

## **The External Evaluation Report of a Doctoral Study Domain Horticulture**

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### **I. Introduction<sup>1</sup>**

External evaluation report was drafted for evaluation of doctoral university studies, study domain Horticulture at "Ion Ionescu de la Brad" University of Agricultural Sciences and Veterinary Medicine of Iași (UASVM of Iași), Faculty of Horticulture, in order to comply with the legal provision of the Emergency Ordinance no. 75/2005, approved with amendments and additions by Law no. 87/2006 and Ministerial Order no. 3651/2021. Evaluation was performed during September 20<sup>th</sup>-24<sup>th</sup>, 2021. Due to the ongoing pandemic situation, evaluation in person was not possible and my participation was online via ZOOM platform.

Members of the Expert Panel for domain Horticulture:

- Prof.univ.dr. Dorel Hoza, coordinator
- Prof.univ.dr. Mato Drenjančević, international expert
- Orășan-Alic Sergiu Aurel, PhD student

UASVM Iași is an institution that organizes doctoral academic studies in two fundamental fields, Engineering Sciences and Biological and Biomedical Sciences. The branches of science corresponding to the two fields are Plant and Animal Resources Engineering and, respectively, Veterinary Medicine. The doctoral academic studies are carried out by decisions of the Board of Directors and by decisions of the UASVM Iași Senate, in two doctoral schools: the Doctoral School of Engineering Sciences (DSES) and the Doctoral School of Veterinary Medicine (DSVM). The coordination of the two schools is performed by the Council for Doctoral Studies (CSUD), subordinated to the Board of Directors. Each doctoral school is run by a Council of the Doctoral School and is composed of doctoral fields and, within them, doctoral specializations. The Horticulture is one of four fields in the Doctoral School of Engineering Sciences in which the doctorate is organized at UASVM Iași. In the field of Horticulture, during evaluation period 2016-2020, the doctoral training was carried out in 8 specializations under the guidance of 8 doctoral supervisors. During 2016-2020 55 PhD students were enrolled in the Horticulture PhD field.

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<sup>1</sup> Each time when applicable the information shall be presented gender-wise.



## II. Methods used

Methods and tools used in the external evaluation process:

- Self-evaluation report of the doctoral study domain Horticulture and its Annexes;
- analysis of documents, data and information available on the UASVM Iași/Faculty of Horticulture website, in electronic format;
- meeting with representatives of the institution and the Council for Academic Doctoral Studies
- meeting with the contact person for the doctoral study domain under review and the team who drafted the internal evaluation report;
- meeting with the persons in charge of the research centres and laboratories within the doctoral study domain;
- meeting with the academic staff corresponding to the doctoral study domain;
- meeting with the members of Ethics Commission;
- meeting with employers of the graduates in the doctoral study domain Horticulture;
- meeting with the Doctoral School Council;
- meeting with doctoral students in the doctoral study domain Horticulture;
- meeting with the graduates of the doctoral study domain Horticulture;
- meeting with the Commission for Quality Evaluation and Assurance (CEAC) members/ Quality Assurance Department;
- information about research infrastructure delivered by e-mail.

## III. Analysis of ARACIS's performance indicators

### **Domain A. INSTITUTIONAL CAPACITY**

#### **Criterion A.1. The administrative, managerial institutional structures and the financial resources**

*Standard A.1.1. The institution organizing doctoral studies (IOSUD) has implemented the effective functioning mechanisms provided for in the specific legislation on the organization of doctoral studies.*

**Performance Indicator A.1.1.1.** *The existence of specific regulations and their application at the level of the Doctoral School of the respective university doctoral study domain:*

*The doctoral study field Horticulture operates in an adequate institutional, administrative and managerial framework, having adequate financial resources to fulfil the undertaken mission and objectives. The institutional regulation for the organization and development of doctoral academic studies adopted by the Decision of the UASVM Iași Senate on 15/09/2011 was updated and completed several times by the Senate Decisions. The Regulation of the Doctoral School of Agronomy, Horticulture and Animal*



*Husbandry was adopted by the Decision of the UASVM Iași Senate on 18 December 2015. By the Decision of the UASVM Iași Senate no. 8 as of 28/09/2016 Doctoral School of Agronomy, Horticulture and Animal Husbandry was renamed to the Doctoral School of Engineering Sciences, with areas: Agronomy, Horticulture, Animal Husbandry, Engineering and Management in Agriculture and Rural Development. The Regulation of the Doctoral School of Engineering Sciences was approved by the UASVM Iași Senate on 28/08/2016 and amended in the meeting of 24/10/2018.*

*I have not noticed anything that indicated the lack of regularities.*

**The indicator is fulfilled.**

**Performance Indicator A.1.1.2.** *The doctoral school' Regulation includes mandatory criteria, procedures and standards binding on the aspects specified in Article 17, paragraph (5) of the Government Decision No. 681/2011 on the approval of the Code of Doctoral Studies with subsequent amendments and additions.*

*The regulations of the Doctoral School of Engineering Sciences include criteria, procedures and mandatory standards for the aspects specified in art. 17, paragraph (5) of the Government Decision no. 681/2011 on the approval of the Code of Doctoral Studies, with subsequent amendments and additions. Doctoral School regulations and graduation regulations establish mandatory criteria, procedures and standards for the acceptance of new PhD supervising members, decision-making mechanisms regarding the appropriateness, structure and content of the training program based on advanced academic studies; conditions under which the doctoral program can be interrupted/extended; ways to prevent fraud in research, including plagiarism; obligations of doctoral students.*

*I have not noticed anything that indicated the lack of regularities.*

**The indicator is fulfilled.**

*Standard A.1.2. The IOSUD has the logistical resources necessary to carry out the doctoral studies' mission.*

**Performance Indicator A.1.2.1.** *The existence and effectiveness of an appropriate IT system to keep track of doctoral students and their academic background.*

*The record of doctoral students and their academic background is achieved through the University Management System (UMS). UMS is a tool dedicated to the administration of activities in existing academic educational processes. UMS is organized into several modules, each module comprising one or more submodules. This modular structure allows the addition or system detachment of one or more modules / submodules, as required.*

**The indicator is fulfilled.**

**Performance Indicator A.1.2.2.** *The existence and use of an appropriate software program and evidence of its use to verify the percentage of similarity in all doctoral theses.*



The verification of the similarity of doctoral theses is done, starting with 2016, on the Sistemantiplagiat.ro platform. Software [www.sistemantiplagiat.ro](http://www.sistemantiplagiat.ro) as a tool for verifying the originality of the scientific works of doctoral students, without basing their analysis and conclusions exclusively on the data generated by the program to verify the authenticity. This software is recognised by the National Council for Attestation of University Degrees, Diplomas and Certificates (CNATDCU), according to the provisions of art. 2 of the MEN Order no. 3485 of 4.04.2016. The procedure by which the authenticity of a PhD thesis is verified exists and it is well organized.

