Self-study for the EUA review of the Wageningen University PhD programme

WAGENINGEN UR
For quality of life

Self-study for the EUA review of the Wageningen University PhD programme

Wageningen UR
Wageningen, December 2014

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1 Aim and context of the evaluation

1.1 Setting and key questions of the evaluation

Wageningen University and Research Centre is a collaboration between Wageningen University (WU) and DLO institutes for strategic and applied research. The joint mission is 'to explore the potential of nature to improve the quality of life'. About 10,000 Bachelor and Master students, 1,900 PhD candidates and 6,500 staff work in the pursuit of this mission for the benefit of science, policy, business and society at large.
In the Dutch national research evaluation system, all university research is evaluated by a peer review once every six years. While the national review system offers a comprehensive feedback focused on research groups, WU has asked the European University Association (EUA) to provide additional input with regard to the overall management of its PhD programme, focusing on structures and processes, and on the admission, training and examination of PhD candidates. These aspects are not completely covered by the national review system. The key questions for this evaluation are to determine whether:

1. The learning targets of the Wageningen PhD programme meet international standards.
2. The Wageningen PhD programme has the structure and processes in place for PhD candidates to attain these learning targets.

The PhD programme in Wageningen is coordinated by six graduate schools. Four of these schools are national graduate schools, consisting of research groups from several universities. In these cases, the EUA evaluation will only focus on the Wageningen part of the school.

1.2 Definitions and terminology used

Terminology used in higher education differs across countries. In this self-study, the terminology will be as commonly used in the Netherlands:

- PhD candidate = doctoral candidate, PhD student.
- PhD programme = doctoral programme.
- PhD degree = doctoral degree, doctorate.
- PhD thesis = dissertation.
- Graduate school ≈ doctoral school, research school (see also section 1.3).

1.3 The PhD in the Netherlands

The first PhD degree in the Netherlands was conferred in 1644 at the University of Utrecht. Like elsewhere in Europe, the PhD gradually changed from a licence to teach to a research degree. The modern doctorate in the Netherlands started in 1920, when a PhD degree merely on propositions was no longer allowed by law. While some traditional ceremonies, such as the public defence, have essentially not changed, the PhD population did change:

- Increasing numbers of PhD candidates since the 1970s, in line with the global trend.
- Increasing diversity in the population of PhD candidates since the 1990s, in terms of gender, origin and previous education, as a result of emancipation and increasing mobility.

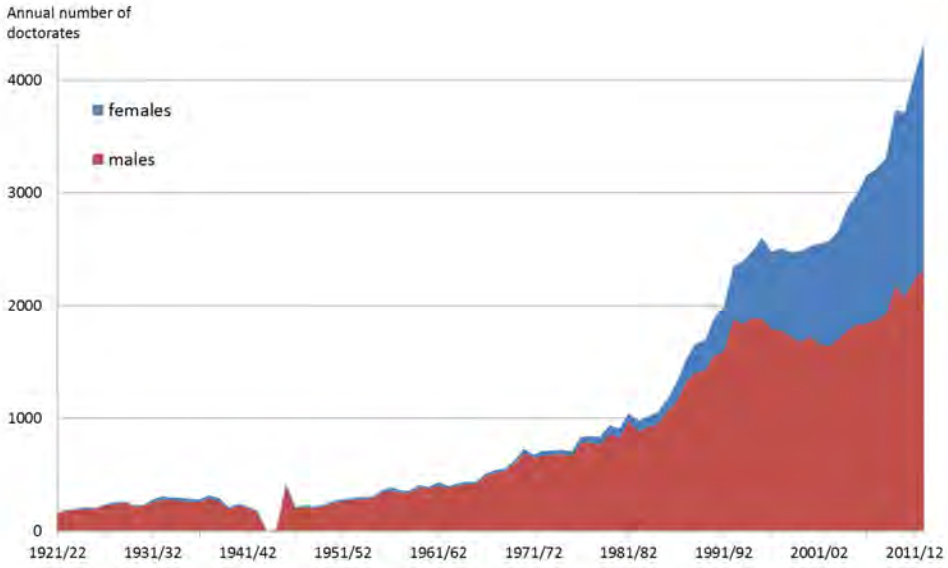

Figure 1.1 Doctorates awarded in the Netherlands, 1921-2011, source: CBS.

With the advent of the 'knowledge society' in the 1980s, Dutch government realised that it needed more highly skilled workers, including PhD degree holders. Two new elements were introduced:

- The *assistent in opleiding* (AIO) was introduced in 1986. This research assistant is employed for four years with the aim to do a PhD. This type of PhD candidate still exists, be it under a different Dutch name, *werknemerpromovendus*, to emphasise its employed status.
- So-called research schools were introduced in the 1990s to offer education and training to the increasing numbers of PhD candidates. Many of these research schools still exist.

Moreover, Dutch government introduced two quality assurance systems in the 1990s:

- A periodic peer review of all academic research, either by discipline (for example all biology research) on a national scale, or by institute on a local scale. In this peer review, also the research school, if relevant, is evaluated.
- An accreditation system for research schools, led by the Royal Netherlands Academy for Arts and Sciences (KNAW).

In line with the Bologna agreements (1999), Dutch government introduced the Bachelor-Master model in 2002. Already in 2004, Dutch universities had completely adopted the Bachelor-Master model and this influenced the organisation of PhD education in the Netherlands:

- In 2004 several universities drew back from national, disciplinary research schools and established local, broader graduate schools that often encompass a research Master. This has, however, caused the demise of some national schools, including their PhD course programmes.
- Also around 2004, some Dutch universities introduced a bursary system for PhD candidates, next to the employed research assistant. This has led to discussions about the preferred status of PhD candidates which are still not resolved.
- The Dutch national research council NWO started a funding scheme 'Graduate Programme' in 2009 to enable research schools and graduate schools to select four gifted, motivated Master students to prepare for a PhD project via a special research Master programme. For the time being, 2014 was the last selection round because NWO wants to evaluate the programme now.
- In 2014, a new national protocol for the peer review of academic research including the evaluation of graduate schools was agreed upon by all universities, NWO and KNAW. As a result, the KNAW accreditation system has ceased to exist.

1.4 The PhD in Wageningen

Wageningen University is one of the 14 public universities in the Netherlands. It was established as *Landbouwhogeschool* in 1918 and conferred its first PhD degree in 1920. At that time the university was focused on Dutch and 'colonial' agriculture. In the 1970s, its field became much broader and also its international orientation broadened. In 1999, Wageningen University joined with several DLO institutes to form Wageningen University and Research Centre.

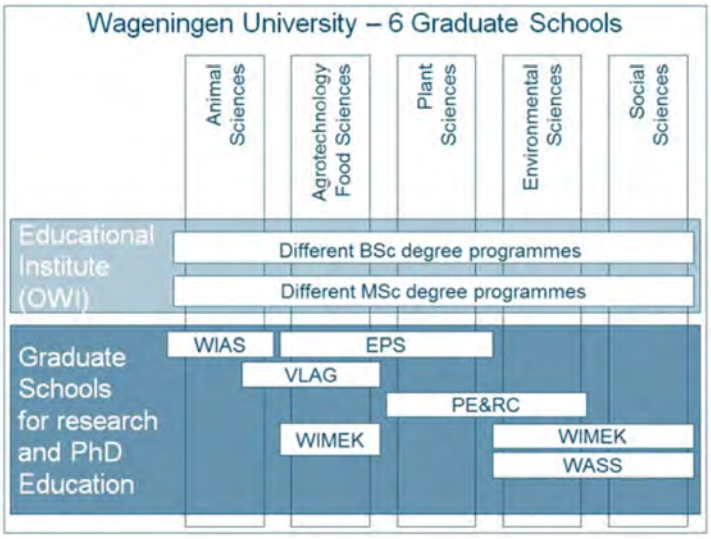

Figure 1.2 Organisation of Bachelor, Master and PhD programmes in the five WU departments.

Wageningen University has one faculty, which is divided into five departments. The core of the organisation is formed by the 90 chair groups, each headed by a full professor. Personal chairs, endowed chairs, associate and assistant professors form the rest of the tenured staff. PhD candidates work within a chair group, along with postdocs and technical staff, often in collaboration with another chair group, a DLO institute or a partner from outside Wageningen UR.

The PhD programme is coordinated by the six graduate schools that exist since the 1990s. Unlike their name might suggest, the graduate schools in Wageningen are not responsible for the Master study. However, since a few years, the graduate schools are involved in so-called Research Master programmes that prepare students for a career in research, and a PhD in particular. Also, in the past five years, all graduate schools in Wageningen have applied successfully for the prestigious NWO 'Graduate Programme' that allows selected Master students to prepare for a PhD.

Figure 1.3 PhD graduations at Wageningen University.

1.5 Research environment

The strength of Wageningen UR lies in its ability to combine the forces of Wageningen University and its application-oriented and field-based DLO research institutes. Its strength also lies in the interaction of the various fields of natural and social sciences that allow for an integrated approach to both fundamental and applied research. This union of expertise leads to scientific breakthroughs that can quickly be put into practice and be incorporated in education.

University rankings have become important nowadays, especially for international students.
A few examples:

- The Times Higher Education World University Rankings 2014 again placed Wageningen UR in the top-100 in the world. It takes place 73 in the prestigious ranking, which is high for a specialised university.
- Wageningen UR is considered a leading university in its research domain worldwide. It ranks first in agricultural research according to the new ranking of US News and the National Taiwan University Ranking, and second by QS World University Rankings in the category Agriculture & Forestry. Also, QS places Wageningen UR in the worldwide top-10 in Environmental Sciences.

Every six years, the research programmes of Wageningen University are evaluated by international peer review committees. Here are a few examples of these review reports:

- Wageningen Institute for Environment and Climate Research (WIMEK) was reviewed in 2014. The reviewers said: “We salute the academic reputation of WIMEK. Both in the self-assessment report as well as the interviews and subsequent meetings with the PhD students we received a very felicitous impression of intellectual rigour, of joy in being in this active research community, and of overall excellence.”
- All biology research in the Netherlands was subjected to an international peer review through QANU (Quality Assurance Netherlands Universities) in 2012. Wageningen University had the highest average score per research group of all six universities that participated in the review.
- Wageningen School of Social Sciences (WASS) was reviewed in 2009. The review report says: “The quality and commitment of the research staff in the social sciences is considered to be high by the peer review committee. Output is of high quality and often also has a relevant impact for stakeholders.”

To summarise, we believe that Wageningen University attracts so many PhD candidates from all over the world because it offers an excellent research environment.

2 Structures in the Wageningen PhD programme

2.1 Aim and learning targets

Wageningen University aims at a four-year PhD programme. The core of the programme is the PhD research project: planning and performing research, reporting the results and presenting them to an international audience. The usual size of the thesis is equivalent to four papers published or publishable in international scientific journals, plus an introduction and a synthesis, often called general discussion, at the end.
PhD candidates spend up to 15% of their time on training and education, such as courses, seminars, conferences and workshops to broaden their skills, deepen their knowledge and increase their exposure to the international scientific community. The aim is to attain 'T-shaped skills' as explained in figure 2.1. Employed PhD candidates have the option to spend up to 10% of their time teaching and supervising Master students who participate in the research of the PhD candidate.

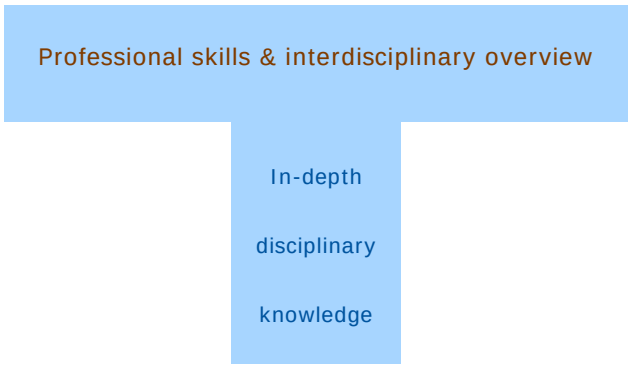

Figure 2.1 The principle of T-shaped skills.

According to the 'Doctoral degree regulations' of Wageningen University the recipient of the doctorate is capable of:

1. Functioning as an independent practitioner of science, as shown by:
   a. Formulating scientific questions, whether based on social issues or scientific progress;
   b. Conducting original scientific research;
   c. Publishing articles in leading journals, publishing books with leading publishers or making a technical design;
2. Integrating his or her own research in, or placing it within the framework of, the corresponding scientific discipline and against the background of a broader scientific area;
3. Placing the research aims and research results in a societal context;
4. Postulating concisely worded propositions in scientific and societal areas, formulated in such a way that they are subject to opposition and defence.

2.2 Diversity of PhD candidates

At Wageningen University, five types of PhD candidates can be distinguished:

Staff PhD candidate
Staff PhD candidates are tenured or temporary employees of Wageningen University who are given the opportunity to conduct PhD research besides their regular tasks. This category is very small now because scientific staff enters university with a PhD degree. This category includes technical staff that pursues a PhD.

