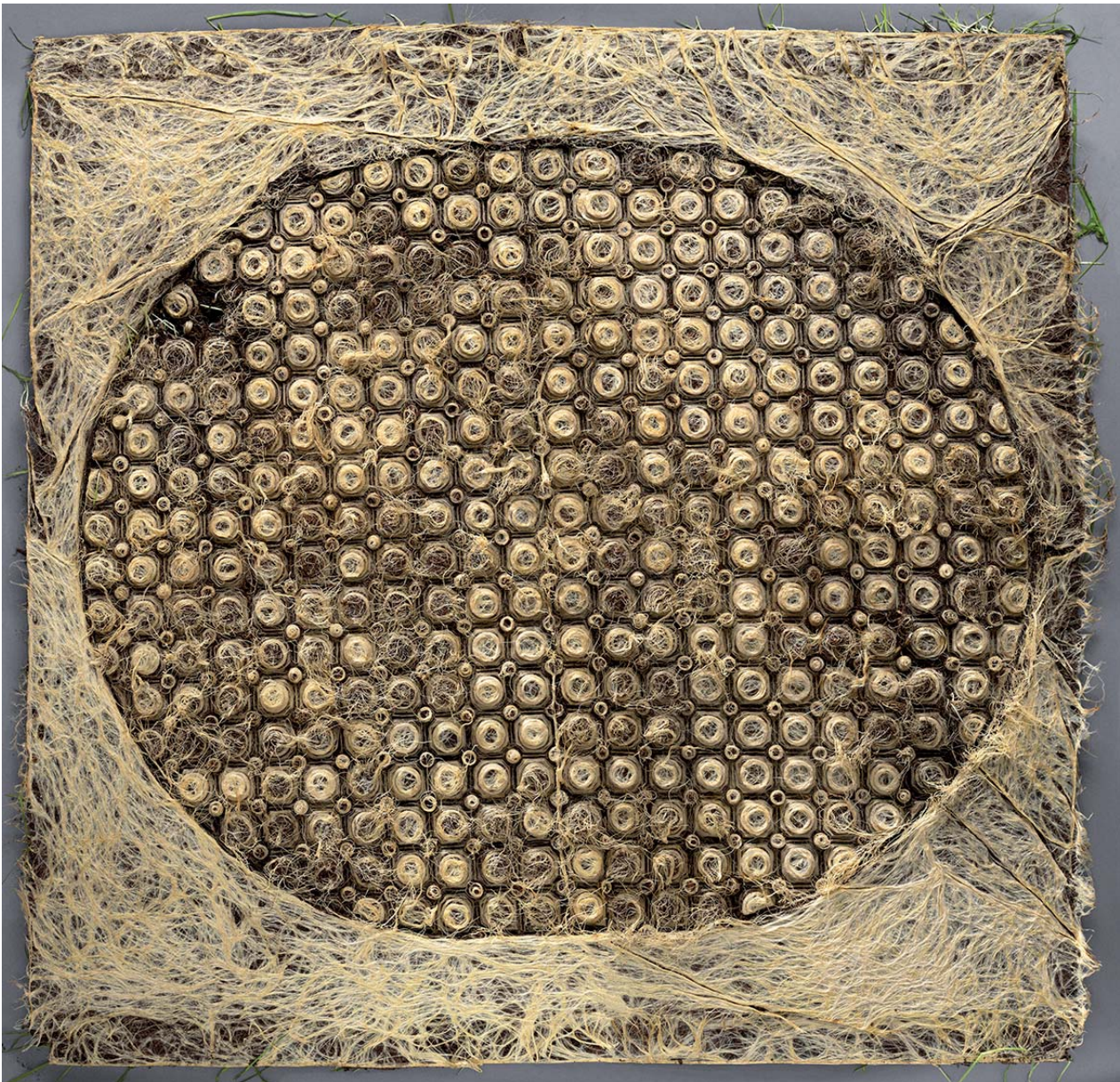
MANIPULATION

Scherer mainly works with oats and wheat. 'Oats can be sown very close together, which gives you an extremely high volume of roots. And oats grow fast as well. In the summer I can sometimes get a pattern within two weeks. And because it grows so quickly, the roots are still very young as well. Young roots are very beautiful and have tiny little hairy roots which are rather cuddly.' This pattern on the underside is what it is all about. When that carpet is ready, Scherer turns the 'lawn' over and the result is recorded with a technical camera in great detail.

