

**Annex no. 3**

**The External Evaluation Report of a  
Doctoral Study Domain AGRONOMY  
USAMV Cluj-Napoca**

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## I. Introduction

### 1. The objective of the external evaluation: *periodic evaluation*

Visit period: 01 – 05 November 2021

Doctoral field: Agronomy

Composition of the ARACIS commission that performs the evaluation:

Coordinator: Prof.dr. Mircea MIHALACHE

International expert: Prof. dr. Petr KONVALINA

PhD student: Dănuț Nicolae ENEA

### 2. Details about the doctoral school to which the evaluated field of doctoral studies belongs

The University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca (USAMVCN) organizes doctoral university studies within the Organizing Institution of University Doctoral Studies - University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca (IOSUD USAMVCN). The rector of the University of Agricultural Sciences and Veterinary Medicine in Cluj-Napoca is the legal representative of IOSUD USAMVCN. IOSUD USAMVCN is led by the Council for University Doctoral Studies, hereinafter referred to as CSUD - USAMVCN. In USAMVCN the doctoral university studies are carried out on the basis of the law of the National Education Law no. 1/2011, of Law no. 49/2013, of the Code of Doctoral University Studies GD 681/2011, consolidated form by including and completing the GD no. 134/2016, valid from 10.03.2016, of the USAMV Charter, of the Regulation RU 24 for the organization and development of doctoral university studies, as well as of the subsequent modifications of these regulations.

The doctoral schools were reorganized within IOSUD USAMV Cluj Napoca in 2014, following the establishment of the legal framework and the functioning Regulation approved by the University Senate in the meeting of 13.02.2014 (Annex 1 Senate Decision 13.02.2014 Organization of Doctoral Schools). Until that date in the university there were five fields of doctoral studies Agriculture, Horticulture, Animal Husbandry, Biotechnology and Veterinary Medicine. The current Doctoral Schools have the same rank as that of the departments and can organize their own research centers and / or laboratories that can function as income and expenditure units within the university, according to the provisions of art. 131, art. 133 para. (4) and art. 134 of Law no. 1/2011.

The Doctoral School of Agricultural Engineering Sciences (SDSAI) organizes doctoral studies in 5 fields: Agronomy, Horticulture, Biotechnology, Animal Husbandry and Engineering and Management in Agriculture and Rural Development. The Biotechnologies domain was established in 2004 (Annex 2 Order establishing the Biotechnologies Domain), and the IMADR domain, in 2018 (Annex 3 Order 4209-2018\_IMADR). Recently, three new members joined the doctoral school who obtained the habilitation certificate in the field of Food Engineering, and which starts the steps for the establishment of this new field within SDSAI.

In each field of SDSAI there are several specializations (areas of expertise) (<https://www.usamvcluj.ro/invatamant/doctorat/883-2/>), according to the concerns of doctoral

supervisors: Agronomy - Plant protection, Pedology, Genetics and plant breeding, Agrotechnics, Phytotechnics, Agrochemistry, Feed production and storage, Biophysics, Land improvements, Plant raw materials, Management and marketing in agriculture, Exploitation of land improvement systems and crop irrigation, Microbiology.

The mission of the Doctoral School of Agricultural Engineering Sciences (SDSAI) is to develop educational activities at doctoral level, as well as research activities in specific fields. The SDSAI strategy is aimed at implementing the EUA recommendations of the Salzburg Conference (2005, 2010), in which the basic principles of doctoral schools were formulated. These principles have already been implemented in doctoral studies, by orienting research towards current topics at international level, increasing research capacity and capacity for knowledge generation, optimizing institutional structures dedicated to doctoral studies, stimulating mobility and attracting funding through research grants, of human resources or by collaborating with the economic environment.

Within SDSAI, a number of 53 PhD supervisors (28 women, 25 men) work, of which 39 are full-time USAMVCN employees (full-time employees), 10 are retired PhD supervisors (associate professors) and 4 are active PhD supervisors from other universities. After the introduction of the new legal provisions on habilitation, a number of 31 doctoral supervisors were co-opted within SDSAI, based on obtaining the habilitation certificates.

The internal evaluation procedures of the quality of the doctoral study programs follow mainly the following aspects: the mission and objectives of the doctoral study program; the content and curriculum of the doctoral study program; the results of research conducted by doctoral students and doctoral supervisors (articles, patents, books / chapters, etc.); the means of documentation (books, magazines, audio-video material, etc.), the research and learning infrastructure (hardware and software) available to doctoral students; ensuring doctoral study programs with quality human resources (doctoral supervisors, teaching and research staff); the ways of evaluating the stage of development of the doctoral study programs and monitoring the progress of the doctoral students indeed; observance of the provisions of the code of university professional ethics and deontology by all persons involved in the doctoral university study programs within USAMV CN.

## II. Method used

In order to elaborate the external evaluation report of the AGRONOMY field within the IOSUD USAMV Cluj Napoca, the commission of expert evaluators used methods and tools according to the Guide for the process of periodic external evaluation of doctoral studies.

- Analysis of the Internal Evaluation Report of the evaluated doctoral university field and its annexes. The internal evaluation report is structured as follows:
  - ✓ Part 1: Institutional capacity of the University of Agricultural Sciences and Veterinary Medicine
  - ✓ Part 2: Criteria, standards and performance indicators for the accreditation and periodic evaluation of the domain of doctoral studies.
- Other sources of information such as the website of USAMV Cluj Napoca
- Onsite visit of USAMV Cluj Napoca (according to the calendar of the periodic evaluation visit - November 04, 2021) – only evaluators from Romania (international experts got information online):
  - ✓ Classrooms; reading rooms for students (Library);
  - ✓ Laboratories - Applied research laboratory of genetics and plant breeding, laboratory for integrated monitoring of biological systems; Laboratory of applied research in genetics and plant breeding, laboratory of plant protection, laboratory of plant culture and biodiversity conservation.
  - ✓ Research centers - Research Center in Applied Biology; Research Center for Environmental Engineering and Climate Change; Center for Minimum Systems and Regenerative Agriculture; Research Center for Sustainable Agricultural Technologies; Research Center for Technology and Agriculture in Product Processing.
- Meetings / discussions took place in accordance with the visit schedule attached and agreed by the team of evaluators and the management of USAMV Cluj Napoca. Considering the hybrid way in which the periodic evaluation of the doctoral field is performed, the discussions took place online, being registered and located on the ARACIS cloud. The meetings took place in accordance with the program annexed to this report. This is it meeting / discussions with:
  - ✓ doctoral students in the field of evaluated doctoral university studies;
  - ✓ graduates in the field of doctoral studies evaluated;
  - ✓ employers of graduates in the field of doctoral studies evaluated;
  - ✓ management of the Doctoral School;
  - ✓ doctoral supervisors in the field of evaluated doctoral university studies;
  - ✓ representatives of the various structures of IOSUD / Doctoral School (Doctoral School Council, the Quality Evaluation and Assurance Commission, the Quality Assurance Department, the Ethics Commission (including with the students representing these structures)).