Research assistant
Research assistants are employed by Wageningen UR and selected through normal job application procedures. This category makes up almost 50% of the PhD population. They are initially appointed for a period of 18 months. A contract for the remaining duration of the PhD project is considered only if the first period has been positively evaluated (the 'go/no-go' evaluation). The appointment period is four years in total, on a full-time basis. At the request of the parties involved that can be changed to five years on a 0.8 basis. In case of illness, pregnancy or other delay, a contract extension can be given. The collective labour agreement of Dutch universities applies.

Guest PhD candidate
Guest PhD candidates perform their research at Wageningen University but are not employed by the university. These candidates usually have a fellowship or grant for four years from a local, national or international funding agency. When applying for a PhD programme, these candidates must show that they have appropriate financial support and a firm commitment from the relevant department or institute at Wageningen University. Guest PhD candidates pay a tuition fee of € 1000 per month.

Sandwich PhD candidate
Sandwich PhD candidates are mostly international PhD candidates who spend part of their PhD at Wageningen University. Generally they are in Wageningen for the first and the last 6-8 months of their project with possible short periods in between. In the intermediate period the PhD candidates do research in their home country or home institute under co-supervision of a local supervisor. The first 6-8 months is spent on elaborating on the proposal, taking courses and preparing for the research, while the final period is spent completing the thesis at Wageningen University.
A sandwich PhD project contributes to local capacity building and requires agreed commitment and support from both the Wageningen supervisor and the home institute in the country of origin. The research of a sandwich PhD candidate is often of direct interest to the home institute, dealing with a local or regional topic.
Sandwich PhD candidates pay a tuition fee of € 1000 per month stay in Wageningen, except for those funded by Wageningen University or by the Dutch national research council NWO.

External PhD Candidate
External PhD candidates are not employed by Wageningen University and they conduct or have conducted their research outside Wageningen University. The link with Wageningen University is primarily via the supervisor. External PhD candidates do not pay a tuition fee.

Despite their differences in status, all PhD candidates at Wageningen University are regarded as early stage researchers with, as much as possible, equal rights and duties.

The present diversity of the PhD population in Wageningen can further be characterised by:
- Gender: 50% of PhD candidates is female, similar to the national average.
- Origin: on average, more than 50% of PhD candidates comes from abroad (figure 2.4) but there is a difference between research assistants and other candidates (figure 2.3).
- Previous education: 40% of PhD candidates has a Wageningen Master degree (figure 2.5).

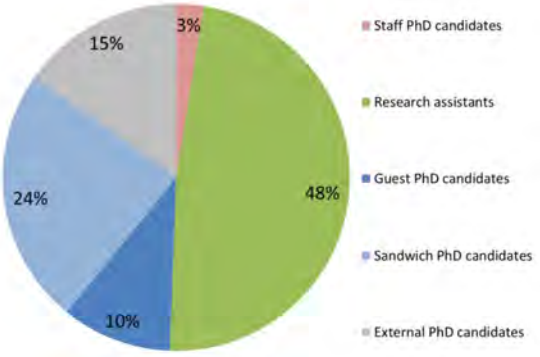

Figure 2.2 Present composition of the PhD population at Wageningen University.

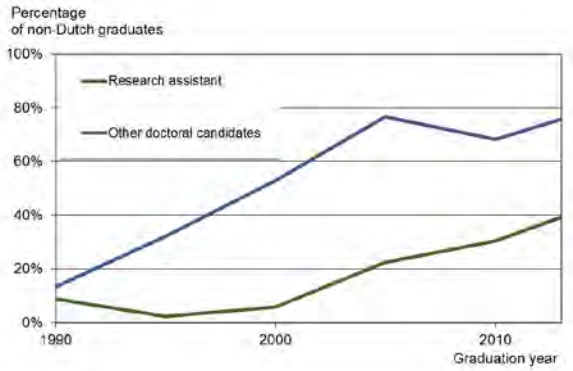

Figure 2.3 Internationalisation of PhD candidates at Wageningen University by PhD type.

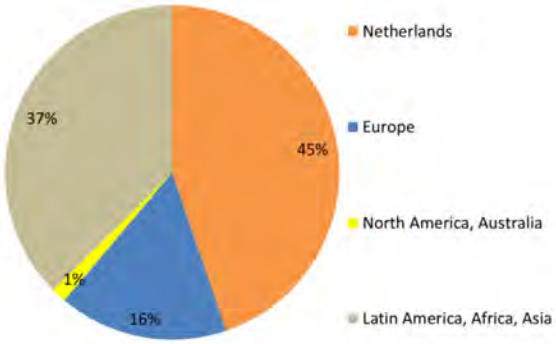

Figure 2.4 Origin of present PhD candidates.

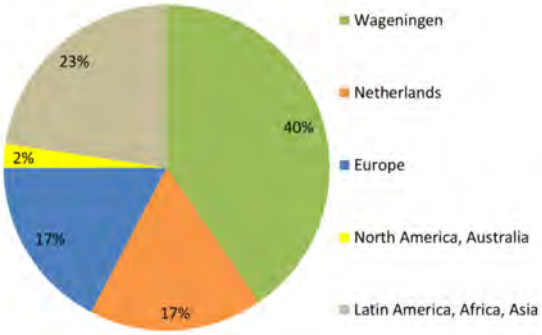

Figure 2.5 Previous education of candidates.

2.3 Organisational structure

Six graduate schools

The PhD programme is coordinated by the six graduate schools of Wageningen University. Two of these are local schools, the others are national schools:

- Experimental Plant Sciences (EPS, national).
- Production Ecology and Resource Conservation (PE&RC, national).
- Food Technology, Agrobiotechnology, Nutrition and Health Sciences (VLAG, national).
- Wageningen School of Social Sciences (WASS, local, merger in 2010 of Mansholt Graduate School and the local part of CERES, a former national school in development studies).
- Wageningen Institute of Animal Sciences (WIAS, local).
- Wageningen Institute for Environment and Climate Research (WIMEK, part of the national school of environmental sciences SENSE).

The graduate schools have three main tasks:

- To stimulate and coordinate the development of a coherent research programme within the mission of the graduate school.
- To safeguard, monitor and stimulate the quality and progress of research by PhD candidates, postdocs and staff.
- To coordinate, develop and facilitate doctoral education.

Chair groups of Wageningen University participate with their staff, postdocs and PhD candidates in one or more graduate schools. Researchers from other universities and research institutes can be affiliated with a graduate school.

Each graduate school has its own research field and mission and is led by a scientific director, assisted by an executive secretary and education coordinator. Each school has:

- a Board consisting of tenured staff and PhD candidates,
- an Education Committee consisting of tenured staff and PhD candidates,
- an International Advisory Board consisting of senior peers from science, society and industry,
- a PhD Council.

Each graduate schools receives a budget from the university for:

- Scientific director, executive secretary, education coordinator, secretariat.
- Organisation of courses, workshops, seminars and symposia.
- Fellowships for visiting scientists.
- Strategic PhD projects (for employed research assistants) to strengthen the school's mission, boost a newly started chair, and stimulate internal or external collaboration.
- An external peer review of its research and PhD programme every six years.

Though limited, these budgets are generally felt 'to do the job': to create an environment for excellent research, collaboration and doctoral education. Unlike many other universities in the Netherlands and in Europe, Wageningen University has stable, active graduate schools for already twenty years. Since their start, all graduate schools of Wageningen University have been accredited and re-accredited by the Royal Netherlands Academy of Arts and Sciences (KNAW).

Wageningen Graduate Schools

The (WU part of) graduate schools of Wageningen University together constitute 'Wageningen Graduate Schools' which is led by the Dean of Sciences. His task is to stimulate quality of research and doctoral education, to stimulate collaboration between the graduate schools and to address matters of common interest. The Dean is also advisor of the Executive Board of Wageningen UR and represents the Rector in national fora.

Wageningen Graduate Schools receives a budget for:

- Professional skills courses for PhD candidates.
- Training for supervisors.
- Fellowships for sandwich PhD candidates, either on an individual basis (Wageningen Sandwich Programme) or in interdisciplinary programmes (INREF programme). Both programmes are on a competitive basis with external peer review of proposals.

PhD Services, Doctorate Secretariat and Students Desk

PhD Services handles administrative matters concerning registration and formal admission, and the Doctorate Secretariat handles all procedures of thesis evaluation and the public defence. This is done through a registration system called Promis. Operational since 2010, Promis is continuously being improved, in terms of data quality, user-friendliness and supply of management information.

PhD candidates who intend to take Master level courses, need to register at the Students Desk.

PhD Services, Doctorate Secretariat and Students Desk are part of the corporate office Education, Research & Innovation. The Dean of Sciences has an advisory role here, no formal responsibility.

This division of responsibilities for PhD candidates has been addressed only recently, initiated by the present Dean. The aim is to create a 'one-stop shop' for PhD candidates.

Academic Board

The Academic Board is the 'gatekeeper' of the quality of PhD theses at Wageningen University. It currently consists of the Rector, the Dean of Education, the Dean of Sciences and 10 more professors appointed by the Executive Board. The role of the Academic Board in the evaluation of the PhD thesis is described in section 3.5.

Wageningen PhD Council

The Wageningen PhD Council is a forum in which representatives of the PhD councils of the six graduate schools discuss and address shared issues and concerns that touch upon the work and life of PhD candidates. As such, the PhD Council is first and foremost a body that represents the interests of PhD candidates at a university-wide level. It has monthly meetings with the Dean of Sciences and is

represented in the national PhD Network of the Netherlands. Examples of issues that have been picked up over the last year are:

- Integrity, most notably the relationship between PhD candidates and their supervisors.
- PhD housing opportunities in Wageningen.
- Participation of PhD candidates in the WUR Council.
- Participation of PhD candidates in advisory appointment committees for professors.
- The grading system of PhD theses and defences.
- The national government's plans to introduce a bursary system for PhD candidates.

The Wageningen PhD Council also organises activities for PhD candidates, see section 4.4.

2.4 Budgets and incentives

In order to facilitate and stimulate PhD candidates to take courses and attend conferences, in Wageningen or abroad, Wageningen University uses two incentives:

- PhD candidates are entitled to an individual education budget of € 2500 (for the entire PhD project) that can be spent after the Training and Supervision Plan (TSP) has been approved by the graduate school. An approved TSP is also condition for a reduced fee for courses organised by the graduate schools.
- Chair groups receive, as part of the output-based budget model of Wageningen University, a compensation for PhD supervision of € 56,600 for a PhD graduation *with* an education certificate (as proof of a completed education programme), and a compensation of € 41,600 *without* such a certificate. This distinction was introduced in 2008 to stimulate that PhD candidates complete their education programme and attain the necessary T-shaped skills (figure 2.6). These budgets represent about 300-400 hours of supervision including overhead.

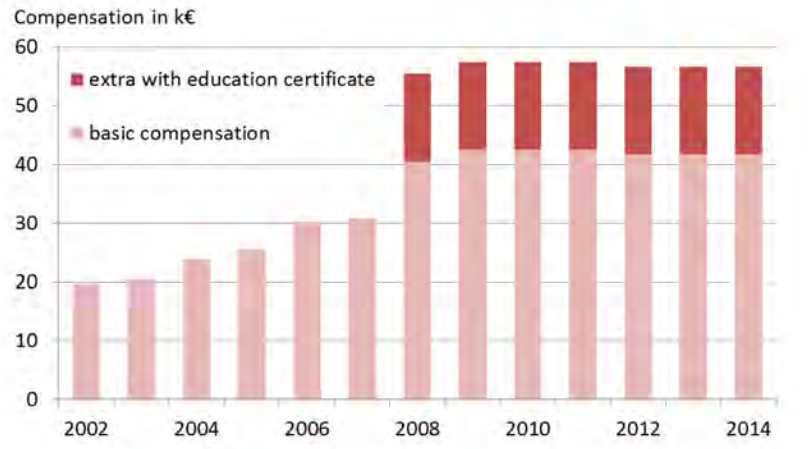

Figure 2.6 Development of the compensation for PhD supervision.

2.5 Support for PhD candidates with problems

Science and supervision essentially depend on successful communication. Wageningen University strives for an open and constructive style of communication. Yet, misunderstandings or conflicts of interest can happen and sometimes these cannot be solved simply by a discussion between PhD candidate and supervisor(s). PhD candidates depend on their supervisor(s) and thus form a vulnerable group that deserves extra protection. Wageningen University is well aware of this.

PhD Adviser
Each graduate school has one or two PhD Advisers. They are the first resort for PhD candidates who experience problems with, for example, supervision, unwanted behaviour or scientific integrity. All information given to a PhD Adviser is treated confidentially and the Adviser will only take action with the consent of the PhD candidate. The PhD Adviser can also refer to one of the specialised advisers mentioned below.

Personnel adviser
PhD candidates employed by Wageningen UR can ask their personnel adviser about matters concerning legal status, tax and pension rights, and other issues affecting them as employees.

Counsellor for unwanted behaviour
Complaints concerning unwanted behaviour can be filed with the counsellor and eventually submitted to the complaints committee for unwanted behaviour.

Social worker
Social workers can help with problems related to a PhD candidate's work or private life and will seek, together with the PhD candidate, the most suitable solution to his/her problem.

Student psychologist
PhD candidates not employed by Wageningen UR are entitled to consult the student psychologist.

Scientific integrity
Wageningen UR has two Confidential Counsellors for Scientific Integrity who can be contacted in case of suspected fraud, plagiarism or other scientific misconduct.

Academic Board
Also the Academic Board may be approached by PhD candidates who experience problems, for example with supervision. Ultimately, the Academic Board may appoint a different supervisor.

3 Processes in the Wageningen PhD programme

3.1 Start and formal admission

Well before a PhD candidate starts, visa (for non-EU residents), registration at the University and an application for housing are taken care of by the chair group with the help of PhD Services and the graduate schools. Registered PhD candidates have access to the (digital) library of Wageningen UR and enrol in a graduate school, which gives them access to all courses and workshops offered by WGS and the graduate schools.
The PhD Council of the graduate school PE&RC has a buddy system to welcome newly arrived PhD candidates at Wageningen. A 'buddy' helps the new PhD settle in Wageningen in order to make him/her feel welcome and at home more quickly.

Wageningen University requires provisionally admitted candidates to obtain formal admission within 12-18 months after the start of the PhD project. Even when a PhD candidate is invited by a supervisor to come to Wageningen, s/he must still obtain formal admission.
To be formally admitted to the PhD Programme, the following requirements must be met:

1. **Proficiency in English**. PhD candidates are required to submit an internationally recognised certificate of proficiency in the English language (TOEFL, IELTS or Cambridge). This certificate is not a requirement for PhD candidates from Anglophone countries and for candidates who have completed their higher education with English as the language of instruction.
2. **Evaluation of the PhD candidate's diploma** when it is not a Master degree from a Dutch university. In such a case, the diploma is evaluated by the Academic Board, which bases its decisions on the evaluations done by Nuffic (Netherlands organisation for international cooperation in higher education). When a diploma is not equivalent to a Master degree from a Dutch University, the academic board decides, together with the supervisor, whether a qualifying examination is required and what it should consist of. If a qualifying exam is required, the candidate will not be formally admitted until s/he has passed this exam.
3. **Payment of fees**, if applicable (see section 2.2).
4. **Approval of the Training and Supervision Plan** (TSP) by the graduate school where the PhD candidate is enrolled.
5. **Approval of the research proposal** by the graduate school where the PhD candidate is enrolled.
6. **Evaluation of the candidate's progress and performance** after 12-18 months. This evaluation ('go/no-go' interview) determines whether a PhD candidate may continue in the PhD programme.

3.2 Evaluation of project proposal

PhD candidates benefit from a well-conceived proposal that includes their own ideas and ambitions, provides a quick start, and offers flexibility when needed. The PhD proposal can be written by the candidate or by the supervisor prior to the start of the PhD project, but most commonly it is a joint effort during the first six month of the project based on a rough, one-page idea. Annex B shows a project proposal form that can be used for that purpose.
When finished, the supervisor submits the proposal to the graduate school, together with three or four suggestions for reviewers. Proposals that have not been reviewed earlier, for example by NWO or the EU, are sent by the graduate school to two external reviewers who are asked to advice on:

- The scientific quality and originality of the proposal, i.e. whether it can result in a PhD thesis;
- Its feasibility in four years, including writing of the PhD thesis.

In many cases, the suggestions of the external referees lead to further improvement of the project proposal. In some cases major revisions are needed before the proposal is approved. In rare cases a proposal is rejected, which means that the candidate may not continue.

3.3 Supervision

The old Humboldtian model of one-to-one supervision has long gone at Wageningen University, as figure 3.1 shows. Care is taken, however, that supervising teams do not become too large: three members is the maximum, four can be allowed in interdisciplinary projects.
The composition of the supervisory team is checked at two moments: at the start, through the evaluation of the project proposal by the graduate school, and near the end, when the Academic Board appoints the *promotor(es)* and *co-promotor(es)*.
Good and open communication between the PhD candidate and supervisors is crucial, and tasks and responsibilities for both parties must be as clear as possible. For some PhD candidates and supervisors this means weekly meetings, while others may meet only when the need arises. Making each other's expectations explicit is perhaps the most important secret of a successful PhD, and this is exactly the aim of the Training and Supervision Plan (TSP). Annex C shows a TSP form.

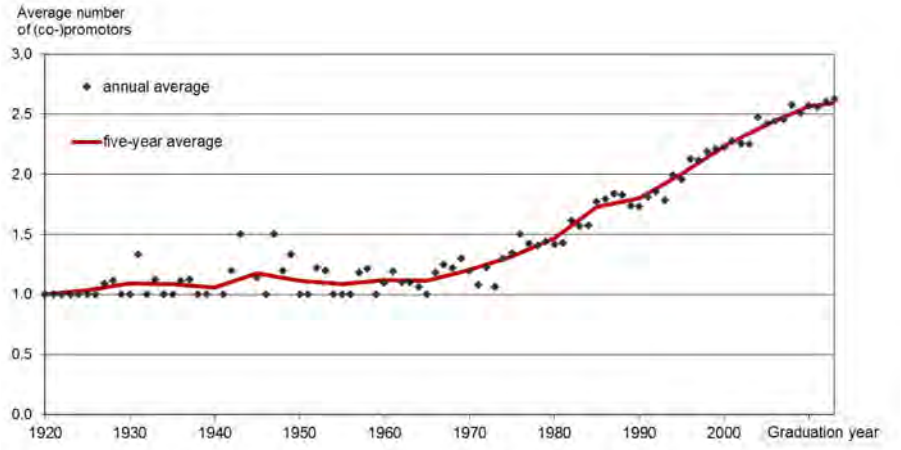

Figure 3.1 Development of team-wise supervision at Wageningen University.

Tenured staff must meet the requirements set by the graduate school to be a (junior or senior) member of the school. These requirements concern scientific output, acquisition of competitive funding, contribution to PhD training and other indicators of academic esteem. Having successfully supervised one or more PhD projects is also such an indicator.
To improve PhD supervision, Wageningen Graduate Schools offers training for supervisors, including dealing with intercultural differences and with interdisciplinary research. The Graduate School WASS has a booklet for supervisors with many tips to improve supervision (WASS 2013).

3.4 Monitoring of progress

Progress of PhD candidates is monitored in three ways:

- Similar to other personnel at Wageningen University, employed PhD candidates have an annual 'Results & Development' interview with their superior. For non-employed PhD candidates such an interview is optional. In the interview both the progress of the candidate and the coaching role of the supervisors are evaluated. If delay in the PhD research has occurred, ways to solve the delay are sought and decided on jointly. Sometimes this may lead to an extension of the contract of a few months. Experience has shown that such an extension can prevent much longer delay due to a new job that the candidate would have to take.

- A crucial moment is the ‘go/no-go’ interview with the supervisor after 12-18 months. A ‘go’ is part of the formal admission of the PhD candidate. A ‘no-go’ means that the candidate has to stop. For this reason, employed PhD candidates are initially appointed for 18 months. The ‘go/no-go’ decision is monitored by the graduate school. If a PhD candidate wishes to object to the outcome of the evaluation, s/he can appeal to his/her graduate school or to the Academic Board. Annex D shows the format of a go/no-go report.
- Graduate school directors visit their research groups approximately once every one or two years. During these meetings progress of PhD projects is discussed with staff and PhD candidates separately. Moreover, prior to the meeting PhD candidates are asked to fill in a questionnaire in which candidates are asked to evaluate progress, quality of supervision and facilities, the supporting role of the graduate school and their overall appreciation of the PhD programme.

3.5 Thesis evaluation and graduation ceremony

The thesis evaluation procedure can be summarized as follows:

- It starts with the supervisor’s approval of the PhD thesis and of the six to eight propositions conceived by the candidate.
- Next, the supervisor submits the composition of the thesis committee to the Academic Board. The thesis committee consists of the *(co-)promotor(es)* and four opponents. To be approved by the Academic Board, the opponents must be independent, i.e. not working at the chair group of the *promotor*, and not involved in the PhD research. As nearly all PhD theses at Wageningen University are written in English, qualified and independent opponents can be recruited worldwide.
- Within six weeks after receiving the thesis, the opponents advise the Academic Board whether or not the thesis has provided sufficient proof of competency in science to allow the PhD candidate to defend his/her thesis. A positive decision requires a positive evaluation of all opponents. Minor or major revisions may be advised. If major revisions are needed, this may lead to postponement of the public defence. The whole review procedure is handled on behalf of the Academic Board by the Doctorate Secretariat, not by the supervisor, to ensure an objective advice.
- If the *promotor*, or any other member of the thesis committee, had indicated that s/he wants to apply for a *cum laude* designation, the Academic Board appoints two extra reviewers who read the thesis and recommend on the *cum laude* proposal. Both these extra reviewers must be professors and at least one must come from abroad. If both of the extra reviewers advise negatively, the *cum laude* procedure stops. The final decision whether or not to award *cum laude* is made by the thesis committee after the public defence.

The public defence is conducted in English unless the PhD candidate has submitted a request to the Academic Board to conduct the defence in Dutch and all members of the thesis committee are able to discuss in Dutch.

After the public defence, the thesis committee decides in a private meeting whether or not to confer the doctorate (which is a formality) and which grade is awarded for thesis and defence. Before 2007, the only distinction made was *cum laude*. Now the grades for thesis and defence form a five-point scale, from acceptable to excellent. The grades are further discussed in section 5.3.
Annex E shows the thesis evaluation form. More details can be found in the Doctoral degree regulations of Wageningen University, see online link page 22.

3.6 Monitoring the PhD experience

Monitoring the PhD experience is a very useful instrument to identify issues at programme level that need improvement. It cannot be used for identifying problems at the level of an individual PhD candidate because anonymity in such surveys must be guaranteed. The PhD experience can be monitored at two different moments: during the PhD project and after graduation, which yields different results, for obvious reasons.

The graduate schools have monitored the PhD experience for already 15 years. A few examples:

- In 2001, WIAS did a survey focused on graduation delay in which graduates and supervisors were asked to identify and quantify the causes of delay in individual projects (WIAS 2001). The survey questions were used again as part of a survey among Wageningen PhD alumni in 2011 and in 2014.
- In 2009, Mansholt Graduate School of Social Sciences (predecessor of WASS) did a survey among its ongoing PhD candidates as preparation for the peer review of 2009.
- Since its start in 2010, WASS invites freshly graduated PhDs for an exit interview to evaluate their PhD project and the graduate school.
- In 2010, WIAS did a short survey on the satisfaction of supervision.
- Since 2010, PE&RC organises exit interviews with their freshly graduated PhDs. Via an evaluation form candidates are asked to evaluate their experiences regarding: the research project, the quality of supervision, the education programme, the role of the graduate school and finally their overall evaluation of their experience as a PhD candidate. Also, questions are asked about the candidate's career plan. When needed, matters are discussed in more detail during a personal meeting.
- In 2010, Wageningen University participated in a national survey to monitor the PhD experience and labour market position of freshly graduated candidates (Sonneveld et al 2010).
- In 2011 and 2014, Wageningen University and KLV Wageningen Alumni Network carried out a career survey among alumni, which included questions on the PhD experience.
- In 2013, VLAG held a survey among its ongoing PhD candidates with questions on supervision, education and training, and the performance of the graduate school.
- In 2013, the six graduate schools designed a joint survey based on the earlier surveys of the PhD experience. So far, three schools, WASS, WIAS and WIMEK (through the national research school SENSE) have conducted the survey, the other schools will follow in 2015. This survey will be repeated in the future on a regular basis. Results are reported in section 5.1.

4 PhD training and education

4.1 Introduction

When graduate schools were introduced in the Netherlands, twenty years ago, education for PhD candidates was virtually non-existent. Often, the first course to be developed was on scientific writing. Such courses were an immediate success and gradually the course package extended. Now, a vast array of professional skills courses is offered jointly by Wageningen Graduate Schools. In-depth courses are offered by the individual graduate schools, often in collaboration with other graduate schools in Europe. Such courses attract an international audience.
In the 1990s, each graduate school in Wageningen developed its own Training and Supervision Plan (TSP). These TSPs were evaluated in 2002 and again in 2007 with the aim to harmonise the TSPs as much as possible, but with respect for functional differences due to the scientific field.
In summary, the present course package offered and the present TSP are the result of twenty years development in 'competitive collaboration' by the six graduate schools in Wageningen.

4.2 The Training and Supervision Plan

The PhD candidate and his/her supervisor formulate a Training and Supervision Plan (TSP) and submit it to the graduate school for approval within six months. The TSP contains agreements on:

- The training and education activities to be undertaken by the PhD candidate, with a minimum of 30 ECTS credits.
- Optional teaching duties, for employed candidates only and at maximum 10% of their time, which can consist of teaching and/or supervising Master students who participate in the research of the PhD candidate.
- Agreements on supervision, with the aim to make the candidate's and supervisor's mutual expectations and possibilities explicit.

The PhD candidate's training and education programme aims to attain the 'T-shaped' skills needed to become an independent scientist: a combination of broad personal skills, interdisciplinary overview and in-depth scientific knowledge. It is a tailor-made plan, which means:

- Tailor-made: specific for the needs of each particular PhD candidate,
- A plan: PhD candidates may deviate from the plan in consultation with their supervisors.

The graduate school WIAS, for example, has revised its TSP recently to make it even more tailor-made. Every new PhD candidate has to take an online-assessment (called 'My Talent') to give insight in the capacities and personality of the PhD candidate. WIAS has appointed three of its staff member to be 'PhD advisors'. These PhD advisors received special training. A PhD candidate discusses the results of his/her assessment with one of the PhD advisors. The candidate can choose whether the daily supervisor is present (if not, the candidates discusses the results later with the supervisor). Aim of this meeting is 1) to define learning goals, and 2) translate these into the TSP, in particular the professional skills training. The supervisor helps the PhD candidate with the disciplinary courses. At a second meeting of PhD candidate and PhD advisor, the complete TSP is discussed. With this new procedure, WIAS helps PhD candidates to determine their learning goals and to develop the actions they need to reach those learning goals during the PhD programme.

The minimum requirements laid down in a TSP may vary between the graduate schools, depending on the scientific field. Generally, a TSP contains the following elements:

- Introduction course, including research ethics and scientific integrity.
- Brush-up courses when needed, for example on statistics.
- In-depth and interdisciplinary courses, workshops, seminars.

- Professional skills courses and training, for example scientific writing, project planning, supervising Master students, career orientation, assessments.
- Attending and presenting at conferences.

Annex C shows a form to fill out the Training and Supervision Plan.

4.3 Training and education offered

Registered PhD candidates receive a digital newsletter from their graduate school that provides, among others, news on:

- Training and education offered by the graduate school.
- Training and education offered by Wageningen Graduate Schools.
- In-depth courses offered by others in Europe and elsewhere.
- Conferences worldwide in the scientific field covered by the school.

Ideas for new courses, workshops and discussion groups often originate from PhD candidates and their supervisors, and the graduate school tries to follow up on such ideas.

Each course is evaluated by the participants, anonymously and by standard evaluation forms. In most cases, evaluations are very positive, but if a course is repeatedly evaluated negatively, it is either altered or terminated.

As a stimulus and acknowledgement for tenured staff to organise in-depth courses, graduate schools award an 'education prize' at their annual Science Day. The jury for that prize consists in majority of PhD candidates.

The annual amount of training and education offered at Wageningen University is approximately:

- By each graduate school 20-40 ECTS credits of in-depth courses, depending on the school's size.
- By Wageningen Graduate Schools 60 ECTS credits of skills, competence and career courses.

Annex F provides an overview of all training and education offered in 2014.

4.4 National and international collaboration

As most graduate schools in Wageningen are national schools, national collaboration in PhD education is easy to accomplish. However, for specialised in-depth courses this is not always enough. Therefore, all schools draw from the international scientific networks of their staff and create their own international network for PhD courses. Funds such as EU Marie Curie help in this respect.

Approximately 75% of in-depth courses have international speakers. These courses also have a significant number of international participants, primarily coming from European countries. Besides international contribution and participation, a number of courses (10-20%) are run jointly with international partners.

4.5 Extracurricular activities

Registered PhD candidates are entitled to all facilities and events open for personnel and students, such as public lectures and seminars, lunch meetings, exhibitions, concerts, festivities and parties, and a sports card for a reduced fee.

The PhD councils of the graduate schools also organise events, which are always well attended. For example, the annual Science Day is in most schools organised by the PhD Council. On a Science Day, PhD candidates present their research to other PhD candidates and staff. This has two goals: 1) to share and discuss the PhD candidates' research, and 2) to gain presentation experience. This day also helps to connect staff and PhD candidates in an informal setting. A Science Day mostly ends with drinks and a dinner.

In addition, the joint Wageningen PhD Council organizes two annual events: the Wageningen PhD Symposium and the PhD Party. The symposium was organized for the first time in 2014. It brings PhD candidates from across the various graduate schools together around overarching topics and aims to facilitate the exchange of perspectives and ideas and to provide candidates with a networking opportunity. The PhD Party, which is organized in the Junushoff theatre around the university's *Dies natalis*, aims the same, but in a more informal setting.

5 Outcomes of the Wageningen PhD programme

5.1 Results of PhD experience surveys

PhD training and education

In our career survey of 2011, PhD alumni were asked what other activities besides research they had done during their PhD study in Wageningen. The answers show an interesting long-term trend of the impact of graduate schools after their start in the 1990s (figure 5.1):

- The percentage of candidates that took in-depth courses and professional skills courses increased with the growing participation in graduate schools.
- Attending international conferences has always been an integral part of doing a PhD, but when participation in graduate schools grew, conference participation increased to 95%.
- Teaching and supervising students is done by 70-80% of PhD candidates.

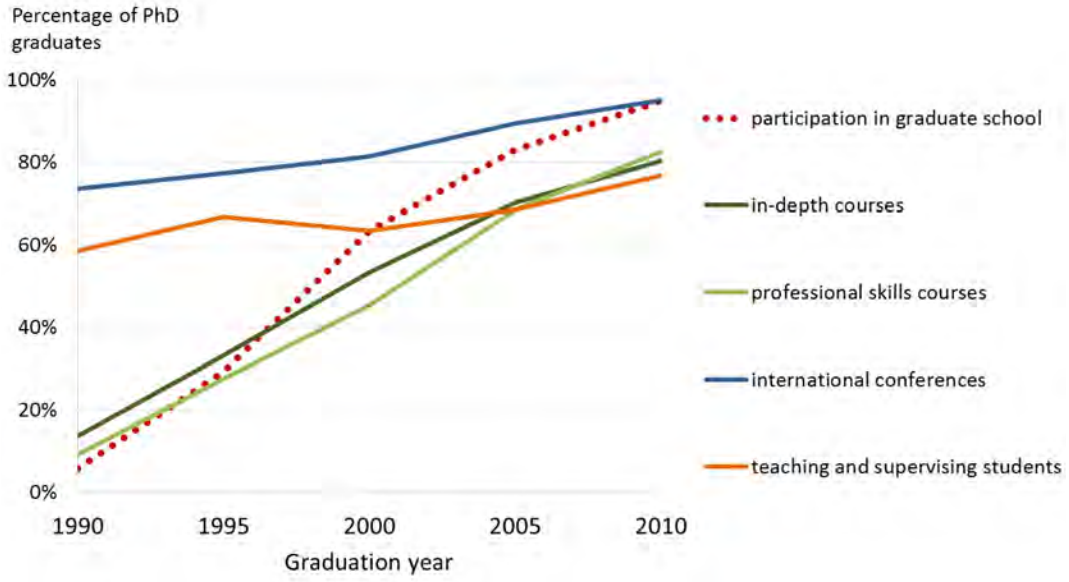

Figure 5.1 Impact of graduate schools in Wageningen on activities of PhD candidates next to their research, five-year averages, all types of PhD candidates included. Note that 'participation in graduate school' is shown as perceived and reported by the PhD alumni themselves.

Recent PhD experience surveys among on-going candidates, by WIMEK-SENSE and WIAS, show:

- 93% is overall satisfied with their school's education and training programme (score 3-5 on a five-point scale) and 73-83% rate it as good or excellent (score 4-5).
- 87-92% indicate that they have been sufficiently informed by their graduate school on regulations, research proposal, TSP and PhD courses (score 3-5), and 63-75% rate the information as good to excellent (score 4-5).

These surveys were found to be representative in terms of gender, country of origin, previous education, type of PhD candidate and starting year.

PhD supervision

In the recent PhD experience surveys candidates were also asked whether they were satisfied with their supervision. Results are:

- 90-92% of the respondents is overall satisfied with their supervision (score 3-5) and 83% rate it as good to excellent (score 4-5).

- 92% regard the opportunities to turn to their supervisors for advice on their PhD research as sufficient (score 3-5) and 80% rate it as good to excellent (score 4-5).

Often mentioned positive aspects are: the supervisor's experience and expertise, feedback and support, and the freedom to choose an own focus in research and personal development. Generally, supervision by daily supervisors is evaluated somewhat more positively than supervision by the *promotor*. This indicates that expectations on the roles of supervisors could be made more explicit.

Yet, 8-10% of PhD candidates is not content with their supervision (score 1-2). Reasons may be:
- Insufficient short-time availability, frequency or time for contact with supervisors.
- Insufficient clarity in expectations on results to be achieved.
- Too long time for feed-back on manuscripts.
- In rare cases conflicts among supervisors are reported.

5.2 Time-to-degree and completion rate

Wageningen University offers a four-year PhD programme. Some candidates work 0.8 fte during five years, in particular in social sciences. After the thesis is submitted to the thesis committee, it takes another 4-6 months till the public defence. Therefore, a time-to-degree of 4.5 years is considered as 'in time'.

Figure 5.2 shows a trend analysis of time-to-degree and completion rate of employed research assistants based on complete starting cohorts of this category. It shows that time-to-degree has gradually improved without compromising the final completion rate. At present, 82% of a starting cohort graduates and almost 50% graduates within five years.

Time-to-degree of guest and sandwich PhDs are similar to research assistants. For external PhD candidates it is often not possible to calculate time-to-degree in a meaningful way.

Similar to what is found worldwide, males graduate slightly faster than females and candidates in social sciences have a longer time-to-degree and a lower completion rate.

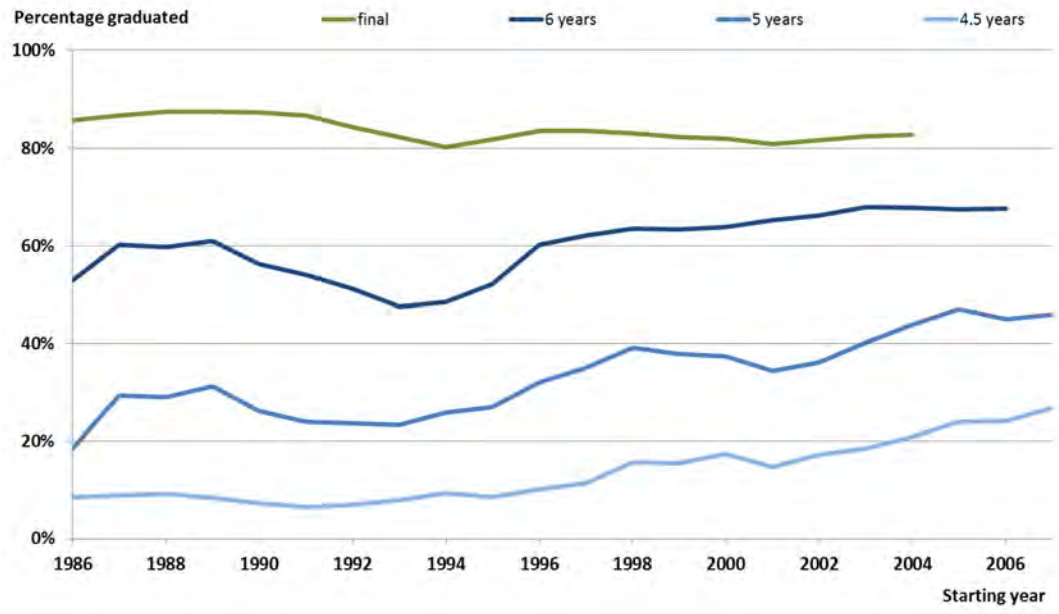

Figure 5.2 Trend analysis of time-to-degree and completion rate of research assistants.

In the past, several surveys on the reasons for graduation delay have been done. All surveys show that the reasons for delay are diverse, both in project-related delay as in delay due to other activities or personal circumstances. The main reason for prolonged delay is the new job after the PhD study, which confirms the importance of our policy: to have the thesis (nearly) finished at the end of the PhD term.

5.3 Thesis quality and contribution to science

In 2007, the Academic Board introduced a five-point scale for thesis and defence. In 2010 an extra lowest grade was added to the scale to prevent 'inflation'. The grades are now:

- Unacceptable: candidate cannot defend his/her thesis
- Acceptable: the bottom 10% of theses is the field worldwide.
- Satisfactory: the next 35%.
- Good: the middle 35%.
- Very good: the sub-top 17%.
- Excellent: the top 3%.

Note that these grades are defined in terms of frequency and that the intended frequencies differ from the awarded frequencies as shown in figure 5.3. It would make the grading system more transparent if the grades were defined in terms of quality, by using rubrics as in Lovitts (2007). The Academic Board intends to address this issue in the coming year.

Two related issues are:

- The definition for *cum laude* theses at Wageningen University is the top 3%, which happens to be lower than at all other Dutch universities. For PhD graduates a *cum laude* is an asset on their CV, in particular when striving for competitive grants. Thus, Wageningen PhD candidates feel that they are at a disadvantage compared to colleagues from other Dutch universities.
- PhD candidates doubt the added value of the six-point scale. Other than *cum laude*, the grade is not indicated on the diploma and plays no role on a CV. PhD candidates do see the value of grades for supervisors.