Scherer's work is all about manipulation, human control over nature. The photos show root fibres with clear-cut geometric patterns. The work raises questions about the relationships between people and the natural world. Can this still be called nature, for instance? Scherer: 'I



PHOTO: WERRY CRONE



change a natural fibre in the root system into an artificial and textile-like fibre. That is what you do as an artist: change reality into what you want it to be. I send the roots in all directions. Maybe that's not very nice or respectful. If I wanted to respect the will of the roots, I wouldn't make them grown in templates. I impose my will on them and domesticate them, but I'm not ashamed of that. Manipulation is the artist's challenge. I make nature do my bidding. And we all do that actually. Everyone prunes and mows, and we all want things to look exactly as we want them. That's manipulation too. What I do is no different really, it's just that you haven't seen this before.'

INTELLIGENT PLANTS

There are a couple of withered flowers on the table in Scherer's studio. 'I think those plants are very cross with me,' she announces suddenly. 'Because I neglected them so badly. Plants are extremely sensitive. Especially underground. Did you know that mother trees feed their young nearby through fungi? When animals eat from plants, those plants send out signals which cause other plants to generate toxic substances that kill the animals. That's smart! Yes, I do believe plants are intelligent. As an artist I can afford to believe that. I don't believe a plant will ever win the Nobel Prize, mind you, but I do think this kind of plant response is smart. It would be stupid of plants not to warn each other. Why shouldn't plants have intelligence? I'm convinced of it. I think there is much more intelligence there than we realize.'

GOOD INSULATION MATERIAL


Scherer's work is attracting plenty of interest. She won the New Material Award at the latest Dutch Design Week in Eindhoven. Scherer's root fibres hold out the promise of exciting new materials, say experts. 'But it is not just new and fun,' says Scherer. 'Roots store CO2 too. That is interesting

in ecological terms. The nice thing about it is that the material creates itself as it grows. Unlike other natural materials such as coconut fibre or cotton, you don't have to weave it afterwards to get your product. Roots weave themselves, and that makes them an attractive prospect.'

Together with an ecologist from Radboud University in Nijmegen, Scherer is going to look for stronger roots and ways of conserving fibres. 'Maybe it will become a kind of insulation material,' she thinks aloud. 'But then material you can stick onto a wall instead of behind it. Insulation which is so attractive you want to be able to see it. But this idea is still in its infancy. I'm looking for business partners.'

ROOT DRESS

There is another new challenge in the patterns Scherer works with. Up to now, Scherer found most of her inspiration in basic geometrical figures, which occur all over the place in nature. 'The hexagon, for example, which you find in honeycombs, crystals or organic molecules. And shapes from Art nouveau, which was also very much inspired by nature. But the next step is for me to make my own patterns, together with a mathematical pattern designer. It needs to be taken a step further, so that I don't keep it to myself anymore.'

The possibilities for playing with roots are endless. Her first attempt at a dress made of roots lies on the table beside her. It looks pretty wearable. She also wants to work with several different kinds of roots at the same time, in her carpets. 'A kind of intercropping. And I also want to work with several layers, for instance. Oh, the possibilities are endless.' 

Diana Scherer's exhibition *Interwoven* can be seen in *Impulse on Wageningen Campus* until Friday 3 February.

events
debates
meetings
Impulse

ROOT SCIENCE

That Diana Scherer's root art is on view in Wageningen is thanks to professor of Plant Ecology Liesje Mommer. At a symposium to mark the opening of the exhibition in December, several Wageningen researchers shed light on the wondrous world of roots, and Mommer was one of them.

Professor Mommer studies the interaction between plants and fungi in natural grasslands. Biodiversity plays an important role in this. The more species of plants the better. That is, the more different roots, the better. A greater wealth of species lead to higher productivity of the ecosystem. Mommer thinks that is because pathogenic fungi get less chance of doing their thing in soils with a variety of different root systems. It is harder for the fungi to find their favourite plants. 'Lost in diversity,' Mommer calls it. 'There are so many signals, metabolic products and volatile substances given off by roots and bacteria, that pathogenic fungi lose their way.' Another speaker at the symposium was assistant professor Jochem Evers of the Centre for crop systems analysis. Where artist Scherer forces roots to grow where she wants them to, Evers seeks to model mathematically why roots of different species grow the way they do. The roots find their own way through a forest of stimuli. Evers starts simply with an established system of maize and beans, in which the yield is bigger when the two crops are grown together than when they are grown separately. The roots of beans excrete organic acids which make phosphate present in the soil dissolve. Maize then benefits from the available phosphate. And so the whole is more than the sum of the parts.



PHOTO: GUY ACKERMANS

HOME UNIVERSITY VERSUS WUR: 1-1

An exchange semester comes with a lot of adjustments. A new campus, new lecturers, a new way of learning and new friends. Resource asked some exchange students at Wageningen University & Research what they miss about their home university and what they will miss about Wageningen once they go home.

text Madhura Rao illustration Henk van Ruitenbeek

Emelie Perrson



Master's student of Agricultural economics and management from the Swedish University of Agricultural Sciences, Uppsala

'What I miss most about my home university is the student union we have.

They work on everything from supporting the students at the university to arranging dinners and parties. At the union we have lots of traditions that we celebrate during the year and since it is a small university the union is also like a family. Everyone gets to know each other.

When I go back I think I will miss the international atmosphere we have here in Wageningen. Uppsala also has international students, but not in the same proportion. To make friends from all over the world is a great opportunity. I will also miss Wageningen's great campus and the system with study weeks, which we don't have in Sweden.'

Jozef Nijeholt



Bachelor's student of Human geography, urban and regional planning from the University of Amsterdam

'Quite honestly I'm not very satisfied with my home university. That is one of the reasons I took some courses at a different university. However, I do miss my friends. Usually I bump into them after class or when I am studying. Because the University of Amsterdam is mainly located in the city centre, I also miss studying in the most beautiful part of my home town.

However, I really like the courses here and because of that I feel like I learn a lot more in Wageningen. **Also, the way students are treated in Wageningen is a lot nicer. Teachers are more easy-going and approachable.** My home university sometimes feels like a big factory, while Wageningen University has more of an individual approach.'

Nathalie Unsen



Master's student of Food safety from the University of Natural Resources and Life Sciences, Vienna

'My study program at my home university is really small. I know almost all of my study colleagues and really appreciate this familiar atmosphere

in the classes. **At WUR, there are a lot more students in the classes, at least the ones I am taking, and therefore the atmosphere is more anonymous.**

I think I'll miss the campus of WUR the most. The main campus of my university is really nice but unfortunately my department is in another part of the city. Here, I am mostly in Forum and Orion. I like that the buildings are designed with so much open space. Depending on where you are, you have a great view of the outside and of the pond.'

Brechje Oonk



Bachelor's student of Public health from Leiden University College, The Hague

'I'm used to having smaller classes. Naturally, they tend to be more discussion based. Sometimes during lectures here, I wish we had a bit more



time to talk about the topics together. There are so many people with different backgrounds, we can really learn from each other. However, it is amazing to see people discuss what they have learned during the break so it makes up for the lack of opportunity in class.

I really love the practical approach to real life problems in the courses I'm taking here. We've had many guest lecturers from the field who talk about their own experiences. This gives a unique insight into the issues we are looking at. Seeing someone who has studied the same things as me and now is out in the world solving problems is a great motivator to work hard! I will definitely miss that when I go back.'

Sharon Varughese



Bachelor's student of Environmental leadership and pollution biology from The Arctic University of Norway, Tromsø

'What I miss most from my student life in Norway is the university's small seminars and group classes. We don't just

have lectures like here, but could also attend small group classes where the professor, a PhD student or a student who has taken the same class before helps us with more specific questions. In those classes we can discuss and learn more. I believe what I'll miss most when I go back is the atmosphere at this university. Personally, I like the lectures and

the professors. I like how international WUR is. I also like the fact that there is a sports centre here. What I will miss the most in my studies is the group work. Back at home we do have group labs, but we need to write reports individually. Here we do the projects as a group to the end, which is really fun.'

Lucie Aragon



Master's student of Organic agriculture from the University of Bordeaux

'What I miss the most, besides my family and friends, is rock 'n' roll dance lessons and parties, the mountains and hiking. Also, with the Wageningen study system with periods and the large amount of work, it gets lonely sometimes. At my home university I'm with the same people all day.

But this semester here at WUR has also shown me how different and good another university with a bigger and better organization can be. Everything seems so simple. The lectures are concrete, with various very interesting lecturers. We have access to so many computers, rooms and other stuff. There is also a great support system in the university with student societies, events, conferences and workshops. I am happy to be part of it, and will for sure miss the life in this place.' ®

Honours students win innovation prize for bioplastic

Astonished winners

They never expected to win, as Bachelor's students competing with three teams of Master's students. But it was for real: the twelve-strong jury of experts awarded three Wageningen Bachelor's students the first prize in the NWO's Top Sector Chemistry Student Competition.

