



Position statement Executive Board
Wageningen University & Research

Regarding the VLAG peer review assessment (2015-2021)

According to the Strategy Evaluation Protocol (SEP 2021-2027) the Graduate School VLAG and its research themes have been evaluated. An assessment committee of independent experts assessed the performance of VLAG and its research themes based on a self-evaluation and a site visit.

The Executive Board has received the final report of the assessment committee, and has read it with interest. The Executive Board is very content that the committee commends VLAG's strong commitment to PhD education and training and its conclusion that research performance, societal relevance and viability is high. The Executive Board would like to thank the peer review committee for carrying out the evaluation.

The response to the main recommendations of the committee has been put together by VLAG and its research themes and the Executive Board has integrally accepted the response, in which is described how the recommendations will be addressed and how the outcomes of the research evaluation will be used to further strengthen VLAG's performance. The Executive Board encourages VLAG and the research themes to strive for more intra- and ultimately also inter-theme interactions and collaborations.

Also on a general (WGS-wide) level the committee makes very useful recommendations. We are in the middle of a 'Recognition and Rewards' trajectory and agree with the committee that the points raised regarding Tenure Track are important and will be taken up and translated into concrete proposals for change. Moreover, the Executive Board agrees that the duration of the PhD trajectory requires continuous attention, and additional possibilities in monitoring to counteract delays in PhD trajectories will be investigated thereby having a special eye for the rights and obligations among the different PhD candidate contracts/scholarships. On a research level it is needed to articulate the Graduate School's role better by formulating a clearer key principle in the Management and Administration Regulations. We use Open Science as a leading principle in this regard and will create a long-term plan for the implementation of Open Science objectives. Moreover, we fully embrace diversity as a prerequisite to excel in science. Therefore we will increase the awareness around diversity to promote the establishment of a more balanced personnel structure at all levels. Progress on follow-up actions will be monitored in our yearly quality assurance cycle.

The assessment report together with the response to the recommendations will be published on the WUR website, together with summaries of the VLAG self-evaluation reports and the case studies.

Wageningen
University & Research

DATE
December 19, 2022

OUR REFERENCE
2300518

POSTAL ADDRESS
P.O. Box 9101
6700 HB Wageningen
The Netherlands

VISITORS' ADDRESS
Wageningen Campus
Building 104
Droevendaalsesteeg 4
6708 PB Wageningen

INTERNET
www.wur.nl

CoC NUMBER
09098104

HANDLED BY
Pieter Munster

TELEPHONE
+31 (0) 317481686

EMAIL
pieter.munster@wur.nl

DATE
December 19, 2022

PAGE
2 of 2

With kind regards,

A handwritten signature in blue ink, appearing to be 'A.P.J. Mol', written in a cursive style.

Prof. dr Arthur P.J. Mol
Vice-president of the Executive Board

VLAG Graduate School External Peer Review 2015 - 2020

Follow-up plan based on recommendations

1. Introduction

Upon request of the Executive Board of Wageningen University and Research (WUR), the research assessment of VLAG Graduate School (VLAG) took place from 11 till 13 October 2021. VLAG was assessed by a Peer Review Committee (PRC) comprising of six independent international experts, according to the Strategy Evaluation Protocol (SEP 2021-2027). Prior to the site visit, the PRC received comprehensive self-assessment reports of the VLAG Graduate School and the four VLAG Research Themes, for the period 2015-2020. During the site visit the PRC met with the WUR and VLAG management, scientists representing the four Research Themes, as well as representatives of PhD candidates and Tenure Track researchers.

In addition to the research assessment of the Research Themes, the board requested the PRC to provide comments and recommendations at the level of the VLAG Graduate School, in particular answering the question:

Does the graduate school have a sufficiently proactive innovation process (e.g., exchange of best practice between graduate schools) to continuously improve the quality of its three main tasks¹?

On 3 February 2022 VLAG office received the qualitative assessment for the VLAG Graduate School and the four Research Themes, in relation to their aims and strategy. The PRC has presented VLAG Graduate School with a number of commendations and recommendations. In the following sections we present our response and propose suitable follow-up actions.

2. General recommendations at WUR level

Next to the recommendations to the VLAG Graduate School and Research Themes, the PRC has formulated general recommendations at WUR level that we address first.

Tenure Track system - Consider lowering quantitative tenure track evaluation criteria (especially quantitative requirements) to enable broader and more strategic development of tenure trackers to secure a strong and balanced University.