Following the analysis of the Internal Evaluation Report and the annexes to the report, it was not necessary to request additional documents.

### 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.*

In USAMV Cluj Napoca (USAMV CN) the doctoral university studies are carried out on the basis of the law of the National Education Law no. 1/2011, of Law no. 49/2013, of the Code of Doctoral Studies GD 681/2011, consolidated form by including and completing the GD no. 134/2016, valid from 10.03.2016, of the USAMV Charter and its own regulations.

By applying the legislation in force, IOSUD USAMV CN has developed the reference framework for the practices of organizing doctoral studies, as well as the implementation of operating procedures based on common principles for quality assurance in organizing and conducting doctoral programs. IOSUD, based on the regulations, provides institutional, administrative and logistical support to subordinate doctoral schools.

***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:***

***a) the internal regulations of the Doctoral School;***

The institutional regulation for the organization and development of doctoral university studies, in force at the time of the internal evaluation, was adopted by the USAMV CN Senate Decision of March 17, 2017. The Regulation for the organization and development of doctoral university studies CSUD (RU 24) can be viewed on the university's website.

The Regulation of the Doctoral School of Agricultural Engineering Sciences (RU 65) was adopted by the Decision of the USAMV CN Senate of 15.02.2019, revised and approved in its current version by the Decision of the USAMV CN Senate of 19.02.2021. The regulation can be viewed on the website of the university and the doctoral school (RU 65).

***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;***

The elections for the CSUD structures and the Doctoral Schools Councils are made according to the legislation in force and of the Methodology regarding the process of constitution and election of the management structures and functions at the level of USAMV Cluj-Napoca (RU 5). The methodology can be viewed on the website:

[https://www.usamvcluj.ro/images/2019/Regulament\\_alegeri\\_mandatul\\_2020-2024.pdf](https://www.usamvcluj.ro/images/2019/Regulament_alegeri_mandatul_2020-2024.pdf)

All information related to the conduct of the elections, both for PhD leading teachers and for doctoral students or external members are posted on the website at <https://www.usamvcluj.ro/universitatea/documente-publice/alegeri-universitare/> including the

calendar elections, candidacies, lists of eligible voters, election results.

CSD members are elected by universal, direct and secret ballot of the doctoral supervisors from the doctoral school, respectively of the doctoral students from USAMV CN. The applications are registered at the USAMV CN Registry, are submitted to the Rector's Office and are validated by the University Senate. Voter lists and ballots are drawn up by the university's Electoral Bureau.

CSUD USAMV CN consists of 11 members, one of whom is the Director of CSUD, 6 PhD supervisors and 3 PhD students to whom is added an external member (scientific personality or representative of the socio-economic environment).

CSDSAI members are elected according to the same methodologies (RU 5) and are validated by the university Senate. The archive containing the candidacies and election results in the CSDSAI, CSDMV and CSUD structures can be viewed on the website. The Council of the Doctoral School of Agricultural Sciences (CSDSAI is composed of 5 members, of which 3 doctoral supervisors, 1 external member and 1 doctoral student and is chaired by the Director of the Doctoral School, appointed by the CSUD director (candidates, teachers, students) <https://www.usamvcluj.ro/universitatea/documente-publice/alegeri-universitare/>

***c) the Methodologies for organizing and conducting doctoral studies (for the admission of doctoral students, for the completion of doctoral studies);***

The admission to the doctorate in USAMV CN is made according to the provisions of the Regulation regarding the organization and development of the admission contest in USAMV CN (RU 45), updated every academic year. The regulation stipulates the conditions for registration, the method of verification and grading of the competition tests, the method of communication of the results and the registration of the admitted students. The admission criteria are: a)  $\frac{1}{2}$  the average of the graduation of the bachelor's studies or the bachelor's and master's degree; b)  $\frac{1}{2}$  the grade obtained at an interview regarding research experience, motivation to engage in doctoral studies, elaboration of a research project and testing of knowledge in the field of doctorate (Art. 18, paragraph 2). All information necessary to participate in the admission contest is public on the doctoral school website. [https://www.usamvcluj.ro/invatamant/doctorat\\_admitere/](https://www.usamvcluj.ro/invatamant/doctorat_admitere/)

***d) the existence of mechanisms for recognizing the status of a Doctoral advisor and the equivalence of the doctoral degree obtained abroad;***

In IOSUD USAMV CN are approved and made public on the DAC website the procedures by which the quality of doctoral supervisor or the qualification obtained abroad (PO-88) and the recognition of the doctoral degree obtained in other states (PO-88) are recognized. 123). These can be accessed directly from the page of the university, the doctoral school, in the section Regulations, Procedures, forms (<https://www.usamvcluj.ro/invatamant/doctorat/activitati-csud/>) or of the DAC.

***e) functional management structures (Council of the doctoral school), giving as well proof of the regularity of meetings;***

The CSD meets whenever necessary, at the request of the Director of the CSD, CSUD, or

its members. The manner of fulfilling the attributions of the Doctoral School Council is defined in the Regulation for the organization and development of doctoral university studies (RU 24) and in the Regulation of the Doctoral School (RU 65). CSDSAI decisions can also be consulted on the website. The CSUD shall meet whenever necessary at the request of the CSUD Director or at least one third of its members. CSUD's decision-making activity is public and can be accessed on the doctoral school's website.

