



## Department of Soil Quality

### SOQ Newsletter 11, October 2016

Welcome to the 11<sup>th</sup> edition of the SOQ newsletter. The next release is scheduled for February 2017, so please send in contributions before January 15, to [Marnella van der Tol](#)

Follow us on Twitter :



@SOQ\_WUR



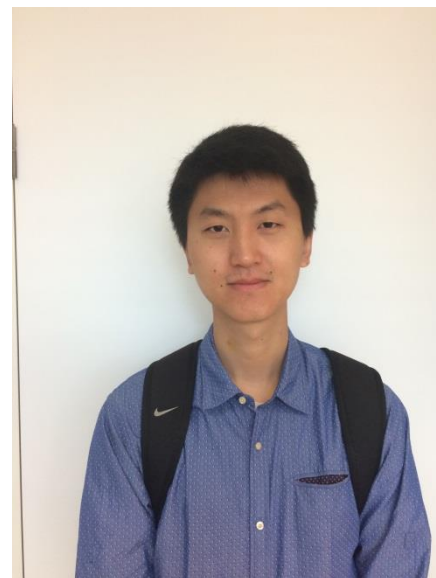
## Introducing MSc students

I am **Lieke Beezemer** 24 years old, born and raised in Hoek, a tiny village in Zeeland. I did my bachelor at the Hogeschool Zeeland where I studied aquatic eco-technology. Mainly because this bachelor combined the things I love the most: nature, biology, geography and water. When I have some spare time I like to swim, dance (modern ballet) and I regularly sail on the Dutch waters. After finishing my bachelor I had a temporary job as a fitness manager, but this was not the job I was very passionate about. So I decided to do my master in Environmental Sciences at WUR with soil biology and biological soil quality as thesis track. And now I am doing my thesis on variation in cast composition among various earthworm species. After my master I hope to have an advisory function in the agricultural sector with regard to improving soil biology and biological soil quality.



Hi, I am **Nine Douwes Dekker** from Amsterdam. I am currently doing the master Earth and Environment, with the specialisation biology and chemistry of soil and water. I wanted my thesis to be an overlap of soil biology and soil chemistry and I think I managed to find the right topic for this: the interaction of plant root exudates and nitrogen mineralisation in the soil. My hobbies include sports, especially rowing (not so much lately) and lacrosse, and theatre, although at the moment I am not doing anything theatre-related (so I am up for any suggestions!). I have not yet decided what I want to do after I finish my master, but I am sure I will found out during my thesis or internship.

I'm **Chen Zhang** from Guangzhou, China. I studied horticulture and agriculture science for my bachelor in Sichuan (China) and New Mexico (U.S.A). After I graduated, I worked in Guangzhou forestry bureau for one and half years. After I worked, I found that I like the campus life and want to keep studying. I decided to continue my studies here in the Netherlands. I'm attending the master program of organic agriculture. In my opinion, soil is very important for agriculture and soil is base rock for food production. I also realize that in China we have huge problems with soil degradation so I am interested in research about soil quality. My thesis project is about the soil plant feedbacks. For my daily life, I love playing basketball and sometimes playing badminton and swimming. I still have not made the decision for my future yet.



My name is **Wenqi Ruan** and I'm doing my master thesis in Soil Chemistry and Chemical Soil Quality group. I focus on the fractionation of humics upon interaction with goethite. It is an interesting fundamental subject. I expect to do researches after my study. During my spare time, I am a big fan of science fiction and detective novels. I can't live without earphones and pop music.



I am **Bob Keurentjes** and I am living in the eastern part of the Netherlands. I grew up at the country side, this is why I am really interested in farming practices. After finishing my secondary school, I did a practical study in animal husbandry (MBO). Then I wanted to do my bachelor. So I went to a higher agricultural school (HAS) in 'S-Hertogenbosch. Here again I focused on animal husbandry and especially on dairy farming. In February I graduated and started at Wageningen University. I am following the track Animal Sciences and my specialism is Nutrition and Metabolism. Now you are thinking why are you doing a thesis is soil quality? Now, this is because on dairy farms, roughage cultivation is also really important. Growing high quality crops starts with a good soil quality and a good nutrient management. This is why I want to get more

knowledge about soils. My thesis work is in the Clever Cover Cropping project. I will do research on root production and nitrate leaching in mono culture cover crops in comparison to mixture cover crops. (a currant topic in the sector). When I am finished with my master I will work as an adviser for dairy farmers. I hope that I am able to combine my knowledge in soil with feeding the dairy cows.