REFLECTION: Even though the Tenure Track system at WU was reviewed and amended recently (2018-2019), the implementation of the national Recognition & Rewards policy to safeguard room for everyone's talent in Dutch academia (<https://recognitionrewards.nl/>) at WUR merits urgent attention. WUR Professors have addressed this in a 'letter of urgency' to the Rector Magnificus and Dean of Research in 2019, and early 2022 this issue was also addressed through a 'letter of urgency' of Wageningen Young academy.

PROPOSED ACTION: Although this recommendation is at the level of the WUR Executive Board and also needs to be considered by the Recognition & Rewards committee, VLAG will continue to

¹ The three main tasks of the Graduate Schools at Wageningen University:

- To coordinate, develop and facilitate doctoral education and training.
- 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 staff, postdocs and PhD candidates.

support the scientific community in issues related to the Tenure Track system (e.g., work pressure, quality of PhD supervision, educational burden, etc.).

Open Science - Enhance awareness, create a long-term plan for the implementation of objectives to meet requirements.

REFLECTION: Since 2019 the WUR Open Science & Education Programme (OSE) is in charge of implementing the National Plan Open Science, and thus facilitates and stimulates researchers in making open science a standard practice. Open Science Community Wageningen, a bottom-up team comprising members of various disciplines and career stages, has been initiated as well.

PROPOSED ACTION: Based on the WUR implementation plan, and together with Wageningen Graduate Schools (WGS), VLAG will consider actions to enhance Open Science awareness at the level of the PhD programme.

Diversity - Build increased and more pro-active awareness to promote and establish a more balanced personnel structure at all levels.

REFLECTION: Diversity and inclusion are part of the organisation and have been intertwined with various policies. Respect, safe working environment and space for diversity have been embraced and implemented in various forms, from events to raise awareness (WUR Diversity and Inclusion Project Team) to hiring policies. In practice, employees still encounter obstacles and prejudices. Diversity continues to be an issue that deserves a systemic approach. One of the issues that needs attention is the number of female professors and women in senior positions, which is still lagging behind.

PROPOSED ACTION: WUR and Science Groups management should define a clear strategy including key performance indicators to tackle low diversity in all its forms and at all levels of the organisation.

Societal impact - Formulate clearer strategies and activity prioritization.

REFLECTION: Societal impact has always been our modus operandi at WUR. At corporate level, the Corporate Value Creation (CVC) unit oversees strategy and implementing policies, while at the level of individual researchers, creating societal impact is mostly through personal motivation and often co-motivated through the nature of the research.

PROPOSED ACTION: WUR (CVC) and Science Groups should define a clear strategy for the societal impact of the research, including key performance indicators. Upon request, WGS platform can advise about modes of implementation.

Support for patent applications - Take a more active role with central financial support for patents to ensure long-term viability and impact.

REFLECTION: At WUR only the costs of support/administration for patent applications are covered centrally. The CVC unit provides support and takes care of the submission process and assessment procedures. Funding of patents is the responsibility of Science Groups, and not supported centrally.

PROPOSED ACTION: WUR (CVC) and Science Groups should define a clear IP strategy (criteria, incentives, priority setting) and consider which role they want to play in this.

3. Outcomes of the assessment on the VLAG Graduate School level

In reply to the main question regarding graduate schools' strategy in light of the three main tasks, the PRC advises that the VLAG Graduate School and VLAG research community would benefit from **articulating the main role of the VLAG Graduate School more explicitly** by formulating a clearer key principle regarding the focus on PhD education.

REFLECTION: *The main tasks of Graduate Schools at WU ([LINK](#)) are broadly defined which may lead to certain expectations regarding their sphere of control/influence. The main role of the Graduate Schools at Wageningen University is to oversee the PhD programme and thus they:*

- *Develop, coordinate, and facilitate doctoral education and training*
 - o *To achieve this they monitor, safeguard, and stimulate the progress of PhD candidates*
- *Facilitate sharing of knowledge and expertise within the research community*
 - o *To achieve this, they stimulate and enable research collaborations / excellent interdisciplinary research*

Graduate Schools at WU do not have mandate nor means to perform one of these tasks, namely, to safeguard, monitor, and stimulate the quality and progress of research by staff and postdocs.