***f) the contract for doctoral studies;***

The doctoral studies contract (Annex A.1.1.1. The Doctoral Studies Contract) contains the rights and obligations of doctoral students, doctoral supervisors, as well as IOSUD-USAMV CN. The contract is concluded with each doctoral student separately, after the validation of the admission contest, for the entire training period of the doctoral student and includes the clauses specified in the Code of doctoral studies. The model of the framework contract for doctoral university studies is elaborated by CSUD and endorsed by the legal office.  
<https://www.usamvcluj.ro/invatamant/doctorat/regulamente-proceduri-formulare/>

***g) internal procedures for the analysis and approval of proposals regarding the training for doctoral study programs based on advanced academic studies.***

At the level of SDSAI there is a Commission for the evaluation and quality assurance at the level of doctoral schools (CEACSD), composed of two doctoral supervisors and a doctoral student (<http://dac.usamvcluj.ro/responsabili.php>). Based on the analysis of the satisfaction questionnaire applied to doctoral students and the analysis of the annual activity reports, CEACSD formulates proposals to improve the quality of education, including the Training program based on Advanced University Studies. At the IOSUD level there is a procedure regarding the evaluation and internal monitoring of the PO-125 doctoral schools.

*The existence of the documents submitted for Indicator A.1.1.1 is confirmed*

*Recommendations: It is recommended to publish documents related to doctoral studies in English on the university's website.*

***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 (RU 65) were drawn up according to the legal provisions, by consulting all active affiliated doctoral supervisors and were voted by their absolute majority, by universal, direct, secret and equal vote. The last update was approved in the Senate meeting of 19.02.2021. The Regulations of the Doctoral School include criteria, procedures and mandatory standards for the aspects specified in art. 17, par. 5 of GD 681/2011, with subsequent amendments and completions.

The SDSAI Regulation stipulates in Article 4 - paragraphs 1-11 the manner of acceptance



of doctoral supervisors, the criteria for the acceptance / co-optation of doctoral supervisors and the continuation of the activity by supervisors who have reached retirement age; paragraph 12 - the conditions and the way in which a doctoral supervisor can be withdrawn as a member of the doctoral school.

In Article 2, paragraph 19 provides that decisions on the appropriateness, structure and content of the training program based on advanced university studies are the responsibility of the CSDSAI and the director of the doctoral school.

The regulations of the doctoral school are provided in Art. 4, paragraph 20 "At the motivated request of the doctoral student, the Board of the Doctoral School SAI may decide to change the doctoral supervisor if it is found non-fulfillment of legal or contractual obligations assumed by him or for other reasons. the guidance relationship between the doctoral supervisor and the doctoral student "but also the mediation of conflicts Art. 3 paragraphs, 7" Conflicts between the doctoral student and the doctoral school are mediated by CSUD "and 8" Conflicts between the doctoral student and the The doctorate is mediated by the Doctoral School Council, and in case the conflict is not resolved at this level, it is mediated by the CSUD. "

Art. 6, paragraph 5 "Doctoral university studies may be interrupted for good reasons, for a maximum period of 2 years. The duration of these studies is extended by the cumulative periods of approved interruptions "and 6" The doctorate may be interrupted in the following situations: for medical reasons, requesting parental leave or carrying out an activity abroad for a period longer than 6 months ".

The ways to prevent fraud in scientific research and plagiarism are provided as well as the sanctions applied in case of identification by the driver, the steering committee, the doctoral committee or other persons / institutions of the violation of professional ethics, including plagiarism - Article 5,6,7,17, 19, 28, 36, 38, 41, Article 12, paragraph 2, 3, 7 (k).

Article 12 - Rights and obligations of the doctoral student and of the doctoral supervisor relevant topics for doctoral studies.

Article 7, paragraphs "(4) The doctoral student must allocate a significant time to the doctoral program, which requires its effective presence within IOSUD-USAMV Cluj-Napoca or within research and development units that have concluded agreements. or institutional partnerships with IOSUD, outside the periods related to mobility:

<https://www.usamvcluj.ro/wp-content/uploads/2021/03/RU-65-Regulament-de-organizare-s%CC%A6i-funct%CC%A6ionamento-al-S%CC%A6colii-Doctorale-de-S% CC% A6tiint% CC% A6e-Agricole-Ingineres% CC% A6ti.pdf>

*It is found that the Doctoral School Regulations include the documents submitted, and they are in accordance with the requirements for Indicator A.1.1.2.*

*Recommendations: -*

***The indicator is fulfilled.***



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

Within the Doctoral School of Engineering Sciences, the research activity is carried out in research laboratories equipped with high-performance equipment.

The University of Agricultural Sciences and Veterinary Medicine in Cluj Napoca ensures the development of the material base necessary for scientific research and supports the realization of research-development-innovation projects as well as a favorable climate for scientific research and development.

*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.*

With the help of the integrated academic management system (Annex A.1.2.1. Computer system) the university has the possibility to monitor the activity of students from all forms of education, as well as the financial situation for students in paid places. The student who follows all three cycles of study in our university will benefit from accounts in which he can visualize his situation at bachelor's, master's and doctorate. Also, students who become doctoral students also benefit from accounts in which they report their research activity annually <https://intranet.usamvcluj.ro>.

*It confirms the existence and efficient application of adequate information systems for the record of doctoral students and their academic path according to the requirements of indicator A. 1.2.1.*

*Recommendations: -*

***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 doctoral theses are verified to determine the percentage of similarity, according to the legislation in force and the Regulation for the completion of doctoral studies (RU 24A). From 2019, the program used for the verification of doctoral theses is "Sistemantiplagiat" (<https://sistemantiplagiat.ro/>), a program recognized by CNATDCU according to OMEN 5229/2020. Prior to this date (2014-2019), the program used was Plagiarism Detector. A license is at the doctoral school where the verification of the documents requested by the doctoral students or the doctoral guides is ensured. Accounts are activated on this platform for the directors of the doctoral schools, the director of CSUD and the Secretariat of the doctoral school. Annex A1.2.2a, Annex A1.2.2.b.