I'm **Szimana Zorzsevszkij**, coming from Budapest, Hungary. I have been living in the Netherlands for 9 years now (yes I speak some Dutch). I started with work, then went back to school and did a BSc Environmental Sciences study at Avans Hogeschool in Breda. After that I started with my master here at WUR; Master Earth and Environment, with focus on chemical soil quality. I am mostly interested in soil pollution and remediation. So my MSc research topic focuses on antimony (Sb) speciation and partitioning in soils. My interest in heavy metals must be due to listening to some heavy metal music :) I also like to read novels and be outside in nature, in the sun shine. I also enjoy cycling and swimming, but mostly being with family and friends. After my master I might do a PhD, or look for work.



"Kia ora! I'm **Callum Clark**, from New Zealand. I was always interested in studying abroad, and after much deliberation I decided that Wageningen was the best choice. I've been here for a year now, studying towards an MSc in MEE (soil biology track) and have really enjoyed the challenge and change of perspective. For my thesis, I am looking at grassland N<sub>2</sub>O emissions in a field experiment. I really like the overall goal of the field experiment; how the results might be useful for farmers in a practical sense, and the possible impact on climate change. Specifically, I am curious about the phosphorus side of the experiment, how the N:P stoichiometry changes with the different plant combinations, and if that might regulate N<sub>2</sub>O fluxes. Outside of study I enjoy playing tennis, music, and travelling when I can. I'm still unsure about which direction I want to take after I finish my MSc, however I'm interested in working in developing countries, either in a research capacity or in consultancy. Right now I'm enjoying being in this environment and learning what I can, and am looking forward to seeing how my internship pans out."



## Introducing guests

Ciao everyone!

My name is **Andrea Fiorini** and I am an Agronomist, guest PhD candidate coming from the Catholic University of Sacred Heart (Piacenza, Italy).

Since I was a child I developed a passion for crop cultivation techniques, in which we (my family and I) started to be very active in a continuous review of tillage and crop management practices (both in Conventional and in Organic farming systems).

This passion has become a hobby/second work for most of my weekends. I'm very interested in soil organic carbon dynamics, micro- and macro- aggregate turnover, N,P cycles and the relationship with the microbial community.

During my PhD, I have been working for three years on field/lab experiments to compare Conventional and No-till practices in different types of soil, focusing on: soil organic carbon, root development, aggregate stability, CO<sub>2</sub> and N<sub>2</sub>O emissions, and residue decomposition evaluation.

During my free time, I enjoy skiing in the winter holidays and traveling by sailing-boat in the summer holidays (unfortunately less time than I would like).

I'll stay at WUR for approximately for 6 months, working (with Diego Abalos and Jan Willem van Groenigen) also on N<sub>2</sub>O emission monitoring on a field experiment at UNIFARM. You can find me at room B.319. I am looking forward to meeting you all over coffee or other drinks!



## Introducing PhD candidates



Hello, my name is **Yun Xu**, coming from China. Now I am a Sandwich PhD in Soil Chemistry Group. I did my Master here in Wageningen, majoring in soil chemistry. I enjoyed my life in the Soil Quality Department during my Master. It opens a magical soil world to me, and I am so eager to get deeper into it. Luckily, I got the Wageningen Graduate School (WGS) Sandwich Scholarship and the support from Hua-Zhong Agricultural University in China, which gives me the opportunity to do the research with regards to the adsorption behavior in soils. Prof. Dr. Rob Comans is the promoter of my project. My supervisors are Dr. Liping Weng and Dr. Tjisse Hiemstra in Wageningen University, and Prof. Dr. Wenfeng Tan in Hua-Zhong Agricultural University. After graduation, I wish I could work in an institution and become a soil scientist. In my spare time, I like travelling. I am so interested in the history, culture, custom and food in different places.

Hi, all,

I'm **Yilina Bai** coming from China. I got the primary knowledge about general ecology and environmental sciences from bachelor study. Later on, I continued my master study on soil chemistry in Wageningen University. Currently, I am a first year PhD student in Soil chemistry and Chemical soil group sponsored by the China Scholarship Council(CSC) programme. My present thesis topic is about the soil phosphorus fertilization and soil organic carbon stabilisation. Besides, I love doing some work out with friends, playing ukulele (just a fresh bird), as well as travelling. After my PhD programme, I may go back to China and continue the research study in institutions.