PROPOSED ACTIONS: *WGS and the Dean of Research have taken action to improve positioning within the organisation and collaborate towards improved visibility and participation in WUR strategic research programmes and decisions. Furthermore, we consider the following concrete actions:*

- *To discuss and redefine the main tasks, means and mandate of the Graduate Schools at WU and WGS level. The WGS vision document for the Wageningen PhD programme (defined in 2020) provides the framework for this process.*
- *To discuss VLAG Graduate School's mission and main role involving all stakeholders, for which the first steps were taken during the VLAG Board strategy meeting on 1st March 2022 and during the annual meeting of the VLAG International Advisory Board on 22nd March 2022.*

The PRC recommends paying more attention to **prepare PhD candidates for careers outside the academia**, e.g. by emphasizing courses in people management, patenting, entrepreneurship etc. in the course curriculum.

REFLECTION: *This recommendation is mentioned in our self-assessment document and has been flagged as a joint effort at the level of WGS. In fact, WGS already provides a myriad of training activities² directed towards further developing broadly implementable professional skills and competences, as well as future career orientation courses.*

In the context of diversifying PhD trajectories within VLAG, collaboration with participating research institutes (WFBR, WFSR, RIVM, NIZO) and industry partners may be a great asset.

PROPOSED ACTIONS:

- *Discuss the possibility of secondments/internships for PhD candidates with research institutes participating in VLAG; first reactions were positive.*
- *Keep engaging and improve engagement of VLAG alumni as contributors to courses, scientific events, and career events (e.g. organised by the VLAG PhD council), etc.*

² <https://wgs.crs.wur.nl/>

The PRC also recommends analysing the reasons for the **delays in completion of the PhD studies**, and to initiate measures to ensure that the delays are brought down e.g. by helping PhD candidates to adopt better time management during the PhD studies in general as well as during the Thesis writing process.

REFLECTION: Delays in completion of the PhD studies have often been raised as a point of attention over the years. In general, VLAG strives to keep delays to a minimum, without interfering with the personal drive of a candidate. However, there might be incentives beyond our reach that keep this situation from changing.

PROPOSED ACTIONS: Because this issue is not specific for VLAG, it is advised to take this up at WGS/WU level. The first step would be to get a better overview of the reasons for delays.

Attend to the **rights and obligations among the different PhD candidate contracts/categories** – to ensure transparency and a proper distribution of e.g. teaching obligations among PhD candidates.

REFLECTION: The rights and obligations of different PhD candidate categories are part of various ongoing discussions. Wageningen PhD Council has addressed these issues in a ‘letter of urgency’ to the Rector Magnificus and Dean of Research in the summer of 2020. A WUR working group/taskforce has amongst others been making an inventory of rights and obligations for the different types of PhD contracts/constructions. Their implementation will be discussed within WGS and with WUR management.

In 2021 another working group specifically dealing with the teaching load of PhD candidates was installed within VLAG to discuss the ways in which chair groups deal with this. The working group (two supervisors and two PhD candidates) followed-up on previous discussions, and a start has been made to define VLAG guidelines, including best practices and suggestions.

PROPOSED ACTIONS:

- *Follow up on the recommendations of the WU working group/taskforce.*
- *Follow up on the recommendations of the VLAG working group on PhD teaching activities.*

Continue supporting the **PhD council’s efforts in becoming an active player in increasing the VLAG community spirit**. The VLAG Graduate School can support this by awarding a slightly bigger PhD council budget and by helping facilitate space to develop such activities – However, the Committee recommends considering to reduce the PhD Council to a maximum of 8 members to help with the communication and effective dynamics of the PhD council.

REFLECTION: VLAG office collaborates closely with the PhD council (regular VLAG office consultation with council chairs and specific workgroups), and it supports and funds PhD council initiatives that help increase the VLAG community spirit. The chair of the PhD council is also a member of the VLAG Board. In the beginning of 2021 VLAG provided a hands-on training to support and empower the council to prioritise and tackle issues at hand.

PROPOSED ACTIONS:

- *Get a robust mechanism for communication and collaboration between the PhD council and VLAG office in place to improve effectiveness.*
- *Request the council to provide an annual activity plan with accompanying budget. Content, urgency and added value will determine the allocated budget (not a priori restricted).*

Consider better **Alumni-tracking** and generation of a VLAG-Graduate School **alumni network** to support the societal and industrial network and broaden the career outlook for VLAG Graduate School PhD candidates by generating contact meetings or arranging events with the alumni.

REFLECTION and ACTIONS: *see comment above on the preparation of PhD candidates for careers outside academia.*

The PRC remarks on the subject of the amount of **training activities that appear well-balanced across the four Themes**, although with fair emphasis on courses from Research Theme II (Food Science & Technology) and Research Theme III (Human Nutrition & Health). The advice is to emphasize exposing PhD candidates to international developments in particular for Research Themes I and IV.

REFLECTION: *The “emphasis on courses from Research Theme II (Food Science & Technology) and Research Theme III (Human Nutrition & Health)” remark does not come as a surprise since these domains are very specific for WUR. For the other themes, wide range of courses are available (inter-)nationally. In specific cases, VLAG supports organisation of/participation in these external courses. Furthermore, new courses mainly focusing on Research Themes I and IV have been initiated in the meantime and are included in the VLAG course programme.*

PROPOSED ACTIONS:

Analysis of the needs for scientific courses by PhD candidates is part of the annual visits to the PhD candidates per chair group. It is good to point out that the VLAG fellowship programme provides possibilities to tackle this issue by providing financial support to organise scientific meetings (workshops, master classes, symposia), and by providing financial support for PhD candidates for international secondments. Both options will be communicated during our yearly visits to PhD candidates and staff.

VLAG Research Theme 1 - Chemistry for Life Sciences and Bio-based Economy

Response to the peer review recommendations by the chair holders of the chair groups involved

The research team of Theme 1 would like to thank the peer review committee for their efforts in reviewing our self-evaluation, and for the pleasant interview during the site visit. We found the questions stimulating and are pleased to read about the committee's conclusions and recommendations. These echo many of our core values and priorities. While we find the recommendations valuable, the choice to evaluate research themes, rather than chair groups, has prompted feedback at a level that individual chair groups are not in control of. Many of the recommendations, therefore, are at a level that (often) does not (necessarily) connect to the strategic decisions of individual chair groups.

Response per recommendation

- The Committee notes that the Theme organisation is relatively new with a short window of opportunity to enhance new and already established collaborations between groups. We therefore recommend that VLAG, the chair groups, and all Theme researchers strive to make additional efforts to promote intra-Theme interactions and collaborations in order to foster an even better Theme identity and activity. The Committee also notes that lack of space and split locations between the groups is hampering the everyday activities within the Theme and recommends WUR to make efforts to solve the space issues.

Response: We have indeed many common interests and collaborations within our Theme which inspire new research branches and cross-disciplinary cooperation. In addition, we also share interests with many research groups outside our Theme. Various scientific as well as societal challenges need to be tackled with collaborative effort, by bringing scientists with different backgrounds and expertise together. Therefore, we feel that pursuing broad collaborations within and beyond the Theme can lead to a stronger Theme with improved identity and activity. Future collaborations are to a certain extent hampered by the fact that the groups within the theme are located in different buildings. However, the lack of working space in general does not help collaboration as well. These issues are discussed in the management team of AFSG as well as at WUR-level. In the coming years in particular, the lack of space and split locations are an issue for the Theme groups: several are supposed to move to different locations or even different buildings in 2023/2024/2025. For several reasons, beyond the control of the individual chair groups, the time planning on the refurbishment of older buildings (Axis) and the building of a new research building is insecure at the time of writing.

- The Committee notes that the strategy of the Theme has been in place for several years, already bearing fruit within the Theme. We can only recommend that this open and active collaborative spirit is further maintained and possibly enhanced.

Response: It is indeed our intention to maintain the open and active collaborative spirit and possibly enhance it whenever this is opportune.

- The Committee notes that many societal impact-generating activities are taking place within

the groups of the Theme, although being of a more individual, ad-hoc nature. We commend the Theme for taking the press relations into their own hands and recommend more concerted actions for better outreach. We also recommend a re-evaluation of the overall WUR tenure criteria to better align with the societal impact objective.

Response: At the moment the Biomolecular Sciences cluster of the Science Group AFSG, of which 5 of our groups (out of 6) are a member, has taken the press relations into their own hands to improve visibility and outreach of the fundamental research of this cluster. In view of the overlap between the cluster and the Theme we will jointly pursue actions for further improvement. In addition, several individual chair groups and/or staff members are very active on social media, such as Twitter, Linked-in, YouTube. Regarding the Tenure criteria, we believe there should be a balance in valuing the striving for immediate societal impact and the building on long-term (often more fundamental) research lines.

- The Committee notes that the groups in the Theme are working well together for several years and produce high-quality, collaborative research and development. We recommend that this process is further emphasized in the future to create a true Wageningen Chemistry environment with high visibility. More intra-Theme activities and meeting points could be organised to facilitate the initiation of new collaborations and ideas.

Response: We do indeed see the need for a better visibility of Wageningen Chemistry both within and outside WUR. In that respect it is important to mention that there is substantially more Chemistry going on within WUR than represented in this Theme. Initiatives within this broader context are ongoing and could be intensified.

- The Committee notes the high societal relevance of the Theme and the many activities in place to promote the Theme expertise in relation to different stakeholders. We recommend a continuation of this process, while also guarding a strong element of scientific depth and open-ended fundamental research. A more concerted Theme approach to societal impact could be of value in addition to the already established communication strategy.

Response: We welcome the encouragement to keep promoting expertise and societal relevance within the Theme as well as guarding the space for open-ended fundamental research. A concerted approach is embedded in the DNA of the Theme's individual chair groups, considered to be the more 'fundamental research' groups at WUR, whilst also having research lines with direct societal impact.

- The Committee notes that the Theme is viable and maintains a rational approach with respect to funding. Space issues need to be addressed by WUR to enable sustained growth of the Theme. Allocations of funding by WUR for more costly, hands-on experimental training of undergraduate students should be revised to better reflect the actual costs. The Theme provides high-quality training using advanced instrumentation, which is becoming a hallmark of WUR. This needs to be further addressed by WUR to maintain a strong position and to attract future generations of students.

Response: This is indeed an important point. It is very costly to provide high-quality training on expensive equipment, not only because the equipment is expensive (acquisition, use and maintenance) but also the training and supervision of students. Funding for the experimental training should be revised to better reflect the actual costs. This will be flagged jointly with all relevant bodies/committees at WUR.

Teaching is preferably done by expert staff members, working with small groups of students on specialized equipment that often is based in the individual groups' laboratories, or sometimes in the Research Facilities (e.g., MicroSpectroscopy or Magnefy). This concerns not only BSc and MSc courses, but also BSc-, MSc- and internship thesis work. A more fitting remuneration for this kind of activities would make sense.

- The picture is not entirely clear to the Committee, but we recommend restrained recruitment of future tenure trackers to better match the growth/size of the Theme. In principle, a healthy recruitment plan should come with a career-long perspective in order to maintain a viable economic unit. All recruited tenure trackers should have the possibility to succeed on their own record.

Response: This is indeed a point on the radar of the chair groups, Theme and cluster. It will be flagged at various levels (e.g., discussing strategic personnel planning with HR, Science Groups director, etc.). In practice, in the last years many funding opportunities were focused on hiring new tenure trackers, and much less on (PhD/post-doc) research projects. As a consequence, many more people are now fishing in the same (shrinking) pool for grants, which among others creates significant stress on the evaluation criteria for tenure tracks. There is a clear need for more (first- and second money stream) PhD project grants.

- The Committee notes that Open Science is an ongoing and very active reality within the Theme. Our recommendation is to build on that excellence and maintain leadership in this important field. The Committee notes that the overall academic culture within the Theme is healthy. Our recommendation is that the Theme members strive to maintain this atmosphere in their continuing growth and success.

Response: We appreciate the recognition of the committee. We aim to continue along the current lines. Perhaps the committee intended this already, but we strive not only for Open Science, but also for Open Technology.

VLAG Research Theme 2 - Food Science & Technology

Response to the peer review recommendations by the chair holders of the chair groups involved

We are happy with all the recommendations and suggestions and with the very positive feedback by the committee. The review strengthened our belief that the efforts we already started make sense. We have considered all their recommendations below. We will follow up on all these recommendations and suggestions and incorporate them in our annual plans and monitor the progress in order to be ready for detailed reporting for the next review.

Response per recommendation

- An explicit strategy needs to be formulated to articulate what this leading position means, what are the main contributing factors and what will be needed to strengthen it in a context of increased competition worldwide.

Response: We will further refine our current strategic plan and concretise the leading position and aim to consolidate within a year. This will include, among others, prioritization of investments and research, collectively.

- The larger picture might need to be kept in mind to reach the research topics, notably the interactions with research on production of animal-based raw materials for example with a clear return to these research groups on specification or tools to validate adequacy for food processing.