**The indicator is fulfilled.**

Standard A.1.3. The IOSUD makes sure that financial resources are used optimally, and the revenues obtained from doctoral studies are supplemented through additional funding besides governmental funding.

**Performance Indicator A.1.3.1.** Existence of at least one research or institutional / human resources development grant under implementation at the time of submission of the internal evaluation file, per doctoral study domain under evaluation, or existence of at least 2 research or institutional development / human resources grant for the doctoral study domain, obtained by doctoral thesis advisors operating in the evaluated domain within the past 5 years. The grants address relevant themes for the respective domain and, as a rule, are engaging doctoral students.

There were concerns about ensuring extra-budgetary funding. In addition to budgetary financial resources, PhD supervisors and PhD students are involved in attracting additional funds through research contracts, funds used to purchase equipment, materials, and cover travel expenses in relation to scientific events attendance, etc. In the field of Horticulture, the PhD supervisors have been involved in 16 research projects during evaluation period.

**The indicator is fulfilled.**

**Performance Indicator \*A.1.3.2.** The percentage of doctoral students active at the time of the evaluation, who for at least six months receive additional funding sources besides government funding, through scholarships awarded by individual persons or by legal entities, or who are financially supported through research or institutional / human resources development grants is not less than 20%.

According to self-assessment report, 7 out of 55 PhD students in the field of Horticulture, of the number of PhD students existing at the time of evaluation were involved, as members of the research teams, in six research / institutional development / human resources / grants within UASVM Iași. Number of 2 doctoral students in the field of Horticulture performed mobility within the ERASMUS program three mobility. These numbers in total (18.18%) are fairly low comparing to general Romanian standards, and there is space to improve through the national funds, international cooperation and participation in international consortiums.

**The indicator is partially fulfilled.**



**Performance Indicator \*A.1.3.3.2** At least 10% of the total amount of doctoral grants obtained by the university through institutional contracts and of tuition fees collected from the doctoral students enrolled in the paid tuition system is used to reimburse professional training expenses of doctoral students (attending conferences, summer schools, training, programs abroad, publication of specialty papers or other specific forms of dissemination etc.).

*In the Doctoral School of Engineering Sciences (DSES), the share of expenses used for the professional training of doctoral students (participation in conferences, summer schools, courses, internships abroad, publication of specialized articles or other specific forms of dissemination, etc.), compared to the budget allocation, in the period 2016-2020, was between 15.6% (2016) and 22.2% (2017) during the evaluation period. This fact was also confirmed by the PhD students and graduates.*

**The indicator is fulfilled.**

## **Criterion A.2. Research infrastructure**

*Standard A.2.1. The IOSUD has a modern research infrastructure to support the conduct of doctoral studies' specific activities.*

**Performance Indicator A.2.1.1.** *The venues and the material equipment available to the doctoral school enable the research activities in the evaluated domain to be carried out, in line with the assumed mission and objectives (computers, specific software, equipment, laboratory equipment, library, access to international databases etc.). The research infrastructure and the provision of research services are presented to the public through a specific platform. The research infrastructure described above, which was purchased and developed within the past 5 years will be presented distinctly.*

*Research infrastructure UASVM Iasi includes several research laboratories equipped with modern equipment, which allows for advanced research in the field of Horticulture: Horticultural Research Center; Oenology Laboratory Acad. Valeriu D. Cotea; Research Institute for Agriculture and Environment (ICAM). ICAM operates a phytotron, a greenhouse and a vegetation house. The research activity of doctoral students in the field of Horticulture also takes place in specialized laboratories that are equipped with state-of-the-art equipment, computer technology, software, etc. The Horticulture Faculty owns research stations with total surface of 54.58 ha. The PhD students have good material basis at their disposal, in the form of experimental fields and laboratory equipment, as well as adequately equipped library.*

**The indicator is fulfilled.**

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<sup>2</sup> The indicators marked with an asterisk (\*) hold a special status, referring exclusively to the evaluation of doctoral studies domains, as per Article 12 from the annex No.1 of the Order of the minister of education No. 3651/12.04.2021 approving the Methodology for evaluating university doctoral studies and the system of criteria, standards and performance indicators used in the evaluation. In case they are not met, the Agency extends a period of maximum 3 years to IOSUD to correct the respective deficiencies.



### **Criterion A.3. Quality of Human Resources**

*Standard A.3.1. At the level of each domain there are sufficient qualified staff to ensure the conduct of doctoral study program.*

*\*general description of the standard analysis.*

**Performance Indicator A.3.1.1.** *Minimum three doctoral thesis advisors within that doctoral domain, and at least 50% of them (but no less than three) meet the minimum standards of the National Council for Attestation of University Degrees, Diplomas and Certificates (CNATDCU) in force at the time when the evaluation is carried out, which standards are required and mandatory for obtaining the enabling certification.*

*During the evaluation period, a total of eight doctoral supervisors were active within the doctoral field of Horticulture. All of them currently meet the CNATDCU minimum. The percentage of total doctoral supervisors who meet the minimum standards is 83.3 %, based on the activity of the last 5 years.*

**The indicator is fulfilled.**

**Performance Indicator \*A.3.1.2.** *At least 50% of all doctoral advisors have a full-time employment contract for an indefinite period with the IOSUD.*

*Membership percentage of doctoral supervisors in the doctoral institution is 100%.*

**The indicator is fulfilled.**

**Performance Indicator A.3.1.3.** *The study subjects in the education program based on advanced higher education studies pertaining to the doctoral domain are taught by teaching staff or researchers who are doctoral thesis advisors / certified doctoral thesis advisors, professors / CS I or lecturer / CS II, with proved expertise in the field of the study subjects they teach, or other specialists in the field who meet the standards established by the institution in relation with the aforementioned teaching and research functions, as provided by the law.*