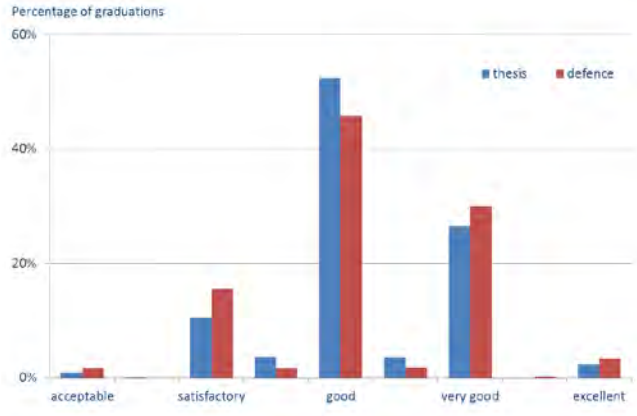

Figure 5.3 Grades awarded for thesis and defence

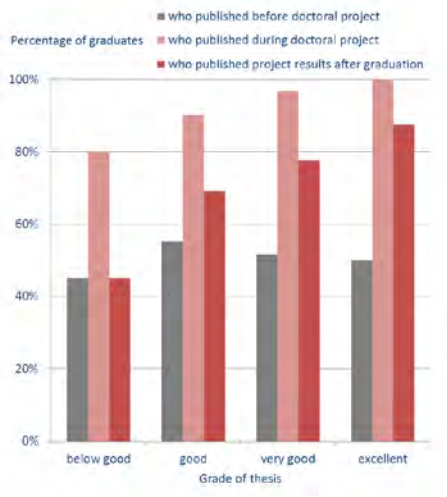

Figure 5.4 Publishing and thesis grade.

In our career surveys of 2011 and 2014, PhD alumni were asked whether they had published before, during and after their PhD. Figure 5.4 shows a positive correlation between publishing activities and thesis grade, not only during the PhD (which could have influenced the grade awarded) but also after. Also other analyses show a correlation between thesis grade, later career and scientific performance.

On average, PhD graduates reported that their PhD project had led to 5.4 papers in peer-reviewed journals, either published before or after the graduation. Due to self-reporting, this figure might be an overestimate, but a bibliometric investigation by the graduate school VLAG in 2012 confirms this high publication output:

- From the 217 theses of the graduate school VLAG defended in 2005-2009, the number of publishable chapters was determined as 5.4 per thesis on average.
- Of these publishable chapters, 85% was published in 2012, on average 4.6 papers per thesis, and another 2% of the chapters was in the process to be published.

In conclusion: Wageningen PhD candidates contribute significantly to science, which adds to their CV and gives a head start to their further career.

5.4 Employability and career success

The traditional Humboldtian idea that a PhD degree prepares for a career in academia, has long gone – if it was ever a reality. PhD graduates from the graduate school Experimental Plant Sciences (EPS), for example, have excellent career opportunities in the plant breeding industry. In this sector, Dutch companies are among the world market leaders and they are trend setting in innovations. These companies invest up to 20% of their turnover in R&D to stay ahead of their competition. Consequently, these companies have a high demand for well-trained scientists with a PhD education. They have indicated to need annually 30-40 new employees with a PhD training to fill the vacancies in their research departments. The Graduate School EPS trains about 40-50 PhDs per year and many of them find a job in the Dutch plant breeding industry.
Similar opportunities are present in the Dutch food industry for graduates from the graduate school VLAG and in the Dutch animal breeding industry and the animal feed industry for graduates from WIAS. All these industries need PhD researchers to stay competitive in the global market.

In October 2014, Wageningen University and KLV Wageningen Alumni Network carried out a career survey among the 1099 PhD alumni graduated in 2009-2013. Of these graduates, 81% could be reached by email. Response rate was 53% and the response was representative in terms of gender, country of origin, previous education, type of PhD candidate and graduation year (only the year 2009 is slightly underrepresented due to a lower number of valid email accounts).

As figure 5.5 shows, already half of the graduates have a permanent position. This is particularly true for sandwich PhD graduates: many returned to their home institution and got a career boost from their PhD degree. This shows that the Wageningen sandwich PhD programme contributes to capacity building in developing countries.
Ten graduates in the survey (2%) are still looking for a job. Six of them graduated in the most recent year of the survey, 2013. Compared to other people, unemployment is very low among PhD graduates.

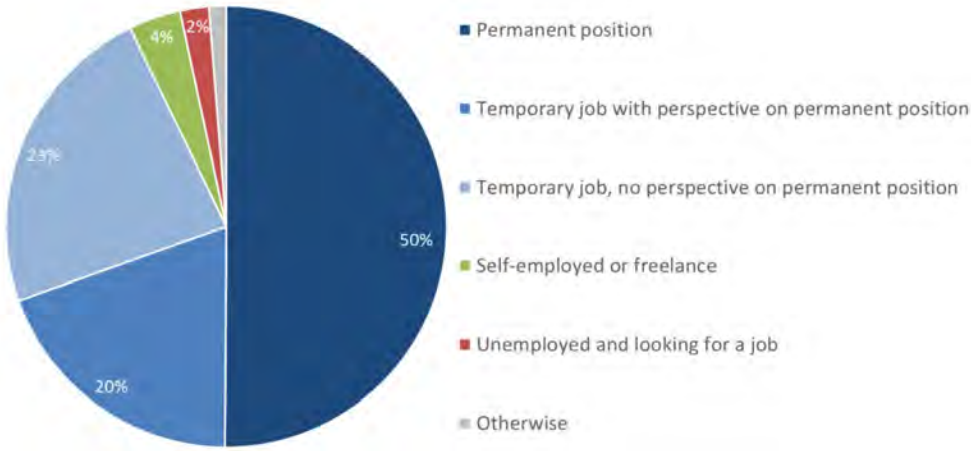

Figure 5.5 Present employment status of PhD graduates, 2009-2013.

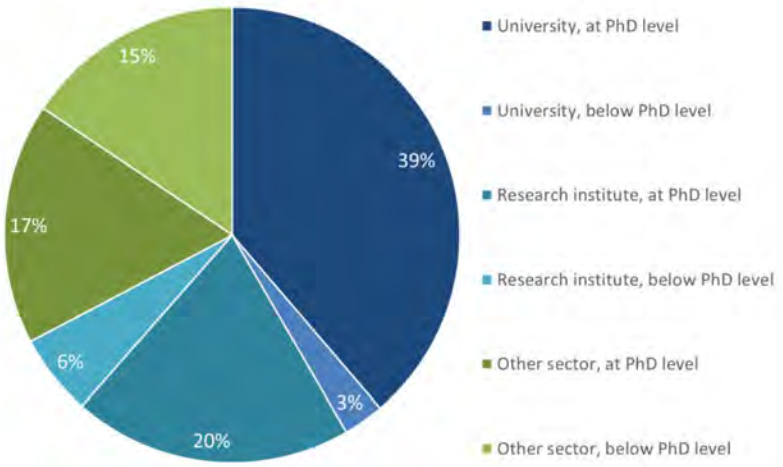

Figure 5.6 Present sector and job level of PhD graduates, 2009-2013.

Figure 5.6 combines two questions of our survey about the current job: sector and job level. It shows that two thirds of our PhD graduates work at a university or research institute, and mostly in a job at PhD level. Half of the graduates who work in other sectors regard their job also to be at PhD level. In total, 76% regards their job to be at PhD level. We also asked graduates what their ambition for work is in ten years' time: then, 86% aims for a job at PhD level.

Other conclusions from the career survey are:

- 47% work in the Netherlands, 23% in other western countries, 30% in developing countries.
- 10% work in governmental organisations, of which 6% in international organisations.
- 18% work in the private sector, of which 15% in industry.
- 85% mention 'research' as one of the three most important activities in their job.
- 74% say that they use the expertise gained during their PhD study much or very much.
- 90% say that their job is in their own field of study or an adjacent field.

These results are probably best summarised by one of the remarks from the respondents of the career survey: "Happy that I did a PhD in Wageningen."

6 SWOT analysis

6.1 Analysis

Strengths

The Wageningen PhD programme offers an excellent research environment and a strong international orientation and network, which are important for our PhD candidates. In comparison to other PhD programmes worldwide, there are four strengths that which we cherish in particular, now and in the future.

1. **Stable, well-organised graduate schools** that are valued by the University's Executive Board, chair groups and PhD candidates. The long history of 'competitive collaboration' among graduate schools has produced a culture of sharing and improving good practices.
2. **A tailor-made education programme** for each PhD candidate, drawing from a vast, varied and balanced course programme, plus an individual training budget to attend courses and conferences abroad - a solid preparation for the candidate's further career.
3. **A significant contribution to science** by the PhD thesis and other publications resulting from the PhD research, which adds to the candidate's CV and to the reputation of Wageningen UR.
4. **The sandwich PhD programme**, which contributes to capacity building in developing countries in Africa, Asia and Latin America - brain gain instead of brain drain, north-south and south-south collaboration.

Weaknesses

Keeping a well-functioning PhD programme requires continuous adaptation in order to meet the changes in the PhD population and in the internal and external conditions.

1. **The pressure to perform experienced by supervisors** is inherent in science but has increased recently due to an increase in teaching load, introduction of tenure track and increased competition for funding. Most supervisors can deal with high numbers of PhD candidates, but it leaves little room for error in the selection and supervision of PhD candidates.
2. **The grades for PhD thesis and defence**, in use at the university since 2007, are defined in terms of frequency (for example, *cum laude* is defined as the top 3%) and not in terms of quality by using rubrics. PhD candidates have doubts about the added value of the grading system and concerns about the low percentage of *cum laude* awards compared to other Dutch universities.
3. **Tasks and responsibilities** regarding the procedures in the PhD programme are fragmented within Wageningen University. This has been addressed only recently. The aim is to create an integrated support unit as a 'one-stop shop' for PhD candidates.

Opportunities

The globalising knowledge society offers opportunities to PhD programmes and PhD graduates all over the world. More specifically, we see the following opportunities for the Wageningen PhD programme.

1. **Increasing attention for our domain** and the increasing need for highly trained people will create new opportunities for collaboration and will also improve the career options for our alumni, either as postdocs or as researchers outside academia.
2. **The global trend towards doctoral schools** deserves wide support. We are willing to share our twenty years of experience with other universities that are setting up PhD programmes.
3. **The discussion on three- or four-year PhD programmes** offers the opportunity to show the difference. We feel that our four-year programme is not just one more chapter in the thesis and 30 ECTS credits of training, it leads (or should lead) to a substantially higher level of maturity in knowledge, analytic and synthetic capabilities and research skills.

Threats

We are optimistic about the future of the Wageningen PhD programme, but there are a few threats.

1. **The international trend to three-year PhD programmes** creates a difficulty in attracting funding (the EU, for example, sponsors only three-year PhD projects) and in setting up joint degree programmes.
2. **The national trend to a bursary system for PhD candidates** may put an end to the employed position of PhD candidates, which would make it less attractive to do a PhD in the Netherlands.

6.2 Conclusions

European countries such as the Netherlands need highly qualified scientific researchers to maintain their strong position as knowledge-based economy. With its international profile and well-organised PhD programme, Wageningen University is well positioned to attract and train the best brains, but we need to make sure that our PhD programme stays attractive to them:

- The discussion on three- or four-year PhD programmes is not easy and is often evaded. We feel that maintaining our high quality PhD standard requires a four-year programme, at least for most candidates, and we would welcome that the Dutch universities develop a joint strategy to cover the costs of the fourth PhD year in funding programmes that (now) cover only three-year PhD projects.
- Also the discussion about a bursary system is not easy and is often evaded. If we define PhD candidates as early stage researchers, then an employed status rather than a student status is obviously the most appropriate.
- Last but not least, the pressure to perform in science has increased recently. It puts a strain on quality assurance in the selection and supervision of PhD candidates and on the position of PhD candidates, for example in discussions about supervision, teaching duties and authorship issues. We may have to look into the balance of incentives.

6.3 Questions to the evaluation team

Key questions

a. Do the learning targets of the Wageningen PhD programme meet international standards?
b. Does the Wageningen PhD programme have the structure and processes in place for PhD candidates to attain these learning targets?

Additional questions

a. Does the four-year PhD programme of Wageningen University have added value compared to a three-year programme?
b. Does the employed status of PhD candidates make it more attractive to do a PhD in the Netherlands compared to a student status in a bursary system?
c. In view of the pressure to perform experienced by supervisors, should we reconsider the balance of incentives at Wageningen University?
d. Does the present grading system for PhD thesis and defence have added value for PhD candidates and/or supervisors?