*Within IOSUD / SDSAI there are computer programs and there is evidence of their use to verify the percentage of similarity in all doctoral theses according to the requirements of indicator A.1.2.2.*

*Recommendations: -*

***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.*

The funds from the basic financing are used to ensure the teaching process, for material expenses related to the research activity carried out by the doctoral students and for the professional training expenses of the doctoral students. They are supplemented by various types of research, institutional development or human resources projects.

*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.*

Doctoral supervisors in the field of Agronomy have a very fruitful contractual research activity, both with national and international bodies, as well as with private companies. Ongoing projects are presented in Table 14 of the REI, of the 23 PhD supervisors, 6 coordinate various types of grants. Some of the grants involve the participation of PhD students. During the reporting period, the doctoral supervisors coordinated 31 research projects, out of which 3 international, 12 human resources / institutional development projects, in many of these projects being involved doctoral students.

*It is found that the requirements for indicator A.1.3.1 are met.*

*Recommendations: -*

***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%.*

PhD supervisors in the field of Agronomy permanently attract funds from national and international research grant competitions, 7 PhD students are funded for at least 6 months from research projects (two PhD students are funded by international projects in Sweden and Germany) (Annex A.1.3. 2.), 3 doctoral students are financed by scholarships granted by legal entities (Annex A.1.3.2.b).

Starting with 2015, USAMV CN grants scholarships from its own funds to doctoral students enrolled on a reduced budget and non-scholarship budget basis, based on the signing of an addendum to the doctoral study contract by which doctoral students undertake to be present at university 8 hours. The amount of these scholarships was 600 lei / month (2015),

1000 lei / month (2017). Starting with 1.10.2018, the amount of the scholarship is identical to the governmental scholarship (Board Decision). At the time of submitting this report, a number of 8 PhD students in the field of Agronomy benefit from this scholarship (Annex A.1.3.2.a).

At the time of submitting the report, a number of 18 PhD students (12.41%) of those enrolled in the field of Agronomy are funded for at least 6 months, either from research projects / human resources or through scholarships from USAMVCN own funds.

*The reported data are confirmed according to the annexes (Annex A.1.3.2.a; Annex A.1.3.2.b).*

*Recommendations: It is recommended to continue collaborations with the professional socio-environment to attract funding in the form of private scholarships for doctoral students.*

***The indicator is fulfilled.***

***Performance Indicator \*A.1.3.3 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.).***

PhD students from the Doctoral School of Agricultural Engineering Sciences are encouraged and financially supported to participate in national and international scientific events. Each doctoral student has allocated annually an amount of 2000 lei for participation in conferences, courses, research internships, publication (Annex A.1.3.3.a Decision of the Board of Funds for Conference Participation). According to the decision of the Board of Directors, teachers and PhD students are financially supported for the publication of articles in journals from the Q1 (75%) and Q2 (50%) quartiles. (Annex A.1.3.3.b).

According to the CA Decision, 50% of the amounts collected from doctoral students enrolled in the fee are available to the supervisor and can be used to cover the doctoral student's expenses (professional training, materials), and 20% are available to the doctoral school. The payment of participation / publication fees or the purchase of materials are made on the basis of a report of necessity / travel order approved by the head, director of the doctoral school, director of CSUD and administration. We consider that the amounts spent for professional training exceed, on average, 10% of doctoral grants.

*According to the financial data, the requirements of the Indicator \* A.1.3.3 are met.*

*Recommendations: -*

***The indicator is fulfilled.***

## A.2. Research infrastructure

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

The scientific research activities of teachers, researchers and doctoral students are carried out within the institutes, centers and laboratories of USAMV CN. The research infrastructure can be viewed on the page <https://www.cercetare.usamvcluj.ro/wordpress/unitati-de-cercetare/> and in Annex 8 List of Institutes of Research Laboratories Centers. In terms of agronomy, most of the research laboratories operate within the Institute for Life Sciences "King Mihai I of Romania" (<http://cercetare.usamvcluj.ro/ISV/>), with a usable area of 4,192 sqm and which has a number of 59 research laboratories. The Institute operates the only knowledge-based Agronomy platform in Romania, and the laboratories within the Institute are equipped with state-of-the-art equipment. To this investment, of over 15 million lei, the contribution from USAMV Cluj-Napoca was 4.5 million lei, the rest of the resources being provided by the Ministry of National Education.

*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.*

The Doctoral School of Engineering Sciences, through IOSUD-USAMV, has the appropriate material base for carrying out doctoral studies, top endowments, special equipment, software, in accordance with the mission and objectives assumed.

The scientific research activities of teachers, researchers and doctoral students are carried out within the institutes, centers and laboratories of USAMV CN. The research infrastructure can be viewed on the page <https://www.cercetare.usamvcluj.ro/wordpress/unitati-de-cercetare/> and in Annex 8. In terms of agronomy, most research laboratories operate within the Institute for Life Sciences "King Mihai I of Romania" (<http://cercetare.usamvcluj.ro/ISV/>), with a usable area of 4,192 sqm and which has a number of 59 research laboratories.

In IOSUD USAMV is under construction the technology transfer center CTT - BIOTECH of USAMV Cluj-Napoca which has the mission to ensure the capitalization in the economic environment of the results of the research activity carried out in the University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, as well as the expertise the academic community of the University, by facilitating the development, dissemination, protection of industrial property rights, transfer and sale of technologies, inventions and creations of researchers, teachers, doctoral students and students from USAMV Cluj-Napoca (<https://www.cercetare.usamvcluj.ro/wordpress/ctt-biotech/>).

The USAMV library has a documentary collection consisting of books, courses, magazines, newspapers, DVDs of over 170,000 volumes, managed with the integrated automation system for libraries "Liberty 3". The online catalog (1980-present) can be consulted on the library's website <https://www.cercetare.usamvcluj.ro/wordpress/biblioteca/>.

USAMV Cluj Napoca is a partner of the ANELIS + project (<https://www.e-nformation.ro/>)

through which all computers connected to the USAMV Cluj-Napoca server can access a series of platforms and collections of journals and scientific research literature, in full text format (Annex A.2.1.1. Access to databases)

*The research infrastructure presented complies with the standards necessary for the activity of doctoral students. PhD students have access to IOSUD libraries and international databases.*

*Recommendations: -*

***The indicator is fulfilled.***

### 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.*

Within the doctoral field Agronomy, 23 doctoral supervisors, 19 active and 4 retired doctoral supervisors, with the status of associate teacher, carry out their activity.