*The disciplines in the training program based on advanced academic studies related to the field of Horticulture are taught by academics having the status of PhD supervisor/habilitated with proven expertise in the field of the subjects they teach. All doctoral supervisors affiliated to the Horticulture field have a high expertise in teaching the disciplines included in the curricula of doctoral studies, proven by the acquired competencies, research fields addressed, conducted research grants, published books and scientific articles. All supervisors have the necessary skills according to their CVs. According to the PhD students, graduates and employers' statements, supervisors are experts and researchers in their field and they collaborate very well on different levels.*

**The indicator is fulfilled.**





**Performance Indicator \*A.3.1.4.** *The percentage of doctoral thesis advisors who concomitantly coordinate more than 8 doctoral students, but no more than 12, who are themselves studying in doctoral programs<sup>3</sup> does not exceed 20%.*

*From Annex II. 89, it can be seen that out of eight supervisors, three of them coordinate more than 8 doctoral students (37,5%). At the same time, one of them coordinates more than 12 doctoral students (15 PhD students - Prof. univ. dr. Valeriu V. Cotea). I guess this situation resulted from the restrictions imposed by the COVID-19 pandemic and should decrease in the coming years in which the Doctoral School will invest efforts. According to PhD students and graduates' statements, supervisors are available for all kinds of questions and assistance.*

**The indicator is partially fulfilled.**

*Standard A.3.2. The Doctoral advisors within the domain are carrying out a scientific activity visible at international level.*

**Performance Indicator A.3.2.1.** *At least 50% of the doctoral thesis advisors in the evaluated domain have at least 5 Web of Science- or ERIH-indexed publications in magazines of impact, or other achievements of relevant significance for that domain, including international-level contributions that indicate progress in scientific research - development - innovation for the evaluated domain. The aforementioned doctoral thesis advisors enjoy international awareness within the past five years, consisting of: membership on scientific boards of international publications and conferences; membership on boards of international professional associations; guests in conferences or expert groups working abroad, or membership on doctoral defense commissions at universities abroad or co-leading with universities abroad. For Arts and Sports and Physical Education Sciences, doctoral thesis advisors shall prove their international visibility within the past five years by their membership on the boards of professional associations, membership in organizing committees of arts events and international competitions, membership on juries or umpire teams in artistic events or international competitions.*

*Doctoral supervisors' research activity is carried out in their field of expertise and the results are published in national and international journals. All 8 PhD supervisors currently affiliated to the Horticulture field have published at least 5 (min. 7, max. 35) articles in journals indexed in Web of Science.*

**, The indicator is fulfilled.**

**Performance Indicator \*A.3.2.2.** *At least 50% of the doctoral thesis advisors in a specific doctoral study domain continue to be active in their scientific field, and acquire at least 25% of the score requested by the minimal CNATDCU standards in force at the time of the evaluation, which are required and mandatory for acquiring their enabling certificate, based on their scientific results within the past five years.*

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<sup>3</sup> 3 years for the doctoral university studies with the duration stipulated at Article 159, paragraph (3), respectively 4 years for the doctoral university studies with the duration stipulated at Article 174, paragraph (3) of the Law of national education No.1/2011 with subsequent amendments and additions, with additional extension periods approved as per Article 39, paragraph (3) of the Code of doctoral studies approved by the GD No. 681/2011 with subsequent amendments and additions.



*All 8 PhD supervisors currently affiliated to the Horticulture obtaining, based on scientific results from the last 5 years, over 25% from the score required by the minimum standards CNATDCU in force at the date of evaluation, necessary and mandatory for obtaining the certificate of qualification. The PhD supervisors in the field of Horticulture continue to be scientifically active even after receiving the right to supervise PhD theses or after the habilitation examination.*

***The indicator is fulfilled.***

## **Domain B. EDUCATIONAL EFFECTIVENESS**

### **Criterion B.1. The number, quality and diversity of candidates enrolled for the admission contest**

*Standard B.1.1. The institution organizing doctoral studies has the capacity to attract candidates from outside the higher education institution or a number of candidates exceeding the number of seats available.*

***Performance Indicator \*B.1.1.1.*** *The ratio between the number of graduates of masters' programs of other higher education institutions, national or foreign, who have enrolled for the doctoral admission contest within the past five years and the number of seats funded by the state budget, put out through contest within the doctoral domain is at least 0.2 or the ratio between the number of candidates within the past five years and the number of seats funded by the state budget put out through contest within the doctoral studies domain is at least 1,2.*

*The ratio between the number of graduates of masters' programs of other higher education institutions, who have enrolled for the doctoral admission contest within the past five years and the number of seats funded by the state budget is 0.14. Ratio between the number of candidates within the past five years and the number of seats funded by the state budget put out through contest within the doctoral studies domain is 1.04.*

*According to available infrastructure and human resources, Doctoral School has the capacity to attract a larger number of candidates than it has attracted so far. Better presentation and promotion (in Romanian and English) for graduates from other institutions in the country or abroad could increase the number of those who entered the competition for admission to doctoral studies in the field of Horticulture.*

***The indicator is partially fulfilled.***

*Standard B.1.2 Candidates admitted to doctoral studies demonstrate academic, research and professional performance.*

***Performance Indicator \*B.1.2.1.*** *Admission to doctoral study programs is based on selection criteria including: previous academic, research and professional performance, their interest for scientific or arts/sports research, publications in the domain and a proposal for a research subject. Interviewing the candidate is compulsory, as part of the admission procedure.*





*Selection criteria was found to be clear and open. Selection criteria include: candidates' prior academic performance, their interest in scientific research, publications in the field and a research proposal. An interview with the applicant as a mandatory part of the doctoral admission procedure exists. The admission commissions to the doctoral studies program, appointed at the level of the faculties include, in addition to the doctoral supervisor, also 2 specialists in the field of doctorate Horticulture.*

***The indicator is fulfilled.***

***Performance Indicator B.1.2.2.*** *The expelling rate, including renouncement / dropping out of doctoral students 3, respectively 4, years after admission<sup>4</sup> does not exceed 30%.*

*According to Self-Assessment report and Annex II.91 dropout rate of doctoral students does not exceed 30%. Doctoral School collects the drop-out numbers and analyses them.*