Online links

Wageningen PhD Guide:
https://www.wageningenur.nl/upload_mm/f/c/5/40b65f36-6a16-4d71-8193-3bb0360a0f03_PHD_Guide.PDF

Timetable of the Wageningen PhD programme:
http://www.wageningenur.nl/en/Education-Programmes/PhD-Programme/timetable.htm

Doctoral degree regulations of Wageningen University:
http://www.wageningenur.nl/upload_mm/a/d/b/bca7747a-0d8d-43d8-a4cc-487e68c1075a_Doctoral%20degree%20regulations%20WU%20d.d.%2025-06-2013.pdf

Random selection of six PhD theses:

http://edepot.wur.nl/304177

http://edepot.wur.nl/307196

http://edepot.wur.nl/302766

http://edepot.wur.nl/306218

http://edepot.wur.nl/303162

http://edepot.wur.nl/291041

Annex A

Composition of the evaluation team

Professor Amelie Mummendey, Social Psychology, University Jena, Germany.
Professor Jacques Lanares, Qualité et Ressources Humaines, Université de Lausanne, Switzerland
Professor Alan Kelly, School of Food and Nutritional Sciences, University College Cork, Ireland
Dr. Thomas Jørgensen, European University Association, Council for Doctoral Education, Brussels, Belgium

Programme of the site visit, January 2015

Tuesday 13 January	18:00 Welcome meeting with the evaluation team
Wednesday 14 January	09:00 Meeting with Rector, Dean and members of Academic Board
	10:40 Meeting with self-evaluation group
	12:00 Meeting with Scientific Directors of the graduate schools
	14:30 Meeting with members of Wageningen PhD Council
	15:30 Meeting with PhD alumni
Thursday 15 January	09:00 Meeting with supervisors
	11:40 Meeting with Dean for any last questions
Friday 16 January	09:30 Presentation of preliminary findings by evaluation team

Acronyms

DLO	Research institutes for strategic and applied research within Wageningen UR
EPS	Graduate School Experimental Plant Sciences
INREF	Interdisciplinary Research and Education Fund of Wageningen University
KNAW	Royal Netherlands Academy of Arts and Sciences
NWO	Dutch national research council
Nuffic	Netherlands organisation for international cooperation in higher education
PE&RC	C.T. de Wit Graduate School Production Ecology and Resource Conservation
SEP	Standard Evaluation Protocol for the periodic peer review of research in the Netherlands
TSP	Training and Supervision Plan
VLAG	Graduate School Food Technology, Agrobiotechnology, Nutrition and Health Sciences
WASS	Wageningen School of Social Sciences
WIAS	Wageningen Institute of Animal Sciences
WIMEK	Wageningen Institute for Environment and Climate Research
WGS	Wageningen Graduate Schools
WU	Wageningen University

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WASS 2013. Procedures, Principles and Good Practices for Supervising PhD Candidates at Wageningen School of Social Sciences (WASS). WASS, Wageningen. http://www.wageningenur.nl/upload_mm/1/b/5/2f755aa2-cfb6-49c9-9212-283a57b0c730_Supervising%20PhD%20candidates.pdf

WIAS, 2001. Graduation delay of WIAS PhD students. WIAS, Wageningen. http://www.phdcentre.eu/nl/praktijk/documents/graduationdelaywias.pdf

Annex B Project proposal form

PhD PROJECT PROPOSAL (FULL) WAGENINGEN UNIVERSITY PE&RC

MAIN RESEARCH GROUP :.....

OTHER WU GROUPS INVOLVED :.....

Please read appendix first and fill in with a Computer.

1. PROJECT LEADER

2. PROJECT TITLE (English)

3. PROJECT TITLE (Dutch)

4a. Duration of the project: from: ..... to: .....

4b* Note: If it is a joint project of two (or more) research groups, agreements have to be made about division of the capacity awarded at graduation. These must be communicated to the Education, Research and Innovation Department (ER&I)

5. The experiments will be executed in (please mention country):

6a ANIMAL EXPERIMENTS: will vertebrates be used? YES/NO

6b Are there any other particular ethical issues to be considered with respect to this project YES/NO

If YES please elaborate

7. PARTICIPANTS PROJECTGROUP AND ESTIMATED SUERVISION TIME INVOLVED

Name + title of the PhD candidate :.....

Male/Female : M/F

Nationality : .....

Date of birth: : .....

Period of appointment : from: ..... to: ..... (Year/month/day)

Hours per week : .....

Kind of Appointment:

Research assistant employed at WU: Wageningen University funding NWO funding Funding by a third party	Sandwich PhD students With a Wageningen university fellowship (e.g. INREF) NWO funding (primarily WOTRO) Funding by a third party
Guest PhD student Funding by a third party	External Employed at DLO Other

Staff Wageningen University funding NWO funding Funding by a third party (e.g. EU)	

NAME AND TITLE SPECIALIZATION ORGANISATION HOURS/WEEK

Promotor(s):

....

....

Co-promotor(s):

....

....

Supervisor(s):

....

....

Other scientific staff:

....

Technicians:

....

Financial source(s):
(in case of NWO: please mention NWO-foundation i.e. WOTRO, STW, ALW)
(in case of EU: please mention EU-programme and number)
.....
Is the financial support and equipment sufficient to carry out the research and TSP?
YES/NO

If NO, please indicate the reason why!

8. COLLABORATION: with which organisations outside the University will collaboration take place?

Other Universities :

Research institutes, experimental stations:

Ministries, other organisations :

International organisations :
such as FAO, WHO

9. SUMMARY (max 250 words)

If NWO or EU project proposal available then ADD it and only answer questions 10-13 if not answered already in the project proposal, otherwise go to 14.

10. DETAILED DESCRIPTION OF RESEARCH AREA AND PLAN (MAX 2500 WORDS + 1 PAGE LITERATURE LIST)

11. TIME TABLE OF THE PROJECT AND WORK PROGRAMME

12. SOCIETAL SIGNIFICANCE

13. DATA MANAGEMENT (MAX 250 words)

14. SIGNATURE

Chairman of the Research Group	Project leader
Name:	Name:
Signature:	Signature:

EXPLANATION TO THE INDIVIDUAL QUESTIONS OF THE FORM 'PHD PROJECT PROPOSAL (FULL)'

Question 1: Name of the project leader and name of the Professor who will act as promotor.

Question 2: Short, to the point English title of the research project.

Question 3: Translation in Dutch of the title.

Question 5: If (part of) the project is carried out outside the Netherlands, please mention countries involved.

Question 6a: In some projects animals (vertebrates) may be involved. In that case ethical guidelines of WU might be applicable.

Question 6b: In some projects biotechnological research may be involved. In that case ethical guidelines of WU might be applicable.

Question 7: Please, mention persons, who are primarily involved in the execution of the research project. Mention name, title, and nationality of the PhD student, period of appointment and indicate kind of appointment.

Research Assistant: PhD candidate with a temporary employment of 3-4 years at one of the PE&RC Institutes

Sandwich PhD:	Foreign PhD candidate with a grant whose research is performed in the country of origin and who resides at the (PE&RC affiliated) home university* in the beginning and at the end of the programme
Guest PhD:	Foreign PhD candidate with a (foreign) grant who does the research at the (PE&RC affiliated) home university* but has no appointment
Staff PhD:	PhD candidate with a permanent position at the (PE&RC affiliated) home university*
External PhD:	PhD candidate who has no formal relation with the (PE&RC affiliated) home university* except via the promoter (main supervisor)

Mention scientific staff and technicians who are involved in the project. Also mention the department, institute or other organisation responsible for funding of the persons mentioned and add an estimate of the input in hours per week per person.
Mention the financial resources used to finance the PhD project.

Question 8: Please mention the collaborating organisations in the context of this project. Only mention those collaborations which will result in joint activities such as joint publications.

Question 9: The short summary should be written as an explanation of the title of the research project.

Question 10: Elaborate your project proposal here
This should contain the following elements:
- Introduction, including history and background
- Objectives
- Hypotheses
- Research methodology
- Innovative aspects

Question 11: Time table and work programme
The PhD student should be able to finish the thesis work within 4 years. This means that the reading version of the PhD thesis has to be submitted within 4 years.

Within the work programme the following issues should be dealt with:
- in what way is appropriate supervision guaranteed?
- what is the role of each member of the supervision team
  - in what way is progress evaluated
  - if during the project period changes will occur in the project team, in what way will supervision be continued?
- in what way is execution arranged? Please specify.
  - availability of technical equipment and facilities
  - availability of assistance by technical personnel
  - risks (e.g. weather, availability and willingness of third parties, ….).

Appointments made with collaborating organisations (question 8) and/or other WU-groups, as far as important for the execution of the project.

Question 12: What is the societal significance of the proposed research?

Question 13: This section outlines the data management plan and must encompass:
data storage (short term and long term storage),
data ownership (issues with respect to ownership of data produced in this project or external data used for this project)
data sharing (agreement on who will have access to and use your (un)published data)

This section may include references to a more comprehensive (i.e. 2 to 3 pages) data management plan in which elements are outlined in more detail and can also refer to a plan at the level of a research group. Note that this document does not need to be included in this proposal .

For more details see http://www.wageningenur.nl/en/Expertise-Services/Facilities/Library/Expertise/Write-cite/Research-data/Data-Management-Plans.htm. Please note that data collection is also part of a data management plan but is specified in section 10 and 11 of this research proposal

Question 14: This form has to be signed by the Chairman of your Research Group and the project leader.

Please submit form both as hard copy and by email to the secretariat of the graduate school PE&RC

The proposal will be sent to 3 referees. Please send names, addresses and emails of 3-5 potential referees who are in no way involved in this project. Referees from outside WUR are preferred. Your suggestions will be considered when approaching referees.

Annex C Training and Supervision Plan form

Training and Supervision Plan (TSP)		Graduate School WIAS
How to use this form *This form is made in Excel so that credit points of education and training are summed automatically.* *One ECTS credit equals a studyload of approximately 28 hours; one day is 0.3 ECTS* *To insert a row, click 'insert', then 'row'. Merging some cells in a new row is possible but not necessary.* *To delete a row, click 'edit', then 'delete' and then 'entire row'.* *Before submitting, delete all instruction texts and rows, including this box "how to use this form"* *Submit to Marianne Bruining, WIAS education coordinator, for approval by WIAS.*		
Section 1. GENERAL INFORMATION AND LEARNING GOALS		
Name PhD candidate Project title Group Daily supervisor(s) Supervisor(s) PhD study advisor		
Project term	from	until
Submitted	<date>	first plan / midterm / certificate
Previous education		
MSc degree obtained at Areas of expertise		
To start		
Introduction interview with WIAS secretary: <date> Introduction interview with WIAS education coordinator and PhD students confidant: <date> Competence assessment: <date> Evaluation of learning goals with PhD study advisor at start of PhD training: <date> Evaluation of learning goals with PhD study advisor at mid-term: <date>		
Personal learning goals		
What do you want to learn during your PhD study at WIAS *1. At least 3 detailed and specific learning goals should be formulated (in a separate document, to be submitted together with this TSP). The student should indicate how the learning goals are to be attained and how the success of attainment will be evaluated. A competence assessment will help the student to do this effectively* *2. An in-depth evaluation of learning goals should be discussed with the PhD study adviser at the start of the PhD training as well as during the mid-term evaluation.*		
Section 2. SUPERVISION		
Agreements made between daily supervisor(s), supervisor(s) and PhD student *Discuss with your supervisor(s) and fill in at least the questions below; extend with potential more agreements* Meetings with daily supervisor will take place every … Urgent questions will be answered within … Meetings with supervisor / supervisory committee will take place every … Feedback on manuscripts will be given within … Progress and (adjustment of) planning will be discussed at least … *A midterm progress report must be submitted to WIAS at the end of the second year.* *In month 14 of the study, progress must be evaluated, resulting in a go/no go decision before month 18.*		

Section 3. EDUCATION AND TRAINING (minimum 30 credits)		
A. The Basic Package	year	credits
WIAS Introduction Day (mandatory)		
Course on philosophy of science and/or ethics (mandatory)		
Course on essential skills (Frank Little) *(recommended)*		
Subtotal Basic Package		
B. Disciplinary Competences	year	credits
Subtotal Disciplinary Competences		
C. Professional Competences	year	credits
Subtotal Professional Competences		
D. Presentation Skills *(maximum 4 credits)*	year	credits
< title of presentation, name of conference/seminar, place, date, oral / poster >		
Subtotal presentations		
E. Teaching competences *(max 6 credits)*	year	credits
Subtotal Teaching competences		
Education and Training Total (minimum 30 credits)*		
**One ECTS credit equals a study load of approximately 28 hours*		

Signatures			Approval
PhD candidate	PhD study adviser	Promotor	WIAS

Annex D Go/no go form

Confidential

Evaluation form for PhD Candidates
Go / No-go Decision

Tick, if applicable	
□	Contract of employment WU
□	Contract of employment DLO
□	No Contract of employment: □ Sandwich PhD candidate □ Guest PhD candidate □ External PhD candidate

1. General

Name PhD candidate:
Chair / department:
Professor (promotor):
Daily Supervisor(s):
Evaluation period:
Dates of performance review meeting:

2. Evaluation made by:

Name Professor (promotor):	Contact: Daily / Regularly / Occasionally
Name Daily Supervisor(s):	Contact: Daily / Regularly / Occasionally

3. Starting point of the performance review*:
Information, background and basis for the go/no-go decision

Starting date:
Project proposal approved by the graduate school: yes/no/not applicable
TSP approved by the graduate school: yes/no/not applicable
MSc degree from Wageningen University or another Dutch university: yes/no
In case of an MSc degree from a university abroad a Diploma Evaluation by the Academic Board is required. Has the MSc degree been approved by the Academic Board? yes/no Is a Qualifying Examination (QE) required? yes/no If a QE is required: has the PhD candidate passed the Qualifying Examination? yes / no
Proof of proficiency in the English Language*[1]): yes/no/not required

*[1]) English language requirements:
IELTS: 6.5, with a minimum of 6.0 for each (academic) module.
TOEFL: 580 points for the written TOEFL, 237 points for the computer based TOEFL and 92-93 points for the Internet based TOEFL. All are to be supplemented by results of the Test of Written English (academic TWE). The minimum score required for this test is 5.0
Submitted test results must be dated within 24 months prior to an application to the PhD Programme.

4. Preliminary remarks (including the circumstances which have influenced the candidate's PhD research)

*) For PhD candidates with a contract of employment WU or DLO performance review has to be considered in concordance with the Collective Labour Agreement NU or DLO.

5. Evaluation of elements in the progress of PhD research

Evaluation codes:
- a = not good, and no improvement expected
- b = insufficient, requires attention and needs to be improved
- c = adequate, operating in a satisfactory manner
- d = good, rose above requirements
- e = excellent, rose above requirements remarkably

Elements	**Evaluation code**					
	a	**b**	**c**	**d**	**e**	**n.a.**
1. Fluency in English (oral and written)						
2. Knowledge level						
3. Rate at which knowledge is assimilated and put into scientific practice (Learning curve)						
4. Capacity to place own research in a wider scientific framework						
5. Interpretation of information						
6. Planning, management and organization of project						
7. Study of literature						
8. Productivity a. Progress with project proposal b. Posters / Presentations						
9. Teaching duties						
10. Progress education activities as stipulated in the TSP						
11. Documentation of results						
12. Oral presentations						
13. Problem-solving capacity						
14. Independence						
15. Initiative						
16. Creativity and inventiveness						
17. Capacity to synthesize concepts						
18. Involvement in the group						
19. Professional relationship with colleagues						
20. Any other relevant remarks:						

6. Evaluation of the PhD period as a whole

Conclusion

Evaluation code: a / b / c / d / e

7. Comments of the PhD candidate on the results of the evaluation

8.Understanding

9. Conclusion Professor (Promotor):

PhD candidate meets all the quality criteria and the conditions mentioned in item 3. as well: yes/no*
(*Clarification if no) :

Conclusion: (read the notification on page number 4)
Go / No go

10. Signatures

Function	**Name**	**Signature and date**
Professor (Promotor) Daily Supervisor		

11. PhD candidate has taken notice of the content of this document

Name PhD candidate:
Date:
Signature:

In case the PhD candidate has a contract of employment with WU or DLO, questions nr. 12 and 13 also have to be filled in.

12. Finalization by review authority (Managing Director)

Name: Function: Date: Signature:

13. Decision review authority (Managing Director)

Contract of employment renewed: **yes / no**
Otherwise:

Notification

The go/no go decision is obligatory to take for all PhD candidates registered at Wageningen University. The form has to be completed within 9-15 months after starting the PhD. It is one of the obligatory steps required for formal admission to the WU PhD programme. The PhD candidate needs formal admission in order to receive contract extension for the rest of the PhD.

The conditions for formal admission are:

- A positive MSc diploma evaluation or a positive result of a qualifying examination
- Proof of proficiency in English
- Approval of the project proposal
- Approval of the Training and Supervision Plan
- A positive go/no go decision by the Promotor

Recommended Sequence:

1. The Promotor formulates the go/no go decision by using this evaluation form.
2. A. Employed PhD candidate: The Promotor sends the form to the Personnel Department for the final decision of the review authority (questions 12 and 13 on the form) and informs the Graduate School where the PhD candidate is registered about the result of the decision.
   B. Sandwich, guest, or external PhD candidate: the Promotor sends the form to the Graduate School.
3. The Graduate School registers the result of the go/no go decision in PROMIS.
4. The PhD desk checks whether all necessary conditions for formal admission to the PhD programme are completed.
5. The PhD candidate receives a formal admission letter by the Dean of the Wageningen Graduate Schools.

Note: For employed PhD candidates with a “PhD” Wageningen UR contract: final decision of the review authority can result in an extension of the initial contract of 12- 18 months to a total contract period of 48 months (in most cases).

Annex E Thesis evaluation form

PhD Thesis Evaluation Form
-for members of the examining committee-

Please evaluate the PhD Thesis' different aspects using the following scale: unacceptable, acceptable, satisfactory, good, very good, excellent. The qualification of 'excellent' should only be given for a PhD Thesis in the top 3% of the research in your field of expertise. A rating of excellent may also be a reason for awarding 'with distinction'. Extra space has been given with each evaluation to allow for a more detailed explanation of your rating, which would be much appreciated.

Evaluation:	**Indication of frequency**	**Indication of quality**
Unacceptable	**candidate will not be allowed to defend the thesis**	
Acceptable	10%	
Satisfactory	35%	Top 90%
Good	35%	Top 55%
Very Good	17%	Top 20%
Excellent	3%	Top 3%

This evaluation will be made available to the acting deputy Rector Magnificus only and will be used by her/him when the committee ascertains the qualifications of the PhD candidate, as will be stated in the degree classification. Only when aspects of the thesis are unacceptable specific comments from the examiner will be made known to the supervisor (see below).

Requirements for the Degree of Doctor, awarded by Wageningen University:

In order to be awarded the degree of Doctor, the candidate must be adjudged by the examiners to have demonstrated the ability to:
formulate research questions that address social issues or advance science;
carry out original scientific research;
publish in reputable journals;
integrate his or her research into the scientific discipline in question and put it into a broader scientific context;
place both the research objectives and the research results in a social context;
postulate concisely formulated propositions in scientific and social areas, formulated in such a way that they are capable of being disputed and defended.

Name of the PhD Candidate :
Planned Date of the Public defence of the PhD Thesis :
Title of the PhD Thesis :

1. Scientific Quality of the PhD Thesis*

1a. Originality of the Research

unacceptable / acceptable / satisfactory / good / very good / excellent
reason for evaluation (between 25 – 100 words):
…

1b. Scientific Quality of the (Research) Chapters

unacceptable / acceptable / satisfactory / good / very good / excellent
reason for evaluation (between 25 – 100 words):
…

2. Candidate's Reflection on the Research as Proven in the Introduction and General Discussion

unacceptable / acceptable / satisfactory / good / very good / excellent
reason for evaluation (between 25 – 100 words):

3. Quality of Written Presentation

unacceptable / acceptable / satisfactory / good / very good / excellent
reason for evaluation (between 25 – 100 words):
…

4. Overall Assessment (based upon the above evaluation categories 1 – 3)

unacceptable / acceptable / satisfactory / good / very good / excellent
reason for evaluation (between 25 – 100 words):
…

* In case of a design or a thesis on applied research please consider whether the candidate has shown technological competence, scientific rigour, intelligent application of research of design methodologies and advanced analytical and integrative skills.

The PhD candidate will not be allowed to defend the thesis if any of the above evaluation criteria are marked as 'unacceptable' by one or more examiner (s). In the case of a mark of 'unacceptable', please indicate your arguments to explain the qualification 'unacceptable'. Additional information on the negative ('No') decision can be given in the box below. The anonymized evaluation form will be forwarded to the candidate's supervisor with the request to improve the manuscript. The revised version of the manuscript (with a letter explaining the modifications made) will be evaluated by the examiner. Unless changes in the manuscript have been substantial, other members of the examining committee will only be informed about the changes.

5. Conclusion

The undersigned considers that the PhD candidate can defend the thesis: **yes / no**

The qualification of 'excellent' indicates a PhD Thesis in the top 3% of the research in your field of expertise and may be a reason for awarding 'with distinction'. The undersigned herewith would like to have this PhD Thesis considered for a 'with distinction' award. **yes / no**

…

Please note:

After the oral defence the committee will be asked to comment on the quality of the defence.

Name of the Committee Member : ……..

Chair / Function : ……..

Date : ……..

Signature : ……..

Please email the completed form to the Doctorate's secretariat:
promovendi@wur.nl

Or mail a hard copy to:
Wageningen University
Ms. Dieuwke Alkema / Ms. Judith Sloot
P.O. Box 414
6700AK Wageningen
The Netherlands
Internal Post number: 15

Annex F Training and courses offered

Professional skills and career-oriented courses by Wageningen Graduate Schools in 2014

Course	Times given	Partici-pants
Writing, presentation and publication skills		
Scientific Publishing	1	26
Techniques for Writing and Presenting a Scientific Paper	6	145
Scientific Writing	8	11
Writing Grant Proposals	1	12
Presentation Skills	2	29
Reviewing a Scientific Paper	2	~45
Efficient Writing Strategies (Improve your Writing)	2	28
Essentials of Writing & Presenting a Scientific Paper	2	39
Communication and management skills		
Project & Time Management	9	117
Interpersonal Communication for PhDs	1	15
Communication with the Media and the General Public	1	12
Mobilising your- scientific- network	2	28
Information Literacy; including introduction EndNote	6	88
Effective behaviour in your professional surroundings	2	23
Voice Matters-Voice and Presentation Skills Training	3	30
Stress Identification & Management	2	23
Data management Plan	3	68
Imaging Science: Video and Audio content in Scientific Communication	1	8
Systematic approaches to reviewing literature	1	14
Career oriented		
Career Orientation	2	24
Career Perspectives	2	36
Career Assessment	individual	24
Post-doc Career Development	2	19
Entrepreneurship in and outside Science	2	40
Competence assessments		
PhD Competence Assessment	5	75
Ethics courses		
Fraud, plagiarism and co-authorship (Moral Dilemmas in Daily Scientific Practice)	1	??
Philosophy and ethics of Food Science and Technology	1	19
Ethics and Philosophy in Life Sciences	2	23
Other courses / in development		
Last stretch of the PhD programme	3	89
PhD peer consultation - as support in academic skills development	2	16
Courses for PhD supervisors		
Professional in Supervision	2	19
Effective Supervision of PhD candidates	3	~20

In-depth courses and seminars organised by EPS in 2013-2014

Courses and seminars	Date	Location
2013		
De Novo Assembly from NGS Data, with NBIC	January 8-9	Wageningen
EPS Theme 1 Symposium 'Developmental Biology of Plants'	January 17	Leiden
Symposium: 'Intraspecific Pathogen Variation - Implications and Opportunities'	January 22	Wageningen
EPS Theme 2 Symposium 'Interactions between Plants and Biotic Agents' & Willie Commelin Scholten Day	January 24	Utrecht
Bioinformatics - A User's Approach, with University of Cambridge	March 4-8	Wageningen
EPS advanced course: scientific writing for high-impact journals like Science and Nature	February 8, 13, March 1	Wageningen
EPS Theme 3 Symposium 'Metabolism and Adaptation'	March 22	Amsterdam
The Art of Presenting Science	April 9, 18 and May 7	Wageningen
Anther Development under Heat Stress: Cell Biology and Gene Expression Techniques	April 8-13	Nijmegen
Experimental Plant Sciences Meeting	April 22-23	Lunteren
Photosynthesis, climate and change, with PE&RC	May 26-31	Doorwerth
The Power of RNA-seq	June 5 – 7 / December 16-18	Wageningen
5th European Plant Science Retreat (EPSR)	July 23-26	Ghent, B
7th Utrecht PhD Summer School on Environmental Signaling	August 26-28	Utrecht
Symposium 'From Model System to Ecology and Evolution'	August 29	Leiden
8th workshop Plant-Insect Interactions	September 24	Wageningen
Current Trends in Phylogenetics	October 14-18	Wageningen
EPS PhD Students Day 2013	November 29	Leiden
An Introduction to Mass Spectrometry-based Plant Metabolomics	December 9-13	Wageningen
Symposium & Workshop 'Multiple omics integration & exploring genome functionality using NGS techniques'	December 12-13	Wageningen
EPS Theme Symposium Theme 4: 'Genome Biology'	December 13	Nijmegen
Transcription Factors and Transcriptional Regulation	December 17-19	Wageningen
2014		
Annual EPS Theme Meeting Theme 1: Developmental Biology of Plants	January 24	Wageningen
Annual EPS Theme 2 meeting & Symposium & Willie Commelin Scholten Day 'Interactions between plants and biotic agents'	February 25	Amsterdam
Annual EPS Theme 3 meeting: 'Metabolism and Adaptation'	March 11	Wageningen
Communication and Ethics in Science (organised by PhD Council)	March 28	Wageningen
NWO-ALW meeting 'Experimental Plant Sciences'	April 14-15	Lunteren
'Microscopy and Spectroscopy in Food and Plant Sciences, with VLAG	May 6-9	Wageningen
Host-Microbe Interactomics, with VLAG & WIAS	June 2-4	Wageningen
The European Plant Science Retreat (EPSR)	July 1-4	Amsterdam
Symposium Photosynthetic phenome	July 7-9	Wageningen
'Bioinformatics - a User's Approach', with University of Cambridge	August 25-29	Wageningen
Third international conference 'Glucosinolate and beyond'	October 12-15	Wageningen
9th plant-insect interactions workshop: Costs and benefits of resistance against insects	November 3	Utrecht
Annual EPS Theme 4 meeting: 'Genome Biology'	December 3	Wageningen
Bio-energy Production from Crop Plants and Algae	November 17-19	Wageningen
EPS Symposium Omics Advances for Academia and Industry: Towards True Molecular Plant Breeding	December 11	Wageningen
Statistical analysis of ~omics data, with VLAG & PE&RC	December 15-19	Wageningen