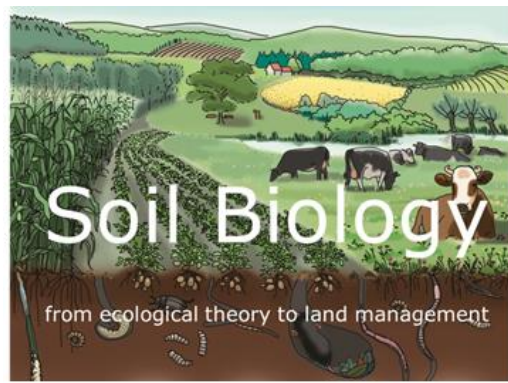


This digital introduction is a bit late, since I have been working at SOQ as a PhD candidate in the past two months, but better late than never! My name is **Mirjam Breure** and last year I finished my MSc in Plant Sciences. I've been working for a few months on biobased energy and associated land use change at a small company in Wageningen, before I got this job. In my work, I like to contribute to food security and therefore I am very happy that I can work on the project 'Micronutrients for better yields' the coming years. The focus of this project is on improving yields (maize) in Sub Saharan Africa by application of micronutrient fertilisers. I will use the QUEFTS model (designed in 1990), which is able to predict yields based on basic soil parameters and assesses the interactions between the macronutrients NPK. During my PhD I will extend this model for micronutrients (Initially Zn and Cu, and if time allows also B and Mo). This requires new supply functions which predict micronutrient supply from soil parameters. Besides predicting yields, this model

is able to calculate what is the most limiting nutrient and consequently, fertiliser recommendations can be made based on the output of this model. The extended model will also be used to create soil maps of micronutrient supply, most limiting nutrient and yield levels. I am in this project together with Elise van Eynde, who will focus more on the chemical aspects, whereas I will focus more on the production part.

## Lijbert's farewell symposium / party

On Thursday October 6, Lijbert said goodbye to colleagues of Wageningen University and other institutes. The day started with a mini-symposium in Hotel 'Hof van Wageningen' with 4 invited speakers, on the importance of soil biological research for the



grand challenges (ecological intensification of agriculture, preservation of biodiversity, climate change).

You are cordially invited to attend the symposium **"Soil Biology – from ecological theory to land management"**, organised upon the retirement of Prof. Dr Lijbert Brussaard.



Peter de Ruiter: "Soil food webs and ecosystem functioning: connecting the dots".

Meine van Noordwijk: "Back to the roots: belowground solutions for agro-ecosystem resilience."



Walter Andriuzzi: "Traits, species or functional groups: biological shortcuts to ecosystem functions and services".

Rachel Creamer: "Managing our land: the multi-functional approach".



The host: Gerlinde De Deyn



After the symposium we all rushed to the Aula of the University where at 16.00 hours sharp, Lijbert gave his farewell speech for a full house.



This special day ended with an informal dinner party for family, friends and colleagues at Campman restaurant in Renkum. Lijbert and Cineke were surprised with a beautiful painting made by a real artist, arranged by Thom, and a hilarious movie made, produced and played in by nearly all Soil Quality colleagues.





## Oral defence

On September 23, **Olaf Tyc** conducted his oral defence on "Mining into interspecific bacterial interactions". Olaf remains in Wageningen for a while. He has accepted a post-doc position at the NIOO.



## Upcoming oral defences:

December 6, 13.30 hours. **Supriatin** on: Selenium Speciation and Bioavailability in Dutch Agricultural Soils: The Role of Soil Organic Matter. Promotor: Rob Comans, (Co)Promotor: Liping Weng.

December 12, 16.00 hours. **Hou Yong** on: Towards Improving the Manure Management Chain. Promotor: Oene Oenema, (Co)Promotor: Gerard Velthof.

January 24, 13.30 hours. **Abebe Nigussie Nigatu** on: Closing the nutrient loops in (peri-)urban farming systems through composting. Promotor: Thom Kuyper and Andreas de Neergaard (Denmark), (Co)Promotor: Sander Bruun.

## Interesting links

Did you know?! \*SOQ has two new Personal Professors!

<http://www.wur.nl/en/news-wageningen-ur/Show/Wageningen-University-Research-appoints-three-researchers-holding-a-personal-chair.htm>

\*The crowdfunding 'Meet the mysterious soil life' was a great success and recordings are running!

<https://resource.wur.nl/en/science/show/Life-but-not-as-we-know-it.htm>

\*The first ever global Soil Biodiversity Atlas is out!

You can download your free copy here: <http://esdac.jrc.ec.europa.eu/content/global-soil-biodiversity-atlas>

\*Be prepared! Nowadays at conferences you may be asked to give an interview for a scientific journal for broadcast online!

This happened to Gerlinde, at the Ecosummit 2016 meeting in Montpellier this summer

<https://jecologyblog.wordpress.com/2016/09/16/plant-soil-feedbacks/>

\*The MOOC Soil4Life was a success and this free online course is open again for keen students, SOQ runs module 4 'Loss of Soil Biodiversity' (note the level is: introductory)

<https://www.edx.org/course/sustainable-soil-management-soil-life-wageningenx-soilx-0#!>

## **Honorable visit to Groningen University**

### **Inauguration of the Young Academy Groningen on 4 July 2016**

*Pictures by David Vroom Photography, text Gerlinde De Deyn*

Although I have been living in The Netherlands for quite a few years now, I must confess that my visits to the north of The Netherlands are rather rare. Of course I know that also up north there is a well-known university with great ecologists, namely University of Groningen. Typically I meet the colleagues from Groningen at national or international conferences and not in the city center of Groningen.