***The indicator is fulfilled.***

## **Criterion B.2. The content of doctoral programs**

*Standard B.2.1. The training program based on advanced university studies is appropriate to improve doctoral students' research skills and to strengthen ethical behavior in science.*

***Performance Indicator B.2.1.1.*** *The training program based on advanced academic studies includes at least 3 disciplines relevant to the scientific research training of doctoral students; at least one of these disciplines is intended to study in-depth the research methodology and/or the statistical data processing.*

*The training program for the first year of doctoral studies for the field of Horticulture includes three compulsory disciplines; two specialized disciplines, and a research project, all of which are relevant for the preparation in the research of doctoral students. The compulsory subjects are represented by: Modern research methods, Career Management and Academic Ethics and Integrity. The specialized disciplines are chosen by the doctoral student, in consultation with the doctoral supervisor and the guidance committee, from a package of three disciplines relevant to the topic of the doctoral thesis.*

***The indicator is fulfilled.***

***Performance Indicator B.2.1.2.*** *At least one discipline is dedicated to Ethics and Intellectual Property in scientific research or there are well-defined topics on these subjects within a discipline taught in the doctoral program.*

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<sup>4</sup> 3 years for the doctoral university studies with the duration stipulated at Article 159, paragraph (3), respectively 4 years for the doctoral university studies with the duration stipulated at Article 174, paragraph (3) of the Law of national education No. 1/2011 with subsequent amendments and additions.



The advanced training programme, related to the doctoral programme in the field of Horticulture, includes a subject Academic Ethics and Integrity, dedicated to ethics in scientific research and intellectual property with well-defined topics.

**The indicator is fulfilled.**

**Performance Indicator B.2.1.3.** The IOSUD has mechanisms to ensure that the academic training program based on advanced university studies addresses „the learning outcomes”, specifying the knowledge, skills, responsibility and autonomy that doctoral students should acquire after completing each discipline or through the research activities<sup>5</sup>.

Each discipline in the curriculum has foreseen competences that doctoral students should acquire after completing the discipline and the expected outcomes. The mechanism is well established and functional.

**The indicator is fulfilled.**

**Performance Indicator B.2.1.4.** All along the duration of the doctoral training, doctoral students in the domain receive counselling/guidance from functional guidance commissions, which is reflected in written guidance and feedback or regular meeting.

According to the PhD students and graduates' statements throughout the doctoral training programme, PhD students in the field of Horticulture benefit from the guidance of functional guidance commission as needed. It would be helpful to organize regular meetings as well. The doctoral students also collaborate with the members of the guidance commission in the creation and publication of scientific articles.

**The indicator is fulfilled.**

**Performance Indicator B.2.1.5.** For a doctoral study domain, the ratio between the number of doctoral students and the number of teaching staff/researchers providing doctoral guidance must not exceed 3:1.

According to the Self-Assessment Report, the ratio between the number of doctoral students in the field of Horticulture, in the period 2016-2020, and number of teaching staff does not exceed 3:1.

**The indicator is fulfilled.**

### **Criterion B.3. The results of doctoral studies and procedures for their evaluation**

**Standard B.3.1.** Doctoral students capitalize on the research through presentations at scientific conferences, scientific publications, technological transfer, patents, products and service orders.

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<sup>5</sup> Or by what the graduate should know, understand and to be able to do, according to the provisions of the Methodology of 17 March 2017 regarding inscription and registration of higher education qualifications in the National Register of Qualifications in Higher Education (RNCIS) approved by the Order No.3475/2017 with subsequent amendments and additions.



**Performance Indicator B.3.1.1.** For the evaluated domain, the evaluation commission will be provided with at least one paper or some other relevant contribution per doctoral student who has obtained a doctor's title within the past 5 years. From this list, the members of the evaluation commission shall randomly select 5 such papers / relevant contributions per doctoral study domain for review. At least 3 selected papers must contain significant original contributions in the respective domain.

According to the legislation in force, each doctoral student had to present at least two scientific papers with the topic addressed as a doctoral thesis before the thesis defense. After a five papers review (Ionela Mocanu: Observation on the Entomofauna Biodiversity in Some Crops; Maricel Vitanescu: Tolerance of Three Quinoa Cultivars (*Chenopodium quinoa* Willd.) to Salinity and Alkalinity Stress During Germination Stage; Florin Vararu: Selection of Aroma Compounds for the Differentiation of Wines Obtained by Fermenting Musts with Starter Cultures of Commercial Yeast Strains; Aurelia Elena Roșca: Influence of the Mother Bulb Size on the Growth and Development of *Allium* 'Purple Rain'; Alina-Mihaela Nistor: Evaluating some Olfactory Characteristics of Wine in the Context of Global Warming in the "Plaiurile Drâncei" Viticultural Region), it is evident that all of them have a relevant contribution per doctoral study domain Horticulture. I think it should be avoided that PhD student is not the first or corresponding author as it is in the case of Maricel Vitanescu. If a PhD student submits their own work, he/she should be the first author in the paper and that should make them the corresponding author by default.

**The indicator is fulfilled.**

**Performance Indicator \*B.3.1.2.** The ratio between the number of presentations of doctoral students who completed their doctoral studies within the evaluated period (past 5 years), including posters, exhibitions made at prestigious international events (organized in the country or abroad) and the number of doctoral students who have completed their doctoral studies within the evaluated period (past 5 years) is at least 1.

The doctoral students in the field of Horticulture who defended their doctoral thesis during evaluation period had 27 presentations at international scientific conferences. The ratio between the number of presentations and the number of doctoral students-graduates is 1.5.

**The indicator is fulfilled.**

Standard B.3.2. The Doctoral School engages a significant number of external scientific specialists in the commissions for public defense of doctoral theses in the analyzed domain.

**Performance Indicator \*B.3.2.1.** The number of doctoral theses allocated to one specialist coming from a higher education institution, other than the evaluated IOSUD should not exceed two (2) in a year for the theses coordinated by the same doctoral thesis advisor.

Concerning the number of theses coordinated by a supervisor of the Doctoral School and assigned to a reviewer from outside of University, there were no situations where a professor participated in more than 2 committees per year for the same scientific supervisor.