Response: We assume that the committee meant to refer to plant based raw materials. We put high priority to further developing our local and worldwide network in this field which includes according academia, research institutes, and industrial partners, to also ensure adequacy for food processing, sustainability, and safety.

- The relations with the plant, animal, environmental and social science Themes which are mentioned in the documents will require a specific plan including means and strategy in adequacy with the central role envisioned by the Theme.

Response: This will follow from the strategic concertized plan as referred to in answer of the first question.

- The major focus of the future research strategy – multiscale (temporal and spatial) exploration of food and of dynamics along the food chain – will require further investments in the tools (both conceptual and physical) needed for multiscale dynamics and multiscale understanding.

Response: A concrete investment plan will follow from the consolidated strategic plan.

- A strategy needs to be formulated both to identify priorities in terms of cutting-edge equipment as well as skills to be internalised to use them.

Response: We like to refer to our answers to the previous questions.

- Some attention should be devoted to data in the context of Open Science (in regard to the application and implementation of the FAIR principles of the newly collected and already collected data generated by the Theme) and to the possibilities opened by “big data” to develop novel scientific approaches and understanding of the dynamics of the food system, from unit operations to sustainability.

Response: We follow the policy of our university in open science policies. Furthermore, we will invest in the potential of using big data methodologies. For example, developed software can be made available on the WUR GitLab platform for open source collaboration.

- The very good collaborations between the chair groups are currently self-organised, leading to strong synergies. A more formalised organisation might be needed notably to ensure that any new chairs continue in this dynamic.

Response: We believe that the uniform active support for this policy will make sure that any new chair will integrate accordingly, coordinated by our operational cluster manager.

- Specific links with other Themes, notably to Human Nutrition and Health, would strengthen the food science Theme as well.

Response: We already have many links and longstanding collaborations with Human Nutrition and Health, and actively pursue further intensification. We mention the work on digestion and sensory perception. We also actively collaborate with other Science groups like social sciences, plant sciences, and animal sciences.

VLAG Research Theme 3 - Human Nutrition & Health

Response to the peer review recommendations by the chair holders of the chair groups involved

The recommendations for our Theme are well appreciated.

We agree that strategic investments and specific collaborations are needed to meet our requirements for data science expertise. We are currently taking steps in that direction.

We agree with the comments on tenure track, although we don't think a candidate's contribution to Open Science is an appropriate criterium.

Through the way the Division of Human Nutrition and Health is organized and managed, we already comply with the recommendations listed under "Themes". For example, the different chair groups coordinated the recruitment of new tenure trackers funded by the "Van Rijn gelden".

Response per recommendation

- The traditional aims and strategy are clearly stipulated, however the link with the more clinical nutrition- related topics is somehow hidden. The Committee advises to strengthen these links. Similarly, the Committee advises to strengthen and clarify the link to more societal aspects such as sustainability.

Response: Since the Division of Human Nutrition and Health is involved in so many different areas, the overall report may have concealed our major efforts in the clinical realm. It should be emphasized that the link with clinical nutrition has been greatly strengthened by the very recent installation of a special chair in Nutrition and Dietetics and a special chair in Nutrition and Metabolic stress. In addition, the Division of Human Nutrition and Health is the founding father of the Nutrition and Healthcare Alliance, a collaboration with the Hospitals in Ede and Arnhem that has been ongoing for 15 years. None of these aspects were extensively addressed in the report.

- It was not clear to the Committee how the Theme deals with the potential of the bio-informatics and relation with Theme IV (Biological Systems & Interactions) on the role of the gut microbiome (see also recommendations below regarding Open Science and Viability). The Committee advises to formulate a clear strategy on this.

Response: The Division of Human Nutrition and Health has numerous collaborative projects with Theme IV that involve the gut microbiome. There is extensive expertise within HNH in the analysis of the gut microbiome and other OMICS data, including RNAseq and metabolomics. A new Assistant Professor in the domain of nutri-informatics was appointed in 2020, reflecting our ambition to further expand our expertise in this area.

- Limited success in obtaining personal grants has been considered as a weakness of the Theme. Although the Theme is successful in publishing in top journals, potentially a different approach is needed to obtain the highly competitive personal grants. The Committee advises to formulate a strategy, e.g. prioritise specific research topics to attain higher success rate with the highly prestigious grants. The Committee also advises considering a more integrated approach to developing funding options, including obtaining grants from a diversity of funding sources, which should be installed already at the PhD level. This would emphasize a more

integrated collaboration between the chairs of the Theme but across Themes as well.

Response: We take this suggestion to heart and are in the process of implementing a more collaborative approach across the chairs toward funding options. In this process, we will discuss to what extent we can prioritize specific topics that are considered most eligible for funding via personal grants.

- The Theme has existed for more than 50 years and has generated an enormous amount of data (from molecular insights to more public health-oriented aspects). Currently it seems that this enormous amount of data cannot be harvested. The Committee advises to prioritise Open Science requirements and formulate a strategy to operationalise the principles of Open Science especially in view of harvesting the fast increasing amount of available data. To operationalise the Open Science principles, collaborations with other Themes like dynamical systems, signal processing and data analytics or specific forms of bio-informatics are needed. Building a community or infrastructure that is beyond the ELEXIR Food and Nutrition Community, would assist in both playing the role of a Key Opinion Leader and accelerate the Open Science field. This investment is also a form of return of investments (former research projects will have post-hoc analyses).

Response: We appreciate this comment and recognize that there is a lot to gain from making datasets available to other researchers. By formalizing a data management plan and mandating PhD students to complete a data management report when submitting their PhD thesis, we will create a standardized and streamlined system for archiving data from which we can make datasets available to other researchers. In addition, we have made the strategic decision to actively compile datasets from past studies that are amenable to sharing with other researchers. This is not a simple task, though, as data need to be compliant with the FAIR principles and privacy regulations. In addition, there is limited funding available to support these activities.

- The outreach and valorisation of different findings can be put under pressure due to the public-private partnerships that mainly attract the large enterprises. The Committee advises to create awareness of the nutritional aspects among food-producing SMEs (in the Netherlands but as well relevant in LMIC countries).

Response: We have difficulty understanding in what context this comment and advice should be placed and also we do not understand why outreach and valorisation may be jeopardized due to PPS projects involving large companies. Please note that we are involved in multiple PPS projects with SMEs, which was not made explicit in the report.

- The Theme has created an enormous capacity over the years in many LMIC countries, which is a potential source of knowledge. The HNH Theme highlights its role in global nutrition but it seems that the Theme is focusing on individual capacity building. Considering the change in vision of development cooperation (see EU strategy), the Committee advises to collaborate with universities/research institutes in LMICs as this will potentially accelerate the capacity building and also will assist several LMIC-based universities to shift from a text-book education format to a research-based education format. Several

opportunities are possible especially if combined with the use of MOOCs.

Response: We thank the committee for this suggestion. Please note that we are actively collaborating with multiple universities and research institutes in LMIC. We are currently taking the steps to make some of our teaching materials focused on nutritional issues in LMIC publicly available.

- Currently it is unclear if all chair groups can obtain enough funding (e.g., molecular vs translational) to realise the described ambitions. In relation to the tenure track requirements, the Committee advises to guarantee that all chair groups can obtain sufficient funding to reach their targets. Blue sky ideas in the nutrition domain should be stimulated.

Response: We are a little bit confused by this comment. Either the committee hasn't been properly informed about how chair groups are financed or we don't understand this comment. It is unclear what the committee means when stating that we should guarantee that all groups can obtain sufficient funding to reach their targets.

- The Committee advises a restrained recruitment of future tenure trackers to better match the growth/size of the different research topics. A career-long perspective in order to maintain a viable economic unit could be recommended.

Response: We recognize that the Division has undergone a major growth spurt in recent years, which for a large part is driven by the "Van Rijn gelden". We also recognize that acquiring sufficient research funding for all tenure trackers to meet their evaluation criteria will be challenging. Recruitment of additional tenure trackers is not foreseen. Instead, we will prioritize the provision of funds to the newly recruited tenure trackers to help them establish a successful research line.

- The inclusion of medical doctors as staff members in the Theme is a great asset. The Committee advises to ensure these staff members will require sufficient funding to stay motivated in the context of research. It is also a new field where the team still has to accelerate while there is already a lot of competition worldwide in the field of clinical nutrition, however sound scientific research is sometimes lacking in this domain.

Response: We recognize the value of having medical doctors appointed as special Professors. Currently, three medical doctors are appointed as special Professors in our Division and one medical doctor is pursuing his PhD. We do not understand how the Division can and should ensure sufficient funding for these specific staff members. Obtaining sufficient research is explicitly a personal responsibility of these staff members and a criterion on which the success of the special professorships is judged.

VLAG Research Theme 4 - Biological Systems & Interactions

Response to the peer review recommendations by the chair holders of the chair groups involved

Response per recommendation

- The combination of Chairs into the Theme IV Biological Systems & Interactions is relatively recent. There were, and are, already many ‘natural’ interactions between the chairs, but the joint identity of the Theme could be strengthened. A more intensive combination of chairs in the Theme offers several strategic and communicative advantages and these could be expanded and exploited beyond the excellent scientific synergies that already exist:
 - The Theme could help to profile the societal relevance of the groups even better. This could include a more explicitly formulated joint strategy for dissemination and valorisation, but also for instance a joint ‘face to the public’ (e.g., website, spokesperson).
 - The Theme could help to strike a balance between fundamental and applied science and to further deepen synergies that arise between them. This could also help some sub-groups to reach critical mass by integrating more into the Theme as a whole.
 - The Theme might help to reduce workload and overhead by combining management, administrative or infrastructural tasks.

Response:

We would like to thank the review committee for this feed-back. Indeed, the organization of Theme IV is rather recent, although it is based on already existing collaborations in research projects (and also teaching). We believe that the planned joined housing in the Microbiome Centre and the collaboration in the investment programme UNLOCK stimulates collaboration further and a joined dissemination and valorisation strategy will become part of that.

The fact that we will collaborate more closely in the Microbiome Centre, UNLOCK and future initiatives such as the Dutch Growth Fund Biotech Booster will give opportunities to integrate fundamental and applied research and may increase the critical mass.

The reason that our overhead, management, and administrative tasks are high is in our view not related to the size of the groups. The load increases because of the increased demands for audits, financial and output monitoring. A disadvantage of a joined management of the cluster would be that an extra management layer is added, increasing the distance between management and researchers. We aim to reduce that distance and keep these responsibilities with the groups.

- The self-assessment lists many impressive accomplishments of societal relevance, but the aims are vague as to which grand challenges are focused on. We advise the Theme to define more clearly aims for societal relevance along with the UN Sustainable Development Goals. Although the societal relevance of the Theme is clearly documented and very significant, there seems to be no clear *strategy* concerning societal relevance. Currently, the Theme mainly relies on *ad hoc* activities of PIs that have a reputation that lends them credibility, and a network that provides dissemination and valorisation opportunities. This seems to work well; it would be good to formalise this strategy. Such formalisation could also be a step on the way to better recognition of societal relevance activities of individuals by WUR, especially for the PIs that are on a tenure track.

Response:

We agree with the review committee that our societal relevance is there but could be extended even further. As a matter of fact, the increasing importance of development of circular processes, the pressure on biodiversity, the need for biobased products, the concerns about the safety of our food and the environment supports the relevance of communication of our research and results. We believe that the above-mentioned collaborations in activities like the Microbiome Centre and

UNLOCK will provide important new opportunities to further extend and define our communication strategy. We will take action on this taking the suggestions of the committee into account.

- The Theme, and individual chairs, should have a clear long-term strategy to make sure there is room for all tenure trackers. Not just financially and physically (lab and office space), but also scientifically, to avoid internal competition for second/third party funding and to safeguard the current positive atmosphere of collaboration. A 'full house' of senior research staff could also make the succession of retiring chair holders more difficult, as high-profile candidates will want to have room to bring in their own group leaders and associated research topics.

Response:

We agree with the review committee that we need to develop a long-term strategy for tenure trackers and not create a 'full house' of senior research staff. However, we have seen an enormous growth in research and education activities which made growth a requirement. We expect a further growth in our area of research because of societal demands. Our government recognizes that as well and stimulates via National Growth Fund programmes Biotechnology and Cellular Agriculture. We also see an increased demand from industry for professionals. We do not only enrol tenure trackers; we have also experienced that during the programme tenure trackers moved to industry. We also recognise that the University develops strategies for the tenure track programme and its implementation and development which we will accommodate as well.

- There seems to be limited centralised support for patent applications, with the financial burden of application and maintenance relying on external funding. WUR should play a more active role in this with central financial support for patents to ensure long-term viability and impact.

Response:

We agree that more support would be welcome for patent applications. We believe that for the application itself sufficient finances are available at research group level. However, to bring a patent to the market is still hard. Thanks to the Value Creation group of WUR there is support, but further support would increase the chances of valorisation of the patents. This is also a topic that should be considered at central WUR level.