No wonder I had never been in the headquarters of the University of Groningen, but that was about to change with the invitation to present in the Senates Room of the university to celebrate the birth of the Young Academy Groningen!

On 4<sup>th</sup> of July the Young Academy Groningen (YAG), comprising 17 members, from 7 different Faculties was inaugurated. What a diversity! The members comprise excellent scientists in Arts, Law, Medical Sciences, Philosophy, Spatial Sciences, Mathematics and Natural Sciences, Theology and Religious Studies.



The laureates of the Young Academy Groningen (left). Gerlinde presenting the Wageningen Young Academy in the Senates Room of Groningen University (right).

The members of the YAG are selected based on both their excellent academic achievements and their enthusiasm towards developing broader academic perspectives, such as science policy, outreach, diversity and internationalization, and cross disciplinary research. A very similar set of skills, interests and attitudes as we look for in Wageningen for perspective members of the Wageningen Young Academy (WYA).

The WYA was initiated in 2011 and hence is one of the oldest local young academies in The Netherlands. I am happy to be one of the first members and since the last years also co-chair of the WYA, hence the invitation of the University of Groningen to tell a bit more about WYA. During the last five years we as WYA have been able to build a Wageningen University wide network across all science groups, to brainstorm and provide feedback on each-others (personal) grant proposals, and organize a number of public events. Perhaps you have been to some of them? The discussion about gender (in)balance at WUR in 2012, the public lecture of Prof. Frans de Waal (2013), the discussion about the future of science with Prof. Hans Clevers and the interview with Bill Gates (2014), and this year the public lectures by nobel laureate Prof. Ada Yonath and by Heineken-prijns winners Prof. Jennifer Doudna and Dr. Edze Westra. The terms of membership are five years and hence it will soon be time for me to make space for new, younger members. If you are a young tenure-track researcher at WUR I can recommend applying, it is a great group of clever and enthusiastic people who are keen to go the extra mile!



Fine mix of Young Academy Groningen and Wageningen Young Academy members (left). Rector of University of Groningen Elmer Sterken, chair of De Jonge Akademie Rens Vliegthart and Gerlinde De Deyn chair of the Wageningen Young Academy discussing about the Young Academies (right). Curious about what these academies are about? Take a look at their websites:

- Young Academy Groningen (YAG)  
<http://www.rug.nl/research/young-academy/?lang=en>
- Wageningen Young Academy (WYA)  
<http://www.wur.nl/en/Expertise-Services/Collaboration-and-partnerships/WYA.htm>
- De Jonge Akademie (DJA)  
[https://www.dejongeakademie.nl/en?set\\_language=en](https://www.dejongeakademie.nl/en?set_language=en)



### Lost and found

Below you can see picture of Ron's long lost coffee mug. He has misplaced it somewhere in the Atlas building. Any information of the whereabouts, in what condition ever, is highly appreciated.

### Open day at Plant Sciences

Gerlinde De Deyn promoted the Global Soil Biodiversity Atlas at the Plants for the Future fair / open day at the Plant Sciences department. Visitors could have a glance backstage in the greenhouses of Unifarm.



## Soil drilling competition 2016

"The magical night of 12th of October, was the night in which two Soil Quality teams took part in the legendary competition soil drilling. After a proper October BBQ, teams Left-SOQ and Right-SOQ were ready to put their soil drilling skills to the test.

In the pre-rounds, Left-SOQ competed against Right-SOQ on field Pyrus, which proved to be a very dry, heavy clay field. Next arena was field 5. Here, Right-SOQ was ready to take on its next opponent: Left-SOQ! Left-SOQ, soon, proved to be the winning hand.

In the quarter finals, Left-SOQ got to measure its strengths against team-Geonius. Field Sonneveld proved to be too much for Left-SOQ, they bit the dust. Who wins, wins; and who loses, loses! We are very proud: Left-SOQ gained shared third place in the chairgroup & company competition 2016!"

(Left- and Right-SOQ are currently residing in the coffee-corner).





## The Atlas Work Floor Survey:



Author for correspondence is [ingrid.lubbers@wur.nl](mailto:ingrid.lubbers@wur.nl). Electronic supplementary material and references at request. Open access exclusively for SOQ employees.

### On the occasion of the November issue - "Two things" is about ORDER or CHAOS

Taking a little longer than usual holding the survey, an all-time high number of 45 respondents was reached. This was on purpose: a chaotic survey created a better opportunity for finding order.

For a long time the coffee corner exit polls pointed into the direction of a close tie, but in the end the winning group is showing: a convincing majority of 58% were in favour of ORDER (Fig. 1). Intuitively this result makes sense, being in an environment where employees generally try to find ORDER in many different things they might encounter as CHAOS. However, before anticipating too much without evidence, let us first take a closer look at the detailed results.

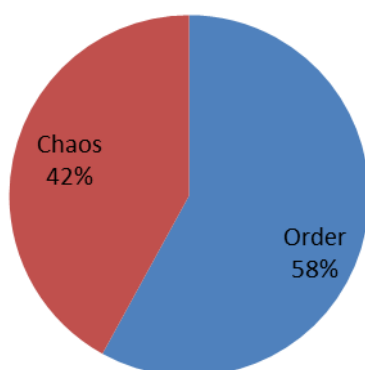


Fig. 1 | Percentage of people who preferred "ORDER" or "CHAOS" for the 45 responses from the SOQ employees.

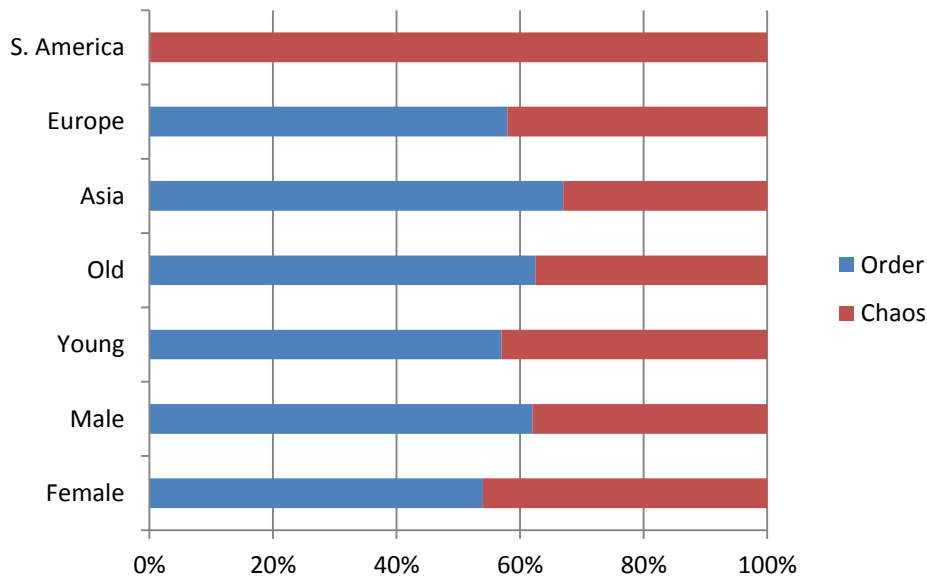


Fig. 2 | Percentage of people in favour of ORDER or CHAOS for different groups based on continent of origin, age and sex.

All relevant differences between SOQ employees that might exist are shown in fig. 2. For all categories but one the balance between ORDER and CHAOS is close to 60% in favour of ORDER.

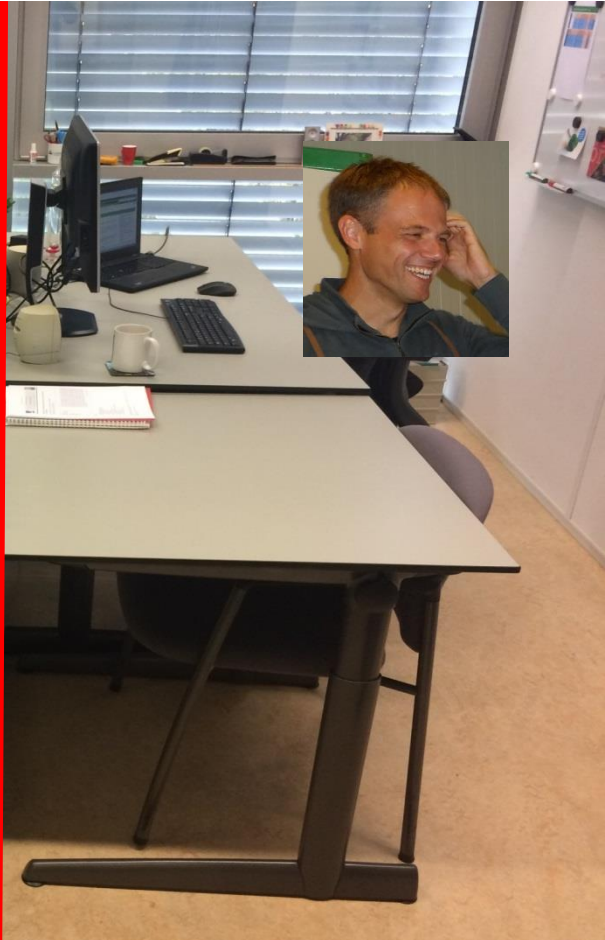
Comparing males to females, clearly our male colleagues like order better than our female colleagues. This is easy to explain: men always need more ORDER to function than women. It's more striking perhaps that women still prefer ORDER over CHAOS; everybody knows they can really thrive in CHAOS (see 'the office of Gerlinde and Jan Willem' below).