**The indicator is fulfilled.**

**Performance Indicator \*B.3.2.2.** *The ratio between the doctoral theses allocated to one scientific specialist coming from a higher education institution, other than the institution where the defense on the doctoral thesis is organized, and the number of doctoral theses presented in the same doctoral study domain in the doctoral school should not exceed 0.3, considering the past five years. Only those doctoral study domains in which minimum ten doctoral theses have been presented within the past five years should be analyzed.*

*According to Annex II.93 of Self-Assessment report for doctoral field Horticulture, during the evaluation period, the ratio between the number of PhD theses assigned to a certain scientific reviewer from another higher education institution than the one in which the PhD thesis is defended and the number of PhD theses defended in the same doctoral field within the doctoral school is 0.25.*

**The indicator is fulfilled.**

## **Domain C. QUALITY MANAGEMENT.**

### **Criterion C.1. Existence and periodic implementation of the internal quality assurance system**

*Standard C.1.1. There are an institutional framework and procedures in place and relevant internal quality assurance policies, applied for monitoring the internal quality assurance.*

**Performance Indicator C.1.1.1.** *The Doctoral school in the respective university study domain shall demonstrate the continuous development of the evaluation process and its internal quality assurance following a procedure developed and applied at the level of the IOSUD, the following assessed criteria being mandatory:*

*According to Self-Assessment report and their statements, the management of Faculty of Horticulture and Council for Doctoral Studies are constantly concerned with the continuous improvement of the organization and execution of activities, feedback, with priority on the main dimensions: teaching, scientific research and social insertion. On the basis of the annual internal evaluation report in the Doctoral School of Engineering Sciences, the Council for Doctoral Academic studies prepares an annual Activity Report on academic doctoral studies which includes analyses related to the scientific activity of the doctoral supervisors, to the infrastructure and logistics necessary for the development of the research activity, to the updating of the procedures and rules regarding the organization of the doctoral studies, etc.*

**The indicator is fulfilled.**

**Performance Indicator \*C.1.1.2.** *Mechanisms are implemented during the stage of the doctoral study program to enable feedback from doctoral students allowing to identify their needs, as well as their overall level of satisfaction with the doctoral study program in order to ensure continuous improvement of the academic and administrative processes. Following the analysis of the results, there is evidence that an action plan was drafted and implemented.*



*The current problems faced by doctoral students are addressed by them, in a hierarchical way, to the doctoral supervisor, members of the doctoral committee, the secretariat, the Doctoral School Council, the Council for Doctoral Studies or the Rector of the university, being solved operatively, as appropriate. Also, doctoral students are represented in the Doctoral School Council, in the Council for Doctoral Studies, as well as in the University Senate. From Annex II.47, it is visible that Council for Doctoral Studies prepared specific procedure for collecting feedback from doctoral students by using a questionnaire to assess the satisfaction and needs of doctoral students.*

*According to the statements of PhD students and graduates, at this moment they do not have the possibility to fill different types of surveys and make objections anonymously so that the Doctoral School Council can identify their needs and the level of satisfaction to ensure continuous improvement of academic and administrative processes. This should be implemented and put into practice as soon as possible, as is the case at other Romanian universities.*

**The indicator is fulfilled.**

## **Criterion C.2. Transparency of information and accessibility of learning resources**

*Standard C.2.1. Information of interest to doctoral students, future candidates and public interest information is available for electronic format consultation.*

**Performance Indicator C.2.1.1.** *The IOSUD publishes on the website of the organizing institution, in compliance with the general regulations on data protection.*

*The Doctoral School through UASVM Iași web site ensures transparency of all public interest information where data of interest are presented to doctoral students, professors and other interested persons. You can find all the necessary information about organization and functioning of Doctoral School on this website.*

**The indicator is fulfilled.**

*Standard C.2.2. The IOSUD/The Doctoral School provides doctoral students with access to the resources needed for conducting doctoral studies.*

**Performance Indicator C.2.2.1.** *All doctoral students have free access to one platform providing academic databases relevant to the doctoral studies domain of their thesis.*

*UASVM Iași permanently ensures access to documentation sources, including through the University Library, for all doctoral students. According to the statements of PhD students and graduates, all doctoral students have a free access to a platform with international academic databases related to the field of Horticulture.*

**The indicator is fulfilled.**



**Performance Indicator C.2.2.2.** *Each doctoral student shall have access, upon request, to an electronic system for verifying the degree of similarity with other existing scientific or artistic works.*

*According to the statements of PhD students and graduates, doctoral students have the possibility to check their doctoral thesis through the plagiarism detector software [www.sistemantiplagiat.ro](http://www.sistemantiplagiat.ro), but not the scientific papers that they are preparing.*

*The doctoral students are given the access to this system on the basis of a written request, with the approval of the doctoral supervisor, approved by the Doctoral School Council.*

*Students should be able to use this software to check the scientific papers they are preparing as is the case of other Romanian universities.*

**The indicator is fulfilled.**

**Performance Indicator C.2.2.3.** *All doctoral students have access to scientific research laboratories or other facilities depending on the specific domain/domains within the Doctoral School, according to internal order procedures.*

*According to the Self-Assessment report and the statements of PhD students and graduates, doctoral students have the access to research laboratories, equipment, IT resources and other resources necessary for the realization of their research program.*

**The indicator is fulfilled.**

### **Criterion C.3. Internationalization**

*\*general description of the criterion analysis.*

*Standard C.3.1. There is a strategy in place and it is applied to enhance the internationalization of doctoral studies.*

**Performance Indicator \*C.3.1.1.** *IOSUD, for every evaluated domain, has concluded mobility agreements with universities abroad, with research institutes, with companies working in the field of study, aimed at the mobility of doctoral students and academic staff (e.g., ERASMUS agreements for the doctoral studies). At least 35% of the doctoral students have completed a training course abroad or other mobility forms such as attending international scientific conferences. IOSUD drafts and applies policies and measures aiming at increasing the number of doctoral students participating at mobility periods abroad, up to at least 20%, which is the target at the level of the European Higher Education Area.*

*At university level, there are collaboration and mobility agreements with 32 institutions in the field of horticulture during the evaluation period.*

*At the same time, there were only three external mobilities of two PhD students during the period under review. According to Self-Assessment report, from the total number of PhD students during evaluation period (55) in the field of Horticulture, six of them participated in international scientific events, giving a number of 7 presentations. These numbers are also very low by standards of the other Romanian universities. It is noticeable that in the pandemic 2020 there were two mobilities, and one a six months',*





*started in this 2021, which is a significant improvement. It will be necessary to increase the number of mobilities, as well as its duration, to improve international connections and visibility in European Research Area. Clear plan and strategy should be made for this.*

**The indicator is partially fulfilled.**

**Performance Indicator C.3.1.2.** *In the evaluated doctoral study domain, support is granted, including financial support, to the organization of doctoral studies in international co-tutelage or invitation of leading experts to deliver courses/lectures for doctoral students.*

*During evaluation period, there were two guest professors who gave lectures to PhD students on topics in the field of Horticulture. According to Self-Assessment report, there were three co-tutelage during evaluation period. In my dialogue with the teaching staff and PhD students during the evaluation, I experienced resistance towards using English. I recommend using English, which is required for lifting the research level and better establishment of international collaborations.*

**The indicator is fulfilled.**

**Performance Indicator C.3.1.3.** *The internationalization of activities carried out during the doctoral studies is supported by IOSUD through concrete measures (e.g., by participating in educational fairs to attract international doctoral students; by including international experts in guidance committees or doctoral committees etc.).*

*Three foreign PhD students conducted their researches through internships at the Doctoral School of Engineering. Integration of international experts as co-supervisors of three doctoral theses in the field of Horticulture is a very important achievement. The internationalisation of the activities within the doctoral studies programme should be supported by the participation in educational fairs for attracting international PhD students. UASVM Iași should publish Presentation Guidebook which should contain information in Romanian and English about the Doctoral school. English should be used more generally. This is required to get the international perspective and to work towards excellence.*

**The indicator is partially fulfilled.**



#### IV. SWOT Analysis

<p><b><u>Strengths:</u></b></p> <ul style="list-style-type: none"><li>- tradition</li><li>- research infrastructure</li><li>- human capacities</li></ul>	<p><b><u>Weaknesses:</u></b></p> <ul style="list-style-type: none"><li>- some individual supervisors are overloaded with PhD students in comparison with others</li><li>- insufficient use of English language</li></ul>
<p><b><u>Opportunities:</u></b></p> <ul style="list-style-type: none"><li>- international cooperation and participation in international consortiums</li><li>- better cooperation with former students</li></ul>	<p><b><u>Threats:</u></b></p> <ul style="list-style-type: none"><li>- a number of similar studies inside the country and in the surrounding countries</li><li>- new trends in the labor market</li></ul>

## V. Overview of judgments awarded and of the recommendations

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
1.	PI	<p><b>A.1.1.1.</b> The existence of specific regulations and their application at the level of the Doctoral School of the respective university doctoral study domain:</p> <p>a) the internal regulations of the Doctoral School;</p> <p>b) the Methodology for conducting elections for the position of director of the Council of doctoral school (CSD), as well as elections by the students of their representative in CSD and the evidence of their conduct;</p> <p>c) the Methodologies for organizing and conducting doctoral studies (for the admission of doctoral students, for the completion of doctoral studies);</p> <p>d) the existence of mechanisms for recognizing the status of a Doctoral advisor and the equivalence of the doctoral degree obtained abroad;</p> <p>e) functional management structures (Council of the doctoral school), giving as well proof of the regularity of meetings;</p> <p>f) the contract for doctoral studies;</p> <p>g) internal procedures for the analysis and approval of proposals regarding the training for doctoral study programs based on advanced academic studies.</p>	<b><i>The indicator is fulfilled.</i></b>	
2.	PI	<p><b>A.1.1.2.</b> The doctoral school' Regulation includes mandatory criteria, procedures and standards binding on the aspects specified in Article 17, paragraph (5) of the Government Decision No. 681/2011 on the approval of the Code of Doctoral Studies with subsequent amendments and additions.</p>	<b><i>The indicator is fulfilled.</i></b>	
3.	PI	<p><b>A.1.2.1.</b> The existence and effectiveness of an appropriate IT system to keep track of doctoral students and their academic background.</p>	<b><i>The indicator is fulfilled.</i></b>	
4.	PI	<p><b>A.1.2.2.</b> The existence and use of an appropriate software program and evidence of</p>	<b><i>The indicator is fulfilled.</i></b>	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		its use to verify the percentage of similarity in all doctoral theses.		
5.	IP	<b>A.1.3.1.</b> Existence of at least one research or institutional / human resources development grant under implementation at the time of submission of the internal evaluation file, per doctoral study domain under evaluation, or existence of at least 2 research or institutional development / human resources grant for the doctoral study domain, obtained by doctoral thesis advisors operating in the evaluated domain within the past 5 years. The grants address relevant themes for the respective domain and, as a rule, are engaging doctoral students.	<b><i>The indicator is fulfilled.</i></b>	
6.	PI *	<b>A.1.3.2.</b> The percentage of doctoral students active at the time of the evaluation, who for at least six months receive additional funding sources besides government funding, through scholarships awarded by individual persons or by legal entities, or who are financially supported through research or institutional / human resources development grants is not less than 20%.	<b><i>The indicator is partially fulfilled.</i></b>	<b><i>These numbers are fairly low comparing to general Romanian standards, and there is a space to improve through the national funds, international cooperation and participation in international consortiums.</i></b>
7.	PI *	<b>A.1.3.3.</b> At least 10% of the total amount of doctoral grants obtained by the university through institutional contracts and of tuition fees collected from the doctoral students enrolled in the paid tuition system is used to reimburse professional training expenses of doctoral students (attending conferences, summer schools, training, programs abroad, publication of specialty papers or other specific forms of dissemination etc.).	<b><i>The indicator is fulfilled.</i></b>	
8.	CPI	<b>A.2.1.1.</b> The venues and the material equipment available to the doctoral school enable the research activities in the evaluated domain to be carried out, in line with the assumed mission and objectives (computers, specific software, equipment, laboratory equipment, library, access to international databases etc.). The research infrastructure and the provision of research services are presented to the public through a specific platform. The research infrastructure	<b><i>The indicator is fulfilled.</i></b>	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		described above, which was purchased and developed within the past 5 years will be presented distinctly		
9.	CPI	<b>A.3.1.1.</b> Minimum three doctoral thesis advisors within that doctoral domain, and at least 50% of them (but no less than three) meet the minimum standards of the National Council for Attestation of University Degrees, Diplomas and Certificates (CNATDCU) in force at the time when the evaluation is carried out, which standards are required and mandatory for obtaining the enabling certification.	<b>The indicator is fulfilled.</b>	
10.	PI *	<b>A.3.1.2.</b> At least 50% of all doctoral advisors have a full-time employment contract for an indefinite period with the IOSUD.	<b>The indicator is fulfilled.</b>	
11.	PI	<b>A.3.1.3.</b> The study subjects in the education program based on advanced higher education studies pertaining to the doctoral domain are taught by teaching staff or researchers who are doctoral thesis advisors / certified doctoral thesis advisors, professors / CS I or lecturer / CS II, with proved expertise in the field of the study subjects they teach, or other specialists in the field who meet the standards established by the institution in relation with the aforementioned teaching and research functions, as provided by the law.	<b>The indicator is fulfilled.</b>	
12.	PI *	<b>A.3.1.4.</b> The percentage of doctoral thesis advisors who concomitantly coordinate more than 8 doctoral students, but no more than 12, who are themselves studying in doctoral programs does not exceed 20%.	<b>The indicator is partially fulfilled.</b>	<b>Problem with some supervisors occurred due to the restrictions imposed by the COVID-19 pandemic and should decrease in the coming years in which the Doctoral School invests efforts.</b>
13.	CPI	<b>A.3.2.1.</b> At least 50% of the doctoral thesis advisors in the evaluated domain have at least 5 Web of Science- or ERIH-indexed publications in magazines of impact, or other achievements of relevant significance for that domain, including international-level contributions that indicate progress in scientific research - development - innovation for the evaluated domain. The aforementioned doctoral thesis advisors enjoy international	<b>The indicator is fulfilled.</b>	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		awareness within the past five years, consisting of: membership on scientific boards of international publications and conferences; membership on boards of international professional associations; guests in conferences or expert groups working abroad, or membership on doctoral defense commissions at universities abroad or co-leading with universities abroad. For Arts and Sports and Physical Education Sciences, doctoral thesis advisors shall prove their international visibility within the past five years by their membership on the boards of professional associations, membership in organizing committees of arts events and international competitions, membership on juries or umpire teams in artistic events or international competitions.		
14.	PI *	<b>A.3.2.2.</b> At least 50% of the doctoral thesis advisors in a specific doctoral study domain continue to be active in their scientific field, and acquire at least 25% of the score requested by the minimal CNATDCU standards in force at the time of the evaluation, which are required and mandatory for acquiring their enabling certificate, based on their scientific results within the past five years	<b><i>The indicator is fulfilled.</i></b>	
15.	PI *	<b>B.1.1.1.</b> The ratio between the number of graduates of masters' programs of other higher education institutions, national or foreign, who have enrolled for the doctoral admission contest within the past five years and the number of seats funded by the state budget, put out through contest within the doctoral domain is at least 0.2 or the ratio between the number of candidates within the past five years and the number of seats funded by the state budget put out through contest within the doctoral studies domain is at least 1,2.	<b><i>The indicator is partially fulfilled.</i></b>	<b><i>According to available infrastructure and human resources Doctoral School has the capacity to attract a larger number of candidates than he attract currently. Better presentation an promotion (on Romanian and English language) for graduates from other institutions in the country or abroad could increase number of those who entered the competition for admission to doctoral studies in the field of Horticulture.</i></b>
16.	PI *	<b>B.1.2.1.</b> Admission to doctoral study programs is based on selection criteria including: previous academic, research and professional performance, their interest for scientific or	<b><i>The indicator is fulfilled.</i></b>	



No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		arts/sports research, publications in the domain and a proposal for a research subject. Interviewing the candidate is compulsory, as part of the admission procedure.		
17.	PI	<b>B.1.2.2.</b> The expelling rate, including renouncement / dropping out of doctoral students 3, respectively 4, years after admission does not exceed 30%.	<i>The indicator is fulfilled.</i>	
18.	PI	<b>B.2.1.1.</b> The training program based on advanced academic studies includes at least 3 disciplines relevant to the scientific research training of doctoral students; at least one of these disciplines is intended to study in-depth the research methodology and/or the statistical data processing.	<i>The indicator is fulfilled.</i>	
19.	PI	<b>B.2.1.2.</b> At least one discipline is dedicated to Ethics and Intellectual Property in scientific research or there are well-defined topics on these subjects within a discipline taught in the doctoral program.	<i>The indicator is fulfilled.</i>	
20.	PI	<b>B.2.1.3.</b> The IOSUD has mechanisms to ensure that the academic training program based on advanced university studies addresses „the learning outcomes”, specifying the knowledge, skills, responsibility and autonomy that doctoral students should acquire after completing each discipline or through the research activities.	<i>The indicator is fulfilled.</i>	
21.	PI	<b>B.2.1.4.</b> All along the duration of the doctoral training, doctoral students in the domain receive counselling/guidance from functional guidance commissions, which is reflected in written guidance and feedback or regular meeting.	<i>The indicator is fulfilled.</i>	
22.	CPI	<b>B.2.1.5.</b> For a doctoral study domain, the ratio between the number of doctoral students and the number of teaching staff/researchers providing doctoral guidance must not exceed 3:1.	<i>The indicator is fulfilled.</i>	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
23.	CPI	<b>B.3.1.1.</b> For the evaluated domain, the evaluation commission will be provided with at least one paper or some other relevant contribution per doctoral student who has obtained a doctor's title within the past 5 years. From this list, the members of the evaluation commission shall randomly select 5 such papers / relevant contributions per doctoral study domain for review. At least 3 selected papers must contain significant original contributions in the respective domain	<i>The indicator is fulfilled.</i>	
24.	PI *	<b>B.3.1.2.</b> The ratio between the number of presentations of doctoral students who completed their doctoral studies within the evaluated period (past 5 years), including posters, exhibitions made at prestigious international events (organized in the country or abroad) and the number of doctoral students who have completed their doctoral studies within the evaluated period (past 5 years) is at least 1.	<i>The indicator is fulfilled.</i>	
25.	PI *	<b>B.3.2.1.</b> The number of doctoral theses allocated to one specialist coming from a higher education institution, other than the evaluated IOSUD should not exceed two (2) in a year for the theses coordinated by the same doctoral thesis advisor.	<i>The indicator is fulfilled.</i>	
26.	PI *	<b>B.3.2.2.</b> The ratio between the doctoral theses allocated to one scientific specialist coming from a higher education institution, other than the institution where the defense on the doctoral thesis is organized, and the number of doctoral theses presented in the same doctoral study domain in the doctoral school should not exceed 0.3, considering the past five years. Only those doctoral study domains in which minimum ten doctoral theses have been presented within the past five years should be analyzed.	<i>The indicator is fulfilled.</i>	
27.	PI	<b>C.1.1.1.</b> The Doctoral school in the respective university study domain shall demonstrate the continuous development of the evaluation process and its internal quality assurance following a procedure developed and applied at	<i>The indicator is fulfilled.</i>	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		<p>the level of the IOSUD, the following assessed criteria being mandatory:</p> <ul style="list-style-type: none"> <li>a) the scientific work of Doctoral advisors;</li> <li>b) the infrastructure and logistics necessary to carry out the research activity;</li> <li>c) the procedures and subsequent rules based on which doctoral studies are organized;</li> <li>d) the scientific activity of doctoral students;</li> <li>e) the training program based on advanced academic studies of doctoral students;</li> <li>f) social and academic services (including for participation at different events, publishing papers etc.) and counselling made available to doctoral students.</li> </ul>		
28.	PI *	<p><b>C.1.1.2.</b> Mechanisms are implemented during the stage of the doctoral study program to enable feedback from doctoral students allowing to identify their needs, as well as their overall level of satisfaction with the doctoral study program in order to ensure continuous improvement of the academic and administrative processes. Following the analysis of the results, there is evidence that an action plan was drafted and implemented.</p>	<p><b><i>The indicator is fulfilled.</i></b></p>	
29.	CPI	<p><b>C.2.1.1.</b> The IOSUD publishes on the website of the organizing institution, in compliance with the general regulations on data protection, information such as:</p> <ul style="list-style-type: none"> <li>a) the Doctoral School regulation;</li> <li>b) the admission regulation;</li> <li>c) the doctoral studies contract;</li> <li>d) the study completion regulation including the procedure for the public presentation of the thesis;</li> <li>e) the content of training program based on advanced academic studies;</li> <li>f) the academic and scientific profile, thematic areas/research themes of the Doctoral advisors within the domain, as well as their institutional contact data;</li> <li>g) the list of doctoral students within the domain with necessary information (year of registration; advisor);</li> <li>h) information on the standards for developing the doctoral thesis;</li> <li>i) links to the doctoral theses' summaries to be publicly presented and the date, time, place</li> </ul>	<p><b><i>The indicator is fulfilled.</i></b></p>	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		where they will be presented; this information will be communicated at least twenty days before the presentation.		
30.	PI	<b>C.2.2.1.</b> All doctoral students have free access to one platform providing academic databases relevant to the doctoral studies domain of their thesis.	<b><i>The indicator is fulfilled.</i></b>	
31.	PI	<b>C.2.2.2.</b> Each doctoral student shall have access, upon request, to an electronic system for verifying the degree of similarity with other existing scientific or artistic works.	<b><i>The indicator is fulfilled.</i></b>	
32.	PI	<b>C.2.2.3.</b> All doctoral students have access to scientific research laboratories or other facilities depending on the specific domain/domains within the Doctoral School, according to internal order procedures.	<b><i>The indicator is fulfilled.</i></b>	
33.	PI *	<b>C.3.1.1.</b> IOSUD, for every evaluated domain, has concluded mobility agreements with universities abroad, with research institutes, with companies working in the field of study, aimed at the mobility of doctoral students and academic staff (e.g., ERASMUS agreements for the doctoral studies). At least 35% of the doctoral students have completed a training course abroad or other mobility forms such as attending international scientific conferences. IOSUD drafts and applies policies and measures aiming at increasing the number of doctoral students participating at mobility periods abroad, up to at least 20%, which is the target at the level of the European Higher Education Area.	<b><i>The indicator is partially fulfilled.</i></b>	<b><i>It will be necessary to increase the number of mobilities, as well as its duration, to improve international connections and visibility in European Research Area. Clear plan and strategy should be made for this.</i></b>
34.	PI	<b>C.3.1.2.</b> In the evaluated doctoral study domain, support is granted, including financial support, to the organization of doctoral studies in international co-tutelage or invitation of leading experts to deliver courses/lectures for doctoral students.	<b><i>The indicator is fulfilled.</i></b>	
35.	PI	<b>C.3.1.3.</b> The internationalization of activities carried out during the doctoral studies is supported by IOSUD through concrete	<b><i>The indicator is</i></b>	<b><i>The internationalisation of the activities within the doctoral studies programme should be supported by the</i></b>

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		measures (e.g., by participating in educational fairs to attract international doctoral students; by including international experts in guidance committees or doctoral committees etc.).	<b>partially fulfilled.</b>	<b>Participation in educational fairs for attracting international PhD students. UASVM Iași should publish Presentation Guidebook which should contains information in Romanian and English about the Doctoral school. English should be used more generally. This is required to get the international perspective and to work towards excellence.</b>

## VI. Conclusions and general recommendations

- *Laboratories and experimental fields are well equipped, which enables supervisors and PhD students quality science research.*
- *There is a noticeable high level of satisfaction and harmony between students and supervisors.*
- *The supervisors are very flexible and they adapt to each PhD candidate as much as time allows them and the PhD students are satisfied with their availability.*
- *Students should have the possibility to fill different types of surveys and make an objection on anonymously way.*
- *Supervisors are dedicated and open-minded, but they have to widen their horizon to ensure research level is of European standard.*
- *There is a need to use English more generally. This is required to get the international perspective and to work towards excellence.*
- *More support should be given for international stays. The internationalisation of the activities within the doctoral studies programme should be supported by the participation in educational fairs for attracting international PhD students.*
- *Clear plan and strategy should be made to improve international connections and visibility in European Research Area.*
- *If a PhD student is submitting their own work then he/she should be the first author in the paper and that should make them the corresponding author by default.*

Sieboldingen, Germany, 03/10/2021