'Of course we were really happy when we won,' says Layla Broers. The student of Nutrition and Health and her fellow students Sjoerd van Dongen (Molecular Life Sciences) and Veerle de Goederen (Biology) entered the competition as part of their Honours Programme. Last summer they worked on developing a biodegradable plastic that would be suitable for use as food packaging. Broers: 'With nine entries from Master's students, it was a surprise to us as Bachelor's students to be selected to implement our research proposal, but we never expected to win as well.'

The winner was announced at the biggest chemistry conference in the Netherlands on 7 December. At the conference Van Dongen realized that they might be on to something very interesting with their new generation of bioplastics. 'During the research we were already getting very interesting results, but of course we



PHOTO: LAYLA BROERS

didn't know whether it was interesting enough compared with what other teams were coming up with. When I saw posters by the other teams at the conference I thought: we do stand a chance of winning. But in the end you are still pretty amazed to be called up onto the podium.' The trio will be publishing their findings in a scientific journal, and a bioplastics producer has already expressed interest in the results.

A nice harvest from a long summer's hard work. The students were in the lab and the workshop every day. At the computer they brushed up their knowledge about bioplastics. Broers: 'Our studies overlap with this field but none of us is really involved in the world of plastics. That is what made this competition so nice, because we learned a lot of new things.' Van Dongen: 'In the workshop we used nearly all the equipment that was there. Some of the equipment was very specifically for developing bioplastics, for melting and load-testing for instance. These weren't things we would nor-

mally have come across in our studies, so that was quite special.'

What exactly did the trio develop? Most bioplastics to date are porous, which makes them unsuitable for packaging material. This team of students, calling themselves Perfect Package, studied the use of nanoparticles for making plastic more stable and watertight. Previously they used chitin, a water-resistant substance obtained from shellfish. Research had already been done on this, but the three students were the first to succeed in creating an almost commercial-standard bioplastic with nanoparticles. Their bioplastic has comparable characteristics to those of 'ordinary' plastic made of polythene, noted the jury, who praised the creative way the students managed to make use of chemistry to address an issue that was relevant to society.

The three third-year students all went home with a cheque for 1000 euros. Van Dongen does not know what he's going to with it yet. 'I don't have any definite plan yet. I'll probably put it towards my studies.' Broers does have a plan: a new computer. And De Goederen will use the money to go on holiday. **LvdN**





PHOTO: SVEN MENSCHER

GPs want survey of student views

The GP practice on campus, Van der Duin / Van Dinther, is planning a large-scale survey of student satisfaction with healthcare provision on campus. This is in response to the results of a survey of 122 students in 2016 by the student council party S&I (Sustainability & Internationalization). At that time, international students in particular expressed dissatisfaction with the healthcare provision. 'We have addressed many of the complaints, most of which were individual issues,' states Doctor van Dinther.

Suzanne van Dinther does not think a survey of 122 students can give an accurate picture of the situation. 'I think this needs to be much more extensive. There are 10,000 students at Wageningen University, and only 122 were questioned. I don't think that's a very good indicator.' The doctor says she is open to making changes if there is dissatisfaction among a big group of students, but she does not get the impression that is the case.'

An often-heard complaint was that the practice's website was not up-to-date in English, so international students could not find the information they needed. According to Van Dinther,

the website has now been updated in English and there is an informative video online explaining how the healthcare system works in the Netherlands. There was no complaints form available on the English website either. 'That form is there now, but hasn't been filled in by anyone yet. Anyway, I hear very few complaints at the practice. We really do our best and much goes well. I think it's a great pity that what came up in the survey was mainly individual complaints and that we had to hear them like that. It would be better for students to come to us, and then we'll try to solve it.'

Another complaint was that students felt they were not taken seriously. Yanina Willet of S&I: 'There are stories of students who were wrongly diagnosed. As a result they did not feel at ease with the doctors. When we reported this, the doctors' response was that this was an exception, but we still feel it shouldn't happen at all.' According to Van Dinther, this is not correct, and she and her colleagues do their utmost to take everyone seriously. In her view most of the complaints reflect cultural differences. 'Here you usually go to a GP before you are referred to a specialist. If your knee is swollen we can't always say straightaway what kind of injury it is. So we send you home to rest. That

doesn't mean we've diagnosed you wrongly.'

Peijun Peng of S&I was used to a different approach in China. 'If I am unwell there I get sent straight to a specialist who does all sorts of tests. A little while ago I fell off my bicycle and I had to come back to the GP twice. Only then was I referred to a specialist.' Actually Peng forgot to make the appointment with the specialist and the symptoms cleared up by themselves. According to Willet this example illustrates the importance of clear communication with international students. 'If it is normal in your own country to go straight to a specialist, and it is different here, you want good information about that.'