The difference between Young and Old is even smaller, though our older colleagues like ORDER slightly better than the younger ones. There are too many possible explanations, but the most obvious one is that working people in general aim for a certain degree of ORDER, and that an optimum for ORDER is reached around the age of 55-65 (anybody is free to contradict this age range).

The most outstanding result is the big difference between ORDER or CHAOS affinity for continent of origin. Our colleagues from Asia love ORDER the best, still quite closely followed by the Europeans. However, in South America there is 100% CHAOS! How can this be? Well, the subset of individuals for S. America within our Atlas population was rather small, and the CHAOS in S. America is therefore totally reflected by one person's choice: André Braga Junqueira. André was unfortunately not available for comment because he is contributing to the CHAOS in Brazil.

**ORDER ánd CHAOS in Atlas**

The office of Gerlinde and Jan Willem



## In conversation with those involved

SOQ reporter: “Jan Willem, thinking about your office, what ecological process comes first to mind?”

Jan Willem: “Hoarding.”

SOQ reporter: “Of carbon perhaps?”

Jan Willem: “No, just in general.”

SOQ reporter: “Gerlinde, what about you? What ecological process does your office remind you of?”

Gerlinde: “Priority effect!”

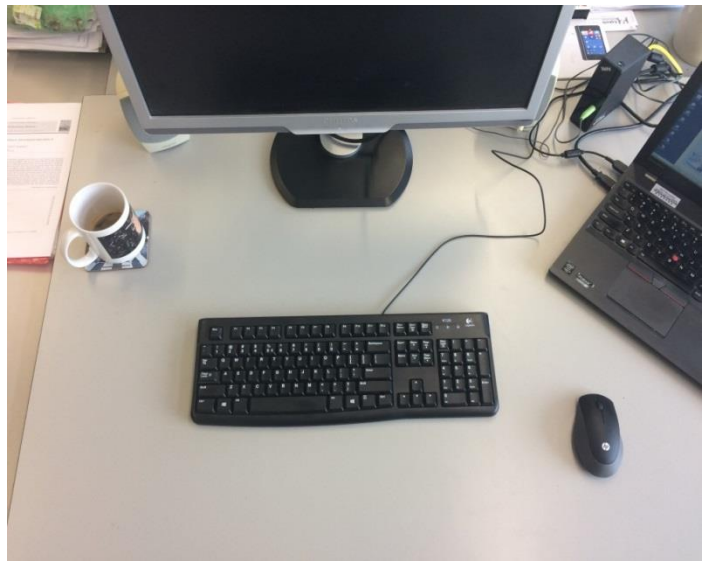
SOQ reporter: “How does that work for your office?”

Gerlinde: “Well, it’s about what comes first on my shelves and the influence this may have on the succession of junk in my half of the office. The resilience of CHAOS, let’s say.”

..... quiet thinking.....

Gerlinde: “I am now thinking about the impact of Jan Willem arriving first in this office. This must have created a facilitative priority effect for me, because there was a lot of space for all my junk as Jan Willem is very good at throwing junk out when he has no use for it anymore, whereas I am not. Also, I try to keep all my stuff within the border of my desk so I am not colonizing the entire office. I try, really, I do. Actually, from my point of view (literally) the office is really tidy and clean, which I quite like.”

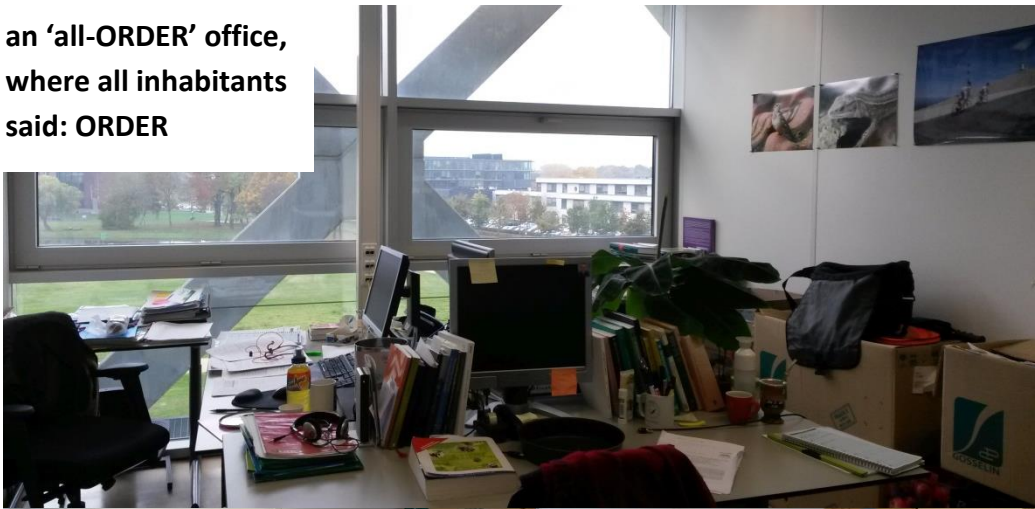
SOQ reporter: “Thank you Gerlinde and Jan Willem.”





## A few other Atlas office impressions

an 'all-ORDER' office,  
where all inhabitants  
said: ORDER



an 'all-CHAOS' office,  
where all inhabitants  
said: CHAOS

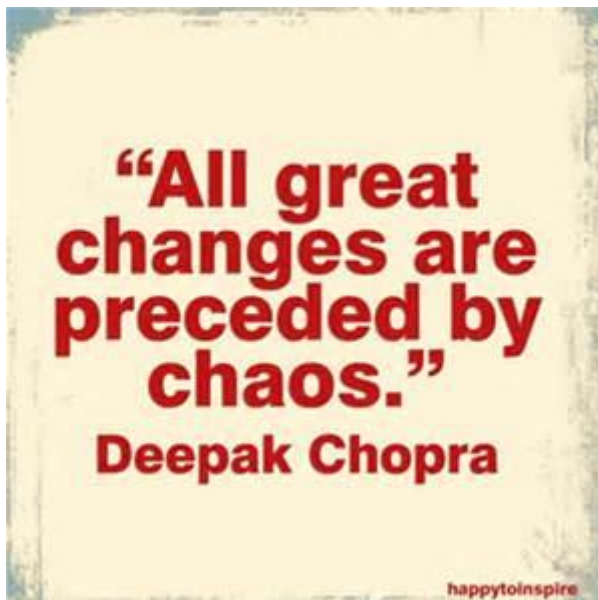


## Extra's

### DID YOU KNOW...

- Mart chose ORDER, admitting he was aiming for the stars?
- Ron prefers CHAOS, so he can create ORDER himself?
- Both Gerwin and Ellis reluctantly admitted they had to say ORDER for themselves?
- Jan Willem just referred to his office?
- Gerlinde was so surprised by the option of CHAOS and ORDER that she waited for others to give the right answer?
- Jaap and Willeke, covered in black smears during a severe milling session, said CHAOS in chorus?

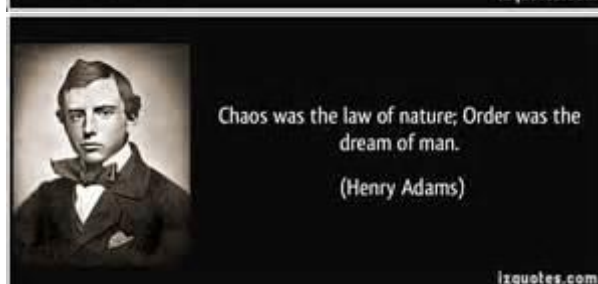
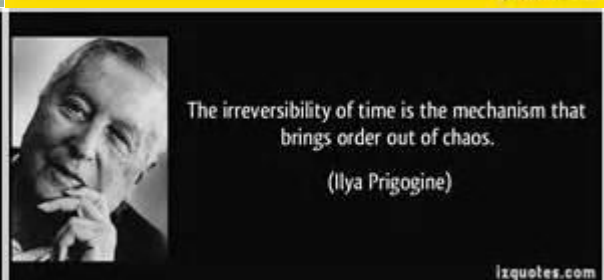
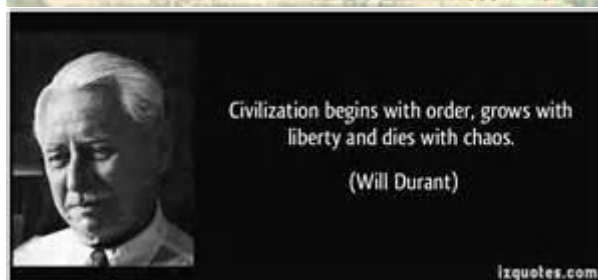
## Quotes about ORDER and CHAOS



Nature even in chaos cannot proceed otherwise than regularly and according to order.

Immanuel Kant

QuoteAddicts



# Once-only Professor Special!

Welcoming Rachel as our new chair, Gerlinde and Jan Willem as brand new professors, and Lijbert as a new professor in the postdoc room!

To celebrate these memorable events in our SOQ Newsletter we have a one-time unique version of the '3 questions for' and 'Favourite soil species' section.

What's so special about this version? Well, it's a double version! We can now read about Rachel's and Lijbert's favourite dish, and about Gerlinde's and Jan Willem's favourite soil species.



# 3 questions for Lijbert!



**1. WHAT'S YOUR FAVOURITE  
COLOUR?**

.....  
"Red."

**2. WHAT'S YOUR FAVOURITE  
DISH?**

.....  
"Nasi goreng."

**3. WHAT'S YOUR FAVOURITE  
BOOK?**

.....  
"Een vorm van beschaving door  
Klaas van Egmond."

**BONUS QUESTION.**

**Which soil animal would an owl like best: an earthworm, a  
dung beetle, or a mole?**

.....  
"My guess would be that most owls will prefer the mole, but there  
are differences in diet: earthworms and dung beetles are known to  
be preyed upon by the Little Owl. Moles are probably more  
favoured by larger owls; as moles are open-field animals, the Long-  
eared Owl, the Short-eared Owl and the Barn Owl will be more likely  
to catch a mole than the Tawny Owl."



Tawny Owl

# Jan Willem's favourite **HALLOWEEN** soil species: *A. chlorotica*

In the week of Halloween, there is one obvious choice for favourite soil species: *A. chlorotica*! Everything about this earthworm is enigmatic, and what is not enigmatic is gross!



## Enigmatic:

- It is not even clear what its name is: *Allolobophora chlorotica* or *Aporrectodea chlorotica*? Who knows? Who cares?!?!?
- It is not clear what its colour is: pink or green?
- It is not clear what it does in the soil: it's just sitting there without providing a single obvious ecosystem service!
- By refusing to extinct it is a living (?) affront to evolution!

## Gross:

- Their colour is either "puke-green" or "rigor-mortis-pink"
- When caught they produce snot-like green mucus
- Their body shape is disgustingly bloated-looking whereas they lack any body strength when caught (compare that to the majestic *A. longa*!)
- According to my grandfather (fisherman during the war) even fish don't like them: "they will eat anything off the fish hook except for those green ones!"

## Suggestions for better names:

- *A. zombotica*
- *A. immobilis*
- *A. sclerotica*
- *A. dementoris*



# 3 questions for Rachel!



**1. WHAT'S YOUR FAVOURITE COLOUR?**

.....  
"Blue."

**2. WHAT'S YOUR FAVOURITE DISH?**

.....  
"King Prawn Rogan Josh - curry. (it shows my English roots, as curry is the favourite of most English)"

**3. WHAT'S YOUR FAVOURITE BOOK?**

.....  
"This is a tough one, at the moment 'Why the Dutch are Different' – as it is a great insight into Dutch history and sociology. I don't have one specific all time favourite book – the genre of books I read would be travel literature. My all time favourite kids book, which probably reflects me most, is The Faraway Tree by Enid Blyton. I read it many times as a child and have since read it to my children."

**BONUS QUESTION.**

**Which country has the most proper autumn weather: England, the Netherlands, or Ireland?**

.....  
"This year it seems to be the Netherlands, I cycle to work each morning through the woods and the colours are truly spectacular! Generally Autumn in Ireland is very wet, so you don't get to enjoy the colours of nature. On the hills and mountains in the north of England, when the heather changes colour in late September, early October – is a picture that possible beats them all!"

# Gerlinde's Favourite soil species

WANTED  
Dead or Alive

## Plants

Plants are amazing species belowground, dead or alive! Since childhood I am especially impressed by their after live wisdom...



Marjory Trash Heap

The **Trash Heap** knows all and sees all. In fact, Marjory is all: "I'm orange peels, I'm coffee grounds, I'm **wisdom!**" She serves as an oracle to the Fraggles, dispensing advice and wise sayings.

<https://www.youtube.com/watch?v=04Zz-GRPAzA>

## P-nut!

Disclaimer: no insult of last newsletters favourite species... This is about plants, with **key below parts!**

If I cannot choose all species and need to select one, it is this amazing plant species which is **lethal to some, nutritious to soil & people** & bearing a **very confusing** name: the peanut!



Talking about **bio-energy** and nutrition, with 18 different **amino-acids**, many **B vitamins** and **high P** concentration! Hm, perhaps the name is not all that silly after all...

Yet, I prefer '**grondboontje**'!

(sorry Mart)