In-depth courses and seminars organised by PE&RC in 2014

Courses and seminars	Date	ECTS Credits	Partici-pants
Courses			
Spatial Ecology, with SENSE & RSEE	16-20 March	1.5	17
Introduction to R, with SENSE	19-20 May	0.6	41
Basic Statistics, with SENSE	26-27 May, 4-6 June	1.5	25
Linear Models, with SENSE	10-12 June	0.9	24
Gen. Linear Models, with SENSE	16-17 June	0.6	23
Mixed Linear Models, with SENSE	19-20 June	0.6	23
Meta-analysis	23-24 June	0.6	16
Bugs at your service	31 August - 5 September	1.5	12
Companion Modelling, with WASS & WIAS	21-26 September	1.5	16
Consumer Resource International, with SENSE & RSEE	26-30 October	2.0	41
Multivariate Analysis, with SENSE	14-16,22-23 October	1.5	21
Bayesian Statistics, with SENSE	20-21 October	0.6	21
Introduction to R, with SENSE	23-24 October	0.6	32
Uncertainty propagation, with SENSE	8-12 December	1.5	20
Basic Statistics, with SENSE	8-10, 15-16 December	1.5	24
Zero inflated models & GLMM	15-19 December	3.0	21
Symposia & seminars			
Netherlands Annual Ecology Meeting 2014 (NERN)	11-12 February	0.6	351
Photosynthetic phenome, with EPS & VLAG	7-9 July	0.6	40
CoS-SIS seminar, with WASS	23 September	0.3	58
Vegetation Soil International, with SENSE	30 October	0.3	91
Current Themes: Biodiversity research at the crossroads (NERN)	20 November	0.3	202
MOOCs			
MOOCs (Jason Hill)	18 mrt	0.15	60
MOOCs Masterclass	20 mrt	0.15	??
Others			
PhD discussion groups	monthly		??
PE&RC weekend first years	21-23 March	0.9	25
PE&RC weekend last years	22-23 March	0.6	19
WGS PhD Carrousel, with EPS, SENSE, VLAG, WASS, WIAS	2 June	0.3	165
PE&RC weekend first years	17-19 October	0.9	26
PE&RC weekend last years	18-19 October	0.6	15
PE&RC weekend midterm	29-30 August	0.6	26
PE&RC Day 2014	13 November	0.3	148

In-depth courses and seminars organised by WIAS in 2014

2014	Format	Date
Ethics and Philosophy in Life Sciences	Course	28-31 January
Genetic analysis using ASReml 4.0	Course	10-14 February
WIAS Introduction Day	Course	18 March
WIAS Introduction course on Essential Skills	Course	19-21 March
WIAS Science Day 2014	Seminar	30 April
10 Years Milk Genomics Initiative	Seminar	16 May
Statistics for the Life Sciences	Course	18-21 May
Epigenesis & Epigenetics	Course	21-23 May
Nutritional iron, anaemia and infectious diseases	Seminar	26 May
Spring School Host-Microbe Interactomics, with VLAG	Course	2-4 June
Solutions for climate change from animal production	Seminar	13 June
WIAS Fiber Seminar	Seminar	20 June
Ethics and Philosophy in Life Sciences	Course	24-27 June
Pigs in the picture	Seminar	3 July
Nutrition, Health and Welfare of Calves	Seminar	1 September
Next generation sequencing of pigs – what have we learned from it?	Seminar	30 September
Design of Experiments	Course	8-10 October
Introduction to theory and implementation of Genomic Selection	Course	13-17 October
How to swat a fly? High speed evasive manoeuvres in flying flies	Seminar	21 October
Adaptative animals and livestock farming systems in a globally changing context	Course	3-7 November
WIAS Introduction Day	Course	11 November
WIAS Introduction course on Essential Skills	Course	12-14 November
Investigation of the behavioural and cerebral determinants of food intake in the juvenile pig – How does it help swine production and biomedical research?	Seminar	25 November
Opportunities for Conservation of Local Breeds	Seminar	9 December
Ethics and Philosophy in Life Sciences	Course	9-12 December
Tutorial on Bibliometrics in Wageningen Yield and the Researcher ID by Wouter Gerritsma	Seminar	11 December

In-depth courses and seminars organised by WIMEK-SENSE in 2013-2014

Course	ECTS credits	Date
General Compulsory SENSE PhD Courses		
Environmental Research in Context	2	19 – 21 Mar 2014 1 – 3 Oct 2014
Research context activity	3 - 6	Individual planning
Methodological PhD Courses		
Basic Statistics, with PE&RC	1.5	26 May – 6 Jun 2014
Linear Models, with PE&RC	0.9	5 – 7 Jun 2013 10 – 12 Jun 2014
Mixed Linear Models, with PE&RC	0.6	20 – 21 Jun 2013 19 – 20 Jun 2014
Generalized Linear Models, with PE&RC	0.6	13 – 14 Jun 2013 16 – 17 Jun 2014
Bayesian Statistics, with PE&RC	0.6	17 – 18 Oct 2013 20 – 21 Oct 2014
Introduction to R for Statistical Analysis, with PE&RC	0.6	10 – 11 Jun 2013 21 – 22 Oct 2013 19 – 20 May 2014 23 – 24 Oct 2014
Geostatistics, with PE&RC	1.5	16 – 20 Dec 2013
Meta analysis	0.6	23 – 24 Jun 2014
Multivariate Analysis	1.5	22 – 31 Oct 2013 14 – 23 Oct 2014
Survival Analysis	0.6	24 – 25 Jan 2013
Mathematical Models in Ecology and Evolution, with RSEE	6	18 Mar – 29 Jun 2013
i GIS A practical post-graduate GIS course	2.5	9 – 20 Dec 2013
Modelling critical transitions in nature and society	2	17 – 21 Feb 2014
Introduction scientific and professional publishing on environment and sustainability	4	13 Mar – 12 Jun 2013 Feb – Jun 2013
C++ for Biologists, with RSEE	5	1 – 27 Oct 2013 22 Sep – 17 Oct 2014
SENSE Writing Week	2	21 – 25 Oct 2013 3 – 7 Nov 2014
Communicating your Science… Write that op-ed Piece!		6 Mar 2014
Workshop Valorisation of PhD Research in Climate Sciences	1	6 Feb & 6 Mar 2014
CORE 1: Environmental Chemistry, Ecotoxicology, Microbiology and Biotechnology		
NanoNext course “Risk Analysis and Technology Assessment”	0.6	4 – 5 July 2013 26 – 27 Sept 2013 28 – 29 Nov 2013 6 – 7 Mar 2014 5 & 6 Jun 2014 18 & 19 Sep 2014
Speciation and Bioavailability	1	3 – 7 Jun 2013
Lasers and Optics in Fluid Research	4	4 – 16 April 2013 1 May – 13 Jun 2014
Masterclass Biobased Innovation	2	04 – 08 Nov 2013
Topics in Ecotoxicology: - Marine Ecotoxicology - Multiple stress in ecotoxicology	1.5	15 – 18 Sep 2013
Risk Assessment	3	21 – 25 Oct 2013 20 – 24 Oct 2014
CORE 2: Environmental Processes and Ecosystem Dynamics		
Soil Ecology, with PE&RC & RSEE - Soil, Biodiversity and Life: The contribution of soil to sustainability of life	2	20 – 25 Jun 2010 18 – 21 Nov 2012
Consumer – resource interactions, with PE&RC & RSEE	2	26 – 30 Oct 2014
Spatial Ecology, with PE&RC & RSEE		16 - 20 Mar 2014
Dynamic Energy Budgets	12?	18 Feb – 15 Apr 2013 (theoretical part) 15 – 23 April 2013 (practical part), 24 – 26 April 2013 (symposium)

Course	ECTS credits	Date
New frontiers in microbial ecology, with PE&RC & RSEE	2	10 – 15 Feb 2013
Human induced Soil Degradation in the (sub)tropics	3	14 -18 July 2014
CORE 3: Global Environmental Change / Biogeochemical Cycles		
Master class Complex Dynamics in Human- Environment Systems		15 – 19 Apr 2013
CORE 4: Sustainable Development and Social Change: actors, institutions and governance		
International Summer School: Urban Transitions to Sustainability (Rheims University, co-organized by SENSE)	1.5	22 – 26 Jun 2014
WASS and SENSE master class: Conceptual foundations of modern environmental governance	0.6	10 – 11 Nov 2014
WASS and SENSE master class: Negotiating environmental limits	0.6	13 – 14 Nov 2014

In-depth courses and seminars organised by VLAG in 2009-2014

Courses and seminars	2009	2010	2011	2012	2013	2014
Food sciences						
Summer Course Glycosciences		11th		12th		13th
Food and Biorefinery Enzymology (previously: Food Enzymology)			4th			
Industrial Food Proteins (previously: Industrial Proteins)					4th	
Advanced Food Analysis		3rd			4th	
Management of Microbiological Hazards in Foods		12th	13th		14th	15th
Genetics and Physiology of Food-associated Microorganisms		6th			7th	
Food Fermentation				4th		
Sustainability Analysis in Food and Biobased Production			1st		2nd	3rd
Food Structure and Rheology, with University Ghent				2nd		
Reaction Kinetics in Food Science	6th			7th		8th
Master Class: Nutrient Density of Milk, Milk Genomics and Health Benefits of Dairy, with Dutch Dairy Organisation and WIAS	1st	2nd				
Workshop on Techniques for Measuring Milk Phenotypes, with WIAS				1st		
Applied Statistics: Multivariate Analysis of Food Science Data				1st		2nd 3rd
Tools in Polysaccharide Engineering			1st			
Advanced Course on Applied Genomics of Industrial Fermentation, with Biotechnology studies Delft Leiden		4th		5th		
Biobased Sciences						
Biorefining Training School 2012				2nd		
Master Class: Biobased Innovation					2nd	
Bioprocess Design (previously: Bioreactor Design and Operation)		5th				6th
Microalgae Process Design: From Cells to Photobioreactors					1st	2nd
Biomolecular Sciences						
Advanced Proteomics			3rd		4th	
Microscopy and Spectroscopy in Food and Plant Sciences				1st		2nd
Biorefinery for Biomolecules				1st		
In vivo NMR, with Utrecht University Medical Centre			10th			
Intestinal Microbiome, with Applied BioScience graduate school Finland: - Light in the Intestinal Tract Tunnel (2009) - Functional Metagenomics of the Intestinal Tract and Food-Related Microbes (2011) - Intestinal Microbiome and Diet in Human and Animal Health (2014)	1st		2nd			3rd
Host-Microbe Interactomics, with WIAS						1st
ARB Training - Phylogenetic Software for Microbial Genomics						1st
Advanced Organic Chemisrty	1st		2nd		3rd	
Applied Biocatalysis, with Groningen Biomolecular Sciences and Biotechnology Institute				1st		2nd
Food Hydrocolloids: Fundamentals and Applications	2nd					
Nutrition Science	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Production and Use of Food Composition Data in Nutrition	9th		10th	11th	12th	
Nutritional and Lifestyle Epidemiology	9th		10th			
Regulation of Energy Intake: The Role of Product Properties				7th		
Sensory Perception and Food Preference			5th		6th	
Epigenesis and Epigenetics			2nd			3rd
Exposure Assessment in Nutrition Research	1st			2nd		3rd
NutriScience					1st	
Diet and Cancer: From Prevention to Survival						1st
Signal Proteins related to Diet and Exercise						1st
Nutrigenomics: Defining Health - From Basic Science to Industrial Relevance	8th		9th			
Systems Biology Course: Statistics of -omics Data Analysis	5th			6th		
Advanced Visualisation, Integration and Interpretation of -omics Data	1st		2nd			3rd

Food sciences	2009	2010	2011	2012	2013	2014
Nutrigenomics in Clinical Interventions			1st			
Nutrigenomics Studies in Humans: From Epidemiology to Intervention						1st
Master Class: Multilevel Analysis Master Class: Analysis using R Master Class: Longitudinal Data Analysis Master Class: Confounding in Epidemiological Research			1st	2nd	3rd	4th
Starting with the Client: New approaches to Effective Health Promotion	1st					
Public Health Research in Practice: - The AGORA experience (2010) - How to develop Effective Interventions in Public Health Practice? (2012) - How to evaluate Interventions in Public Health Practice? (2013) - Nutrition and Physical Activity Guidance by Primary Care and Public Health Professionals (2014) - Costs and benefits of public health interventions: challenges and limitations (2015) - Experience as evidence in public health: the contribution of qualitative research methods (2015) - How to develop effective interventions in public health practice? (2015)		1st		2nd	3rd	4th
VLAG-NUTRIM-TIFN International Protein Summit: Interactions of Protein Intake and Metabolism	1st					
VLAG-NUTRIM Master Class: Health Food Innovation: Research, Development and Claim Substantiation		1st				
VLAG-NUTRIM Molecular Epidemiology of Chronic Diseases (Maastricht)					2nd	3rd

In-depth courses and seminars organised by WASS in 2014

2014	Date
WASS Introduction Course	3-5 March
Research Methodology: From topic to proposal	18 March – 13 May
Critical perspectives on social theory	16-27 May
Qualitative Data Analysis wit Atlas.ti: a hands-on practical	3, 5, 17, 19 June
Master class: Psychology of health and environmental behavior: Self-regulation and self-control	4 and 11 September
WASS Introduction Course	15-17 October
Master class: Conceptual foundations of modern environmental governance	10-11 November
Master class: Negotiating environmental limits	13-14 November
Research Methodology: From topic to proposal	4 November - 16 December
Considering Case Studies: Positioning in methods and reflecting on practices	12 December
Governance theories and governance frameworks: tailoring, matching and making them work for YOU	15 December

To explore the potential of nature to improve the quality of life

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