

LABOUR MARKET

DOING A PHD IS STILL VERY POPULAR

Graduate bio-scientists work mainly in the biomedical sector

BY GERT VAN MAANEN

More than half of bio-scientists start their careers as PhD students, 20 percent work abroad and graduates are better off than three years ago.

Experiences of recent graduates

STEFAN GUIRTEN (MASTER'S IN BIOMEDICAL SCIENCES, UNIVERSITY OF LEIDEN, 2015), EMPLOYEE AT THE INNOVATION CENTER OF DSM IN DELFT AND GELEEN:

'During my master I realized that I did not want to perform research. The daily practice of research is too individualistic for me, with a limited focus on a few molecules or cells. In my current position I help research groups to implement improvements, I facilitate the exchange of best practices and I manage umbrella projects. I would not have been able to do this work without my scientific education, because I have to understand how research groups work and what the difference is between fundamental and applied research. The business environment is much more hectic than in the academy. Decisions and choices are less rational and are made much faster and more ad hoc. 'During my studies I had many interests and therefore never proactively went in one clear direction. My education did offer enough space to go my own way. I consciously chose my internship, at a consultancy, and that is how I landed my first job. I got into DSM through an application for a traineeship. It might sound a little crazy, but I just sort of stumbled on my career. People do not like to hear this, but that is the practice. Since October 1st I have been a permanent employee at DSM's umbrella Research & Development department. If I can give students a tip it is, think carefully about which internship you want to follow. Because in practice that is often the steppingstone to your career.'

FINI DE GRUYTER (RESEARCH MASTER'S IN BIOLOGY, RABDOUD UNIVERSITY, 2016), BIOINFORMATICIAN AT NIZO FOOD RESEARCH IN EDE:

'After graduating, I tried to get a job in plant breeding or genetics but could not. I had done my last internship at Bayer, but that was just when they were taking over Monsanto and apparently there was also a dip in the labour market. My resume was good, and I was often amongst the last candidates, but I was still informed that they had hired an even better candidate. It often turned out to be someone from Wageningen, so it thought that it might be useful to do an extra study there. For such a second master's degree in Wageningen I would have had to pay at least 60.000 Euro, so I accelerated the bioinformatician course at the Arnhem Nijmegen University of Applied Sciences. 'It cost me 8.500 Euro extra per year, excluding travel expenses. It was a good investment because I graduated in January and immediately found a job at NIZO in Ede. The work is lots of fun. Data processing actually suits me much better than I had previously thought, and I don't really miss the lab work. In retrospect, a research master is very focused on university research and little attention is paid to planning your career. While there are of course not enough PhD positions for everyone. I think it would be good for students to start looking around earlier outside of the university and via internships and get a better image of the work in the business world. Do not wait too long with this.'

JOOST MANSOUR (MASTER IN BIOLOGICAL SCIENCES, UNIVERSITY OF AMSTERDAM, 2016), PHD STUDENT ON THE MIXOTROPH PROJECT (WWW.MIXOTROPH.ORG) AT STATION BIOLOGIQUE DE ROSCOFF IN FRANCE:

'In Amsterdam I did the track Limnology & Oceanography, and after graduating I quietly started looking for an interesting follow-up. I enjoyed working in our family restaurant, so there was not much pressure behind it. Once in a while I checked a few websites to see if there were any nice PhD projects and, in the end, I applied two or three times. That took about half a year and by coincidence I was just travelling in Morocco when I was asked by this European project to come to Brussels for an interview. It is a Horizon 2020 project about mixotrophic plankton, algae that photosynthesize and are heterotrophic, in which eleven PhD students work together in a European network. 'I had never heard of Roscoff, it is a small town in Brittany, with a beautiful marine biology station. I like it there and I can travel a lot. A PhD position is a kind of logical continuation of the study and it all went quite smoothly for me. As far as I am concerned it will be the same soon, with a post doctorate position. The content of the work is paramount for me. I do not receive a grant, I receive a salary, as agreed for this project in the European Union. I can live very well on it and let's face it, you don't get into biology to get rich.'



FOTO: RAMPANEL/NASA

It is still the classic steppingstone into the labour market for recent graduates: finding a PhD position and working on a dissertation. Most PhD students work in a biomedical lab in the Life Sciences & Health sector. This is evident from the recent three-yearly labour market survey of the Netherlands Institute for Biology (NIBI). 'In collaboration with the universities, we again conducted a survey among biological master's students, who graduated in 2015, 2016 and 2017. This showed that no less than 51 percent of graduates find their first job as a PhD student. That is even 5 percent more than among graduates in the period 2012, 2013 and 2014', says Ingeborg Scheurwater, labour market coordinator at the NIBI. 'On the positive side, no less than 86 percent of the respondents are working at an academic level and that this percentage is stable compared to the previous three-yearly poll.' The questionnaire was completed by 696 respondents, all of whom graduated with a master's degree in bio-sciences at a Dutch university in 2015, 2016 or 2017.

The set-up was largely comparable to the earlier survey among graduates from the period 2012 to 2015 (see 'Labour market for biologists turns red', *Bionieuws*, 18 January 2016). The Life Sciences & Health sector is by far the largest first employer of bio-scientists, with 52 percent, followed by the Ecology, Evolution, Environment & Sustainability sector with 14 percent, Communication & Education with 9 percent, Agri & Food and Horticulture sectors with 6 percent and Policy with 4 percent (see diagram Work sector). Universities and companies are both, with 28 percent, the most chosen employer, followed closely by University Medical Centres and Hospitals, with 22 percent.

About 5 percent of the respondents were out of work on the reference date. 'Of these, 4 percent were really unemployed, and 1 percent was pursuing a new study', Scheurwater notes. 'That figure is quite stable, because the previous time also, 4 percent were looking for work and 1 percent was studying.' The NIBI survey shows that 65 percent of graduates find work within three months and that

finding the first job happens after 3.2 months on average.

About 20 percent of graduates start with a job abroad. Here too the Life Sciences & Health sector dominates, with a share of 56 percent, but Ecology, Evolution, Environment & Sustainability also scores high, with 25 percent. The vast majority of these are PhD positions, because 85 percent of respondents working abroad, are PhD students. For graduates working in the Netherlands, the share of PhD students is, in comparison, only half: 43 percent (see diagrams Function of bio-scientists).

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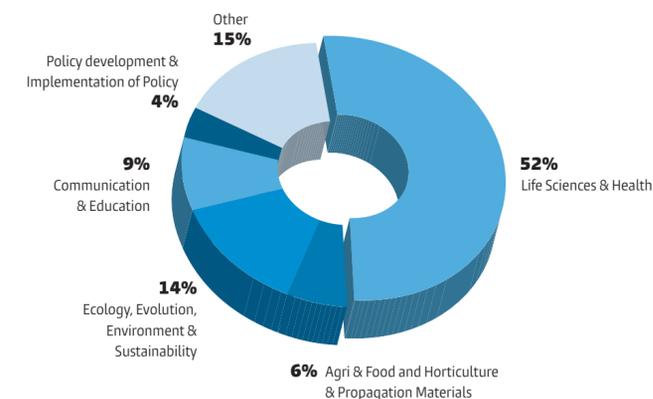
Very few life scientists, 1 percent, start their career as a freelancer, self-employed without employees (self-employed) or as an entrepreneur. 'In research, there are few possibilities for freelancers and starting their own business is more suitable for people who have been in a sector for some time and then see opportunities to enter the market with a product or service. This cannot be expected of starters on the labour market', according to Scheurwater. Graduated bio-scientists are not high earners, with an average gross monthly salary of 2.455 Euro. There is, however, a remarkable difference between the graduates in the Netherlands or those who have gone to work abroad. In Scientific research on plants at the American

research institute NASA. Almost 20 percent of graduated scientists go on to do PhD research abroad.

research institute NASA. Almost 20 percent of graduated scientists go on to do PhD research abroad. Graduates working in the Netherlands earn an average of 2.547 Euro, while graduates working abroad earn an average of only 2.083 Euro. According to Scheurwater, this is almost certainly due to the lower incomes for PhD students abroad, who are often appointed on a scholarship and do not receive a salary like most PhD students in the Netherlands. 'With this, they invest in their future, because experience abroad is often a plus point for research jobs', according to Scheurwater.

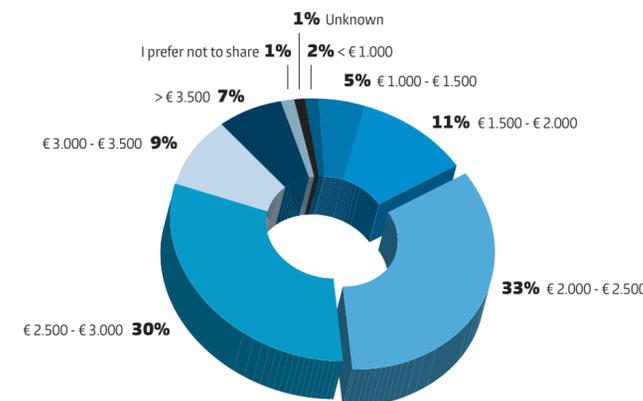
The distribution of salaries shows that considerably fewer graduates now earn less than 2.000 Euro per month, than three years ago: Then it was 26 percent, now it is 18 percent. While the percentage that earns between 2.500 and 3.000 Euro per month has almost doubled, from 16 percent then, to 30 percent now. The average salary for graduates has increased, in the three years from 2.197 Euro to 2.455 Euro. Even corrected for the 4 percent cumulative inflation over three years, that 12 percent increase seems like a great boost. Working biologists are getting richer. ■

Total work sector



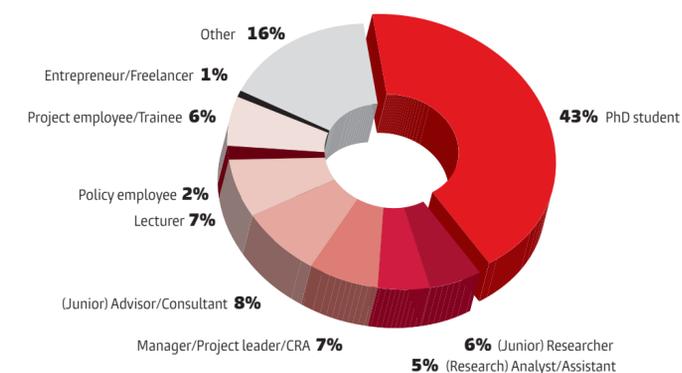
Gross monthly salary

converted into full-time appointment



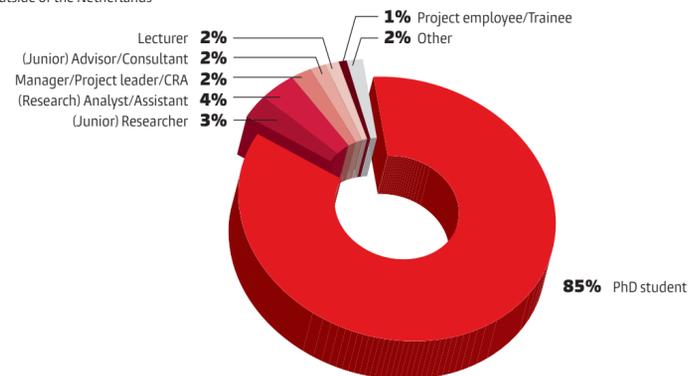
Function

of the 80% graduates who work in the Netherlands



Function

of the 20% graduates who work outside of the Netherlands



'A positive thing is that no less than 86 percent of the respondents are working at an academic level'