Another common grumble among the students surveyed concerned long waiting times. 'Of course it's annoying to wait between half an hour and an hour at the doctor's if you are not well,' says Willet. But Van Dinther says delays are sometimes unavoidable. 'If students suddenly come in with three symptoms while you've got ten minutes per appointment, you are running late in no time. You either send the student away without discussing all their ailments or you run late.' Exactly when the large-scale survey will take place is not clear. According to Van Dinther it will be early this year. **MF**

EARWAX

Researchers at Georgia Institute of Technology have discovered that earwax is a thick, viscous fluid that becomes less viscous under pressure. The sticky substance works as a filter for the ears. When combined with dirt, earwax becomes granular and automatically comes loose to be replaced by new earwax. Unless you start poking around in your ears yourself, of course. The scientists now want to develop artificial earwax for technological applications.

DINO

How long did dinosaurs sit on their eggs for? Biologists at Florida State University are able to work that out to the nearest day. They use growth rings in the teeth of baby dinosaur skeletons. The Protoceratops crawled out of its egg after three months. That puts the dino closer to a primitive reptile than a bird.

ZOMBIE (1)

Zombies don't exist. That's because we would eventually beat the zombies, according to calculations by Leicester University students. If there was a zombie virus in which each zombie killed one victim a day and we did nothing, we would be history after 100 days as the global population would fall to 273.

ZOMBIE (2)

But there is hope because if we fought back, it would take much longer. Immunity would come into

play and humans would eventually win. This study actually has a serious purpose as the idea is to let students play with scientific methods and techniques. The Journal of Physics, Special Topics, which is peer reviewed and run by students, is full of such 'fun science'.



SOURCE: January 2017

New living rooms in spite of unconvincing trial

It looked like a foregone conclusion that the trial would be successful: a living room to improve the sense of community on each floor of the Bornsesteeg residence. Even though the evaluation shows that the living room on the sixth floor of the Bornsesteeg was not used much, Idealis is going to create such a space on 16 floors in the A wing. 'We are certain there is a demand for it.'

The living room at 6A is empty. There are no jackets, bags or remnants of a jolly evening lying around. It is silent, the only noise the rumbling of the fridge. 'You don't see students here during the day,' says building manager Charles Boshoven. 'From eight o'clock in the morning you see a big exodus of international students heading for the university.'

But even in the evening, there is rarely anyone in the living room in the A wing of the Bornsesteeg. The room was created by Idealis last year as a trial because residents had said they felt a need for somewhere to eat and relax together. In residents' surveys this kept coming up. And that is why Idealis is going to provide other floors in the A wing with living rooms too.

Building manager Boshoven can explain why the students of 6A stay in their rooms. 'The idea is that student furnish the room themselves and make it a bit studenty. International students have fewer channels for getting hold of furniture, such as family or second-hand shops. What is more, they are often here for a short period, so they may be less inclined to buy stuff for their rooms.'

Boshoven thinks it would have helped if Idealis had furnished the room, but the student housing provider did not want to do that; there will be no furniture in the new living rooms either. 'Perhaps it is a reflection of the type of students living in 6A too. It needs to click between the flatmates.'

Boshoven has every confidence that the living rooms on other floors will be a success. 'The responses we've had to our pilot have all been positive. We are certain there is a need. We expect that a living room on a corridor with a mix of Dutch and international students will come to life more. We also give students the


chance to move internally to a corridor with a living room.' A living room will be created on floors five to twenty. Seven of these rooms are already vacated, the others will be vacated by the end of this month.  LvdN



PHOTO: JORIS SCHAAP




PHOTO: MARJIN FLIPSE

A lot of interest in film competition

Forty six students are taking part in the 30 Hours of Film Challenge, a film competition run by the student vacancy website WURKforce. The first prize is a part-time job in the new WUR studio.

Entrants get 30 hours in which to put together a video. The entire production process must take place in that time: writing the script, filming and editing. 'The demand for video material for MOOCs and training programmes has been increasing lately,' explains Nick Rensen of WURKforce. 'At the moment we have to hire external parties for every film. That is very time-consuming.'

So the idea came up of establishing WUR's own studio and recruiting students who could run the studio with supervision from WURKforce. 'It's important to me to work with students because they are part of the target group for the videos,' explains Rensen. 'Besides, we like to give students with particular skills a chance to do interesting work. And many students have video-making skills.'

WURKforce opted for a challenge instead of a conventional application procedure because then any interested students could take part, says Rensen. 'Even if they don't have a portfolio of films on their CV. We've had a lot more sign-ups than we expected. We aimed at 30 students. And the standard of the entrants is very high.' The setup of the film competition has been copied from the global 48 Hour Film Project. The films will be screened in The Spot on 18 January.  Lvk



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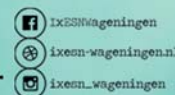
The groups will be formed of 10-15 students and 2 or 3 buddy mentors.

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MEANWHILE IN... CHINA

'You can't even see yourself on a selfie'

Air pollution in Northern China reached record concentrations around Christmas and New Years' Eve. On the first day of 2017 the smog concentration rose to 24 times the level recommended by the World Health Organization. The news reported an 'airpocalypse' striking half a billion people. Master's student Zhimei Li is worried, but not surprised.

'I am not so surprised by the smog in the past weeks, as the average air pollution was already very severe and now and then this reaches an extreme level. With the Spring Festival – also known as Chinese New Year – coming up, which involves a lot of fireworks, we can expect another peak within a few weeks.

However, I do acknowledge that the situation in the past weeks was dramatic. The people who are affected most are those with inflexible working or studying hours; they cannot decide to stay inside at the worst time of the day. My friends and family



Zhimei Li, Master's student of Nutrition and Health from Inner Mongolia, China. She comments on the news in her home country.



PHOTO: NAHORSKI PAVEL / SHUTTERSTOCK.COM

complain a lot about it, as well as making jokes to put it all in perspective. Recently, I received selfies from friends in Zhengzhou, a big town south of Beijing, on which the photographer is not even visible because of the smog.

In my opinion the smog is an unavoidable consequence of the industrialization of China; and that is something which Chinese citizens also benefit a lot from. Wearing a mask is a necessity, but a reasonable price to pay for the wealth increase. The air itself is not toxic so the health damage is only long-term. In the future, clean technologies have to replace polluting industries. Also, a comprehensive legal system has to be developed to stop companies from finding loopholes to enable them to pollute. This will just take some time.'  TF

YOU ON CAMPUS

Brit van der Meijden is a first-year BSc student of International Land and Water Management. She is a member of Ceres student society, and probably one of the youngest students in Wageningen.

Brit is 17 years old, and her birthday is not until June. No doubt there are other 17-year-old students, 'but I haven't met anyone yet who is younger than me'. In spite of the age difference between her and her fellow students, Brit does not feel any younger than the others. 'I've always socialized with people older than me, actually.' She skipped grade 5 in primary school because all her friends were in the class above even then. And she did not opt to take a gap year. 'I was really keen to go to university, and being 17 poses problems when you take a gap year as well.'

The biggest difference it makes to being a student, according to Brit, is that by law you are not allowed to drink yet at 17. There are some misunderstandings about that: 'People are quick to think that I can't be enjoying myself,

but that's not true at all.' Brit very much wanted to live in a Ceres student house, 'but that was problematic at first because people were afraid it would cramp their style to have a 17-year-old in the house.' Meanwhile Brit has found a place in a Ceres house, where she says she feel completely at home.

In spite of the age difference, Brit did choose to join Ceres this year. Because of her age, during the AID she took a long time to decide whether to join a so-

'People are quick to think that I can't be enjoying myself, but that's not true at all.'

ciety, but she felt at home right away at Ceres. 'I thought it would be very nice to get to know people this way, and I felt at home here because of the people and the building.' Every-

one here knows Brit is not allowed to drink. 'Outside the society I hardly think about it, because people are not aware of it, but at Ceres they do know about it.' **® AB**



PHOTO: ANNIE BERENDSEN

PARTIES

In the party mood? Wageningen Party Promotion (WUP) tells you where to find one. See too www.wageningenup.nl.



KSV - TRINITY TROPICAL: FULL MOON

Friday 13 January from 23:00 to 05:00

Every year in January, KSV puts on its Trinity parties. Three days of partying to get the year off to a good start. They will end on Friday with 'Full Moon', when Squad 105 will delight you with tropical sounds.

CAFE LOBURG - QUE BELEZA FAREWELL MARATHON

Friday 13 January from 23:00 to 02:00

The farewell party is for two band members, who are returning to Brazil. That is bound to make for a great, stirring concert. Lots of dancing and letting your hair down.

WAGENINGEN - BLUES ROUTE WAGENINGEN 2017

Friday, Saturday and Sunday 19/20/21 January

An entire weekend enjoying the blues in numerous Wageningen pubs. Discover the classics of Muddy Waters and BB King or listen to top-quality Nederblues. **®**



PHOTO: SVEN MENSCHER

Going crazy just before Christmas at Ceres' 'proppenfeest'.

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 faith in Mother Earth is strong'


'Bolivia is the poorest country in South America, but it has a lot of scope for development, including in agriculture. I did research on farmers' experience of a sprinkler irrigation system. The government installed this system near Cochabamba and I studied how it works, whether the farmers are satisfied with it, and whether it is doing what it is supposed to do. It turned out the farmers were proud of their system.

I did a lot of interviews and field trips, and spent a lot of time looking for literature I could only get hold of through contacts. I have never had a problem making phone calls but having to speak Spanish was an obstacle. Sometimes after a phone call I had no idea what we had agreed, and then I just went to the place I thought we'd agreed on at the time I'd understood, and hoped for the best.

It was also difficult to talk to farmers who didn't speak Spanish but a local dialect. I didn't have a professional interpreter but a farmer the same age as me. He tended to do a lot of interpreting, for example by summing up a long story in two sentences. He didn't see why he should translate everything literally. Luckily the farmers gesticulated a lot, so I could infer a lot from that.

There is a very different work mentality in Bolivia. People don't stick to agreements and you have to chase them up a lot about appointments. Sometimes I had an appointment to go into the field at six o'clock in the morning and the other person didn't show

up. So I had got out of bed for nothing. But okay, that way I gained some time.

What amazed me was people's strong faith in Mother Earth, even though Bolivians also just chuck their garbage away in the countryside and burn all sorts of environmentally unfriendly materials during rituals. I talked to a colleague about it and he said, "I always do that." Really thoughtless, and a pity.'  MvdH

THE WORKS

Who? Koen van Bezu, Master's student of International Land and Water Management
What? Four months of thesis research at the Centra Agua project
Where? Cochabamba, Bolivia



Read all interviews on
on resource-online.nl.

PHOTOS: KOEN VAN BEZU

In memoriam

Gerrit Heida



Our colleague Gerrit Heida, who had been ill for two years, passed away on the morning of Saturday 10 December. Gerrit's

Wageningen career started at the Agricultural College on 1 January 1980, in the Physics and climatology department. In the course of 1982 Gerrit moved over to the Process engineering chair group, first part-time and at the year fulltime. Gerrit began to work more and more with ICT, which led to a part-time appointment in ICT support for the department. In 2006, when ICT support was reorganized, Gerrit ended up at FB-ICT. As a member of the EDU-support staff, Gerrit made an important contribution to the success of digital testing. His experience in the Process science laboratories gave him a good understanding of the issues faced by students and lecturers. This was clear from the warm responses of

staff to the news of his illness. In his free time Gerrit was an active cyclist, and he helped set out the cycling routes for several We Days. As a farewell tour, he and his whole family climbed Mont Ventoux, creating precious memories for the family. In Gerrit we have lost a committed colleague, and we look back on working with him with pleasure and admiration. Our thoughts and sympathies are with his family and friends; we wish them strength in this sad time.

*On behalf of FB-IT, and EDU support in particular,
Gerard Folkerts and Chris Blom*

Professor Michiel Flach



Professor Flach passed away on 19 December 2016. It was his period of military service in the Dutch East Indies which influenced his decision to study tropical agriculture. After graduating he worked for the agricultural extension

services in New Guinea. In 1966 Flach got his PhD in crop sciences for a cytogenetic study of nutmeg. He went on to take part in planning missions in Malaysia to study the potential for starch production from the sago palm (*Metroxylon sagu Rottboell*). This led to further research on the sago palm, which grows in the freshwater swamps of the tropical lowlands of south-east Asia.

In 1972 Flach was appointed lecturer and later professor of Tropical Plant Sciences. Together with Professor J.D. Ferwerda, Flach led the teaching and research of this department for more than a quarter of a century. He supervised ten PhD researchers, three of them from south-east Asia. Together with Master's students, Flach did research on the sago palm which resulted in an FAO study, four international symposia and some important publications. Research on the sago palm was the subject of his public lecture in 1972 and his valedictory address in 1991. This was followed six years later by a monograph on the sago palm. Flach had many contacts in Indonesia,

his second fatherland. Like the sago palm, he put out shoots (his students) over a long period of time, and he blossomed, bore fruit and died. Now the link between the trunk and the shoots is broken and the shoots continue to develop independently.

M. Wessel, emeritus professor of Tropical Plant Science

Announcements

Young Scientific Award 2017. Call for abstract: Beer in a healthy lifestyle

The Organising Committee of the 8th European Beer and Health Symposium invites scientists aged below 35 years old to submit abstracts and apply for the 2nd edition of the Young Scientific Award. The award acknowledge research contributions that further development and knowledge regarding the health effects of moderate consumption of beer, and its role in an adult's healthy lifestyle in the broadest sense of the word. The winner will receive €500 and will be invited to present his/her work during

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the European Beer and Health Symposium on 20 April in Brussels. Deadline submission abstract: 28 February. <http://beerandhealth.eu/news>

Stichting Lens presents 'Min of meer wat me lief is'

This show on the theme of love in all its aspects will be performed by 13 amateur actors. Both form and content were created in a collaboration between the actors themselves and a director and technician. The results is a musical collage of a show, a quest for manageable love. Dates: 14, 20 and 21 January at 20.30 hours; 15 and 22 January at 16.00 hours. Venue: De Wilde Wereld theatre at the Burgtstraat 1, Wageningen. Reservations: www.stichtinglens.nl

Introduction course on zen meditation

The introduction course for zen meditation starts on 25 January and consists of 12 lessons on Wednesday evenings from 19.00 to 20.15. The course covers posture, concentration techniques and how to bring more focus and mindfulness into your daily life. Location: kenKon, Nieuwe Kanaal 11. www.zeninwageningen.nl

Agenda

12 to 25 January FOUR FILMS FOR STUDENTS

Jackie: a brilliant biographical drama about former first lady Jackie Kennedy, played by Oscar winner Natalie Portman, about the days after the murder of JFK. *De Kinderen van Juf Kiet*: a heart-warming documentary about refugee children at school. *Toni Erdman*: a unique comedy about a complicated father-daughter relationship with an absurd father Toni. *Hell or High Water*: a modern western about two Texan brothers who want to buy back family land from the bank. With action, social criticism, family drama, cynical humour and a soundtrack by Nick Cave. Venue: Wilhelminaweg 3A, Wageningen. www.movie-w.nl

Friday 20 January, 15.00 – 18.00 LOBS MASTER'S DAY FOR BIOSCIENCES IN UTRECHT

The Master's Day is the perfect opportunity to get a good impression of the wide range of Master's programmes in




the biosciences in the Netherlands. All the universities are represented at the information market. There will also be workshops and lectures. The day is organized by the national council of biology students (LOBS) and the Dutch institute for biology (NIBI). Info and free registration at www.biologiestudenten.nl/masterdag2017.

Thursday 26 January, 13:30-17:00 SYMPOSIUM: SMALL LABELS, BIG CHALLENGES

During this multi-disciplinary symposium

we will discuss the scientific and societal challenges around front-of-pack health labels. We will do this together with speakers from different disciplines of Wageningen University. Researchers with an interest in food labels, healthy food production, nutrition, or consumer choice are invited to attend this symposium. To register for the symposium, please send an email to office.mst@wur.nl before Monday 23 January. Venue: Atlas building, room Atlas 2.

CineMec Laan der Verenigde Naties 150, Ede
www.cinemec.nl / 0900 - 321 0 321

FILM	FILM	EVENT ON SCREEN
 Assassin's Creed 3D Based on the successful videogame. Starring Michael Fassbender.	 Allied Impressive war drama starring Brad Pitt and Marion Cotillard.	 Bolshoi Ballet: The Sleeping Beauty Wonderful ballet with music by Tchaikovsky.

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RESOURCE

For everyone at Wageningen University & Research

colophon

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>>TYPICAL DUTCH



ILLUSTRATION: HENK VAN RUITENBEEK

Spare me the sermons

It's been a couple of months that I have been living in Wageningen and I have noticed that religious groups are pretty active here. I was under the impression that they were quite passive and welcomed those who 'volunteered' to join. But one Sunday morning, a knock on my door made me wiser.

I was taken by surprise when two elderly gentlemen were standing on my doorstep asking me if I wanted to discuss the Bible. I was not sure how to react, given that these gentlemen were quite senior and seemed very persistent about helping me learn more about their religion. I stood in the doorway listening to them for around 20 minutes before I finally mustered the courage to tell them that I was not interested. Even then, I was told to 'think about it' and that they would come by again to check on me.

The encounter left me quite stunned because in my country, religion is considered to be a private affair and it is not common to meet people who actively evangelize. I happen to see these people quite often in the Netherlands and do my best to avoid eye contact for fear of being subjected to a sermon again! 🇮🇳 **Madhura Rao, MSc student of Food safety, from India**

'Religious groups are pretty active here. I avoid eye contact for fear of being subjected to a sermon again'

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 euro and Dutch candy.