***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.***

Of the 23 PhD supervisors in the field of Agronomy existing at the reporting date, 18 meet the qualification standards for commission 14, Plant and Animal Resources Engineering (OM 6129/2016), both for the total score and for each criterion representing 78.26%. of the 5 doctoral supervisors who do not meet the qualification standards: 2 supervisors do not meet the criterion A.2.2.1. Extensive articles in Thomson Reuters-listed magazines; 1 leader does not meet the criterion A.1.1.1 Books with ISBN / chapters as author; and 2 leaders do not meet both of these criteria. (Annex 3.1.1.a) and Table 15 of the REI - Doctoral supervisors and the degree of fulfillment of the standards.

*Recommendations: -*

***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.***

Within the doctoral field Agronomy, 23 doctoral supervisors, 19 active and 4 retired doctoral supervisors, with the status of associate teacher, carry out their activity. Out of the 19 active supervisors, 16 active doctoral supervisors are holders in USAMV CN (84.21%) (Annex A.3.1.2) and 3 are holders in other universities (2 supervisors from Lucian Blaga University in Sibiu and a at UT Cluj-CUN Baia Mare), and the retired leaders have an employment contract for an associated teacher, which is renewed annually. The leaders are found in the job descriptions of the doctoral schools, visible on the Intranet platform.

*The requirements of indicator A.3.1.2 are met, respectively 100% of the doctoral supervisors are holders with employment contract for an indefinite period within IOSUD.*

*Recommendations: -*

***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 university studies related to the field (Table 8) are supported by teachers who have the quality of doctoral supervisor / qualified within USAMV CN, with proven expertise in the field of taught subjects, according to CVs that can be viewed on the website of the doctoral school: Prof. Dr. Diana Dumitraș, habilitat, doctoral supervisor in IMADR; Prof. Dr. Ion Oltean - PhD supervisor in Agronomy; Prof. Dr. Dan Vodnar - qualified, PhD supervisor in Biotechnology; Prof. Dr. Ioan Marcus - PhD supervisor in the field of Veterinary Medicine; Prof. Dr. Andrei D. Mihalca - qualified, doctoral supervisor in the field of Veterinary Medicine. The discipline of Ethics and academic integrity is supported by Lecturer Vasile Cuzerzan, PhD in Sociology. Optional subjects are also supported by USAMV CN PhD supervisors or prestigious external collaborators.

*The analysis of the documents confirms the fulfillment of the requirements of the indicator A.3.1.3.*

*Recommendations: -*

***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 does not exceed 20%.***

The distribution of doctoral students on doctoral supervisors, depending on the stage they are in, is presented in Annex A.3.1.4. At the time of reporting, there are four doctoral supervisors (18.18% of the total number of doctoral supervisors) who coordinate more than 8 doctoral students at the same time (Oltean Ion with 9 doctoral students; Luca Emil with 10 doctoral students; Dîrja Marcel and Vidican Roxana with 12 doctoral students ). There are 5 doctoral supervisors in the field (22.73% of the total number of doctoral supervisors) who coordinate more than 12 doctoral students (Duda Marcel, Muste Sevastița and Odagiu Antonia with 13 doctoral students; Păcurar Ioan with 15 doctoral students; Rusu Teodor with 19 doctoral students). Exceeding the number of 12 PhD students is due to the retirement of some PhD supervisors who have not applied for affiliation, and the PhD students have been taken over by other supervisors, who are in a period of extension or grace.



*Emphasis will be placed on completing research and public defense of doctoral theses on time and also on attracting new PhD supervisors in the field to respond to requests from candidates to pursue doctoral studies.*

*Recommendations: -*

***The indicator is fulfilled.***

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

Doctoral supervisors in the field of Agronomy have a rich and internationally visible scientific activity, as shown in Table 13, in the Individual Standards Compliance Sheets (Annex A.3.1.1) and in Annex A.3.2.1 - Visibility of Agronomy supervisors.

***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.***

Of the 23 PhD supervisors, 22 PhD supervisors (95.65%) in the field have at least 5 papers in indexed journals Web of Science, and / or have been members of editorial committees, participated as guests at scientific events and were members of doctoral committees. They have also developed patents for inventions and obtained national and international awards (Annex A.3.1.1 and Annex A.3.2.1).

The reported data are compliant, meeting the requirements of indicator A.3.2.1. 95.65% of PhD supervisors have reported at least 5 WoS indexed articles with FI, and have international visibility, are members of the scientific committees of international publications and conferences.

*The reported data are compliant, meeting the requirements of indicator A.3.2.1.*

*Recommendations: -*

***The indicator is fulfilled.***





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*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.*

Of the 23 PhD supervisors in the field of Agronomy 22 (95.65%) continue to be scientifically active and accumulate over 100% CNATDCU score for habilitation in the last 5 years, according to the table and Annex A.3.2.2.a.

*The detailed presentation of the activity was verified from the Standards Compliance Sheets made for the last 5 years (Annex A.1.3.1.).*

*Recommendations:-*

***The indicator is fulfilled.***

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## 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.*

IOSUD legally represented by the University of Agricultural Sciences and Veterinary Medicine organizes a competition for selection and admission of doctoral students, respecting the legislation in force that provides the right to education of every citizen, equal opportunities are given to all young people, regardless of their background, race, sex or religious choices, etc.

*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.*

At the level of the SAI doctoral school, every year more candidates were registered than the number of places put up for competition. Thus, every year there were doctoral students enrolled in the form of paid education. The situation of registrations for the field of Agronomy is presented in table 16. For the period 2015-2019, the ratio between the places put up for competition and the number of registered candidates is 1,257. At the 2020 admission, 27 places were allocated to the budget, 33 candidates were registered and 32 doctoral students were enrolled, 27 in the budget and 5 in the fee (ratio 1.22). The number of places put up for competition fluctuated from one year to another (from 23 in 2018 to 35 in 2019), this being dependent on the increase in the number of doctoral supervisors following the skills (from 2 in 2015 to 12 in 2020 ).

The Agronomy field managed to attract every year doctoral students graduates of other IOSUDs, among which we mention: UMF „Iuliu Hațieganu” Cluj-Napoca - Faculty of Medicine and Faculty of Pharmacy; UBB Cluj-Napoca, Faculty of Biology and Geology; Univ. "Lucian Blaga" from Sibiu, Faculty of Sciences; UT Cluj-Napoca, CNU Baia Mare - Faculty of Engineering. The ratio is 0.277.

*Recommendations: Attracting to the doctoral studies a larger number of master's degree graduates from other universities in the country or abroad.*

**The indicator is fulfilled.**

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

Admission is made by the Admission Commission, under the law, on the basis of a competition, within the schooling capacity approved by ARACIS and decided by government decision, according to specific regulations and norms developed by the Council for Doctoral Studies and Senate USAMV Cluj-Napoca: Regulation on the organization and conduct of doctoral studies at USAMV CN (RU24), Regulation on the organization and conduct of the admission contest at USAMV Cluj-Napoca (RU45).

Within the Doctoral Field of Agronomy, through the selection criteria, doctoral students are admitted who demonstrate academic and research performance. For the budgeted places the conditions are: the minimum average of 8.00 for the bachelor's degree and the minimum general average of 9.00 for the master's degree. All candidates must have a certificate of English language proficiency.

*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.*

Admission to the doctorate in USAMV CN is made according to the provisions of the Regulation on the organization and conduct of the admission contest in USAMV CN (RU 45), updated every academic year. The criteria mentioned below have been applied throughout the reporting period.

The admission criteria are:

- a) ½ the average of the graduation of the bachelor's studies or the bachelor's and master's degree;
- b) ½ the grade obtained at an interview regarding research experience, motivation to be employed in doctoral studies, elaboration of a research project and testing of knowledge in the field of doctorate.

For the presentation at the interview, the candidate completes Annex B.1.2.1.a Form of the candidate for admission. The interview is attended by the doctoral supervisor and obligatorily at least two teachers / researchers with expertise in the field. Following the interview, the report Annex B.1.2.1.b is completed and signed, which is handed in together with the Candidate Form for the doctoral school secretariat.

Participation in the interview and elaboration of the candidate's file, which also contains the research project proposal, is based on the research topics put up for competition and which are made public before admission on the doctoral school website (<https://www.usamvcluj.ro/education/doctorate/>).

*The admission procedure to doctoral study programme is based on requested selecton criteria.*

*Recommendations:-*

*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 does not exceed 30%.*

For the field of Agronomy, the expulsion rate, including by withdrawal, at 3 years from the date of registration does not exceed 30% for the evaluation period. A total of 10 students dropped out of doctoral studies, which represents 5.99% of the total period.

*The expulsion rate registered in the field is on average 5,99%, within the provisions of ARACIS.*

*Recommendations:-*

***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.*

The completion of the training program based on advanced university studies lasts for a period of 14 weeks and leads to the granting of a number of 30 transferable credits for doctoral students in the doctoral fields within SDSAI (Annex 9). The training program based on advanced university studies includes disciplines established by the training program and specialized disciplines provided in the annexes of the curriculum. The evaluation of the courses from the advanced university training plan is done with the grades "Very good", "Good", "Satisfactory" and "Unsatisfactory".

***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 based on advanced university studies of PhD students from SDSAI includes the following compulsory subjects common to all PhD students: Principles of research methodology in plant and animal resources engineering, Methodology of doctoral thesis elaboration, Scientific documentation, Elaboration of scientific papers, oral presentations posters, Design and management of research grants, Ethics and academic integrity. The types of activities (courses, seminars, practical works, project), the number of hours and credits allocated to each discipline, the form of examination and the content of the disciplines are available in Annex 9. SDSAI Curriculum and in Annex 10. PSUA Discipline Sheets. With the exception of the ethics discipline, all the other disciplines are supported by doctoral supervisors from SDSAI, with experience and very good results in teaching and research.

*The training program based on advanced university studies includes disciplines relevant to the training in scientific research of doctoral students.*

*Recommendations:-*

***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.*

The PSUA SDSAI Curriculum contains the discipline of Ethics and academic integrity, a compulsory discipline. The general objective of the discipline is the acquisition by students of concepts and norms specific to ethics and academic integration for their application in the development of a professional career characterized by probity (Annex 9. SDSAI Curriculum; Annex 10. PSUA Discipline Sheets). Starting with the academic year 2020-2021, SDSAI doctoral students participate in the optional course Bioethics of Scientific Research, aiming at acquiring theoretical knowledge and practical skills regarding the understanding and elaboration of ethical argumentation in the field of scientific research. Among other things, legal aspects are addressed in research in the field of life sciences (animal experiments) as well as aspects of intellectual property ethics. Particular aspects of ethics and deontology in the elaboration of the doctoral thesis are also treated within the obligatory course of the Methodology of the elaboration of the doctoral thesis. (Annex 10).

*The training program based on advanced university studies includes the discipline Ethics and academic integrity.*

*Recommendations:-*

*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*

Through the disciplines included in the training program based on advanced university studies related to the doctoral field Agronomy, it is ensured: Understanding the critical analysis, evaluation and synthesis of new and complex ideas and their integration by respecting the rules of ethics and academic integrity in scientific papers. realized; Identification, description and appropriate use of scientific documentation platforms, electronic libraries and techniques for ordering documents and writing bibliography; Construction and use of methods and tools specific to scientific research in doctoral research in agronomy, including statistical methods; Acquiring and consolidating knowledge on writing a scientific article, acquiring the knowledge necessary to design, write and publish scientific papers, designing oral presentations / posters, correctly citing sources, avoiding plagiarism and constantly pursuing academic honesty; Acquiring theoretical knowledge and practical skills regarding the initiation, design, development, implementation and management of research grants, Improving communication skills, leadership and self-assessment for doctoral students. The specific professional and transversal competences are highlighted in the files of the disciplines included in the annual curricula of the SAI Doctoral School.

*Mechanisms are provided to ensure that the training program, based on advanced university studies, aims at "learning outcomes".*

*Recommendations:-*

*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.*

Throughout the doctoral training period, PhD students in Agronomy benefit, in addition to the coordination provided by the scientific director and the advice / guidance of functional guidance commissions, established from the moment of enrollment of doctoral students and stipulated in the study contract. (Annex B.2.1.4 Agronomy Steering Committees). The involvement of the guiding commission in advising doctoral students is materialized in written feedback and in regular meetings, at least once a year, finalized by signing a report, which is part of the doctoral student's file. The activities of the steering committee are complementary to those offered by the scientific doctoral supervisor.

*PhD students benefit throughout the training period from the guidance of a functional guidance committee composed of the doctoral coordinator and three other specialists with research activity in the field.*

*Recommendations:-*

*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.*

The situation for the field of Agronomy is presented in Annex B.2.1.5. Report of doctoral students who provide guidance. It is found that this ratio in the field of Agronomy is 1.82. The 169 PhD students enrolled between 1.10.2015 and 30.9.2020 are guided by 92 distinct teachers, most of whom are teachers from USAMVCN.

In the guidance commissions there are also professors who work in other universities: Univ. Lucian Blaga from Sibiu; UT Cluj-Napoca; SCDA -Turda; SCDV - Blaj; UBB Cluj-Napoca - Faculty of Economics and Business Management.

*The ratio recorded for the reporting period was less than 3:1, this indicator being met.*

*Recommendations:-*

*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.*

During the analyzed period, all doctoral theses in the field of Agronomy were defended and validated. The research was capitalized on by ISI and BDI scientific publications. (Annex

**B3.1.1-PhD publications).**

*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.*

In the period 2016-2020 in the field of doctorate Agronomy, 65 doctoral students defended their theses and obtained the title of doctor (Annex B 3.2.1). The complete list of articles published by doctoral students who have obtained the title of doctor in the field of doctoral studies in agronomy in the last five is presented in Annex B 3.1.1. This list includes a number of 436 scientific articles published by doctoral students - graduates, of which 58 ISI articles. For each doctoral student who has obtained the title of doctor in the field of doctoral studies Agronomy in the last five and whose title has been validated by CNATDCU, is mentioned in Annex B 3.1.1. minimum a representative scientific article. Articles selected for analysis:

1. Ovidiu Moldovan, Adriana Paucean, Romina Vlaic, Maria Doinita Bors, Sevastita Muste, 2015, Preliminary Assessment of the Nutritional Quality of two Types of Lentils (*Lens Culinaris*) by Near Infrared Reflectance Spectroscopy Technology (Nirs), *Buletin USAVM, Food Science and Technology* 72 (1): 127-132.
2. Macavei, Laura Ioana; Oltean, Ion; Vasian, Iuliana; Florian, Teodora; Varga, Mircea; Băețan, Raul; Miter, Viorel; Maistrello, Lara (2018). Potential for attractive semiochemical lures in *Rhagoletis cerasi* (L.) management: a field study. *Journal of Entomological Research Society*, 20 (1), 1-9.
3. Șoptorean Laura, Loredana Suci, Ana-Maria Vălean, Roxana Călugăr, Felicia Mureșanu, Carmen Puia, 2018. Study on the isonuclear inbred lines reaction under natural infection conditions with *Fusarium* spp., *Romanian Agricultural Research*, no. 35, pp. 121-128.
4. Crișan Ioana, Roxana Vidican, Loredana Olar, V. Stoian, Adriana Morea, R. Ștefan, 2019, Screening for changes on *Iris germanica* L. rhizomes following inoculation with arbuscular mycorrhiza using Fourier transform infrared spectroscopy, *Agronomy* 9 (12): 815.
5. Simon A., Rusu T., Chetan C. 2016. Influence of soil tillage systems on some characteristics morpho-productive and yield to pea. *AgroLife Scientific Journal*, 5 (1): 194-198.

For doctoral students who have obtained a doctorate in the last 5 years, there is at least one article or other contribution. All five articles selected for analysis present significant original contributions to the field of Agronomy, being published together with the scientific advisor and the research team.

*Recommendations: -*

*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 list of presentations, including those of poster type, made by doctoral students who completed their doctoral studies in the period 2015-2020, can be found in Annex B.3.1.2- participation in doctoral conferences Agronomy. 117 conference participations were registered for 64 theses defended during the reporting period, so the ratio is  $1.83 > 1$ .

*The ratio between the number of presentations of doctoral students who completed their doctoral studies in the evaluated period (last 5 years) is 1.8.*

*Recommendations:-*

***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.*

Completion of doctoral theses and their defense involved the appointment of commissions of specialists in the field of theses (5 members: president, scientific leader, 3 specialists, of which at least 2 from outside the university) to evaluate their quality.

***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.***

The doctoral school of Agricultural Engineering Sciences (USAMV Cluj-Napoca) appeals to a significant number of external scientific references (61) in the commissions for public defense of doctoral theses in the field of Agronomy. (Annex B 3.2.1- External referents theses Agronomy there are data on the theses defended in the field and on the number of doctoral theses allocated to a certain referent coming from a higher education institution, other than IOSUD USAMVCN, by years and by doctoral supervisors, in the field of Agronomy).

*In the period analyzed in this report, there is only one situation in 2017 in which two theses evaluated for an invited external referent are exceeded, in a year three times (Table 19 REI).*

*Recommendations: -*

***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.***

During the evaluation period (1.10.2015-30.9.2020), at the level of the doctoral field



## AGENȚIA ROMÂNĂ DE ASIGURARE A CALITĂȚII ÎN ÎNVĂȚĂMÂNTUL SUPERIOR

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Înscrișă în Registrul European pentru Asigurarea Calității în Învățământul Superior – **EQAR**

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Agronomy, 64 doctoral theses were defended, all being validated confirmed by ministerial order.  
The average ratio for the analyzed period is less than 0.1.

*The maximum ratio registered between the number of doctoral theses allocated to an external scientific referent and the total number of theses defended in the field of Agronomy was 0.14.*

*Recommendations: -*

***The indicator is fulfilled.***

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***Domain C. QUALITY MANAGEMENT***

The University of Agricultural Sciences and Veterinary Medicine in Cluj Napoca aims to implement, maintain and improve the Quality Management System in all organizational departments of the University, both to support the achievement and pursuit of internal objectives related to quality and to meet the requirements imposed national and international standards in the field of education.

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

The university management from USAMV CN has demonstrated a continuous concern in the field of quality by implementing in 2010 the management system according to EN ISO 9001: 2008 certified by TUV Austria with validity between 2010-2013, renewed for 2013-2016. Upon expiration of the TUV Austria certification, the university contacted CERTIND for the implementation of the new ISO 9001: 2015 standard. USAMV CN has certified "higher education activities for bachelor's, master's and doctoral degrees, postgraduate studies and lifelong learning in the fields of fundamental, agricultural and forestry sciences, engineering sciences, veterinary medicine, including clinical activity in the field of veterinary medicine and of natural sciences. Research and development activities and consultancy, innovation and academic transfer. Academic management and administrative activities. " Currently, the University has a valid ISO 9001: 2015 Certificate until 2023.

***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.***

The institutional framework for quality monitoring and assurance is ensured through structures, policies and strategies whose elaboration and implementation is ensured by the Vice-Rectorate for Quality Assurance, Informatization and Image, which is subordinated to the Quality Assurance Department (DAC). The institutional framework for monitoring and quality assurance is provided through several structures. The elaboration and implementation of the quality assessment system is coordinated by the Vice-rectorate for quality assurance and computerization, within which the DAC operates. He is also involved in the activity of the Internal Management Control Monitoring Commission (<https://dac.usamvcluj.ro/index.php>). The activities carried out within the DAC are closely supervised and monitored by the CEAC at university level, the Commission under the direct subordination of the Rector. Both DAC and CEAC prepare annual analysis reports of the activities carried out in the field of quality assurance at institutional level.

***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:***

***(a) the scientific work of Doctoral advisors:***

At the SDSAI level, there is the Commission for Quality Assessment and Assurance (CEACSD) and a procedure for the evaluation and internal monitoring of PO-125 doctoral schools ([http://dac.usamvcluj.ro/proceduri\\_opertionale.php](http://dac.usamvcluj.ro/proceduri_opertionale.php)). According to this procedure, for each doctoral field, a doctoral supervisor is appointed responsible for the annual collection and analysis of data related to the activity of doctoral supervisors and doctoral students related to the field. The manual of the Integrated Quality Management System contains a procedure based on which, annually, the periodic monitoring and evaluation of the study programs (PO-117) is performed.

***(b) the infrastructure and logistics necessary to carry out the research activity:***

All USAMV CN PhD students have unrestricted access to the entire research infrastructure of the university, depending on the specifics of the field. The regulations of the Institute of Life Sciences (ISV) allow the access of doctoral students and regulate the way in which doctoral students can carry out scientific research activities under the guidance of the doctoral supervisor or other teachers and researchers (Art. 3, Art. 7 paragraph 5) (RU 56). The ICHAT Regulation (RU 57) establishes the conditions for the access of doctoral students in Art. 10; Article 36; Art.42.

***(c) the procedures and subsequent rules based on which doctoral studies are organized:***

The reference documents on the basis of which the doctoral studies are organized are: the regulations of the doctoral school - <https://www.usamvcluj.ro/wp-content/uploads/2021/05/RU-65-Regulament-de-organizare-s%CC%A6i-funct%CC%A6ionamento-al-S%CC%A6colii-Doctorale-de-S%CC%A6tiint%CC%A6e-Agricole-Ingineres%CC%A6ti.pdf>; admission regulations - <https://www.usamvcluj.ro/wp-content/uploads/2021/06/RU-45-Regulament-privind-organizare-s%CC%A7i-desfa%CC%86s%CC%A7urarea-the-admission-contest-for-the-academic-year-2021-2022.pdf>; doctoral studies contract - <https://www.usamvcluj.ro/invatamant/doctorat/regulamente-proceduri-formulare>; the study completion regulation which should also include the procedure for public defense of theses - <https://www.usamvcluj.ro/wp-content/uploads/2021/05/RU-24A-Regulament-de-finalizare-a-studiilor-universitare-de-doctorat-la-IOSUD-USAMVCN-1.pdf>; <https://www.usamvcluj.ro/invatamant/doctorat/acte-necesare-pentru-sustinerea-publica/>; <https://www.usamvcluj.ro/wp-content/uploads/2020/04/Proctuctura-sustinere-teze-online.pdf>

The results of the evaluation and the recommendations for improving the infrastructure and logistics necessary for carrying out the research activity are included in the periodic reports of SDSAI, CSUD and DAC.

***d) the scientific activity of doctoral students:***

For doctoral students - the field of Agronomy within the Doctoral School of Agricultural Engineering Sciences, the scientific activity is regulated by the Regulation and the Contract of

doctoral university studies. The results of the evaluation and the recommendations for improving the infrastructure and logistics necessary for carrying out the research activity are included in the periodic reports of SDSAI, CSUD and DAC.

***e) the training program based on advanced academic studies of doctoral students:***

The doctoral studies in the field of Agronomy, within the Doctoral School of Agricultural Engineering Sciences (SDSAI), are carried out according to a matrix established by the Code of doctoral studies (GD 681 of June 28, 2011, published in OJ 551/2011, amended by GD 134/2016) and detailed at the level of USAMV Cluj-Napoca.

The training program are defined in a general sense in the IOSUD-USAMV Cluj-Napoca Regulation (RU 24) and the SDSAI Regulation (RU 65) and are detailed in the Discipline Sheets (Annex 10). These sheets are endorsed by the Director of the Doctoral School and approved by the Director of the Council for Doctoral Studies (CSUD).

The results of the evaluation and the recommendations for improving the study programs are included in the periodic reports of the SDSAI.

***f) social and academic services (including for participation at different events, publishing papers etc.) and counselling made available to doctoral students:***

SDSAI PhD students in Agronomy are constantly advised and supported in academic activities, as evidenced by their important participation in national and international scientific events (Annex B.3.1.2.); publication of a large number of scientific articles, including together with the members of the steering committees (Annex B.3.1.1); participation in research grants (Annex A.1.3.2).

Within USAMV Cluj-Napoca there is a Career Counseling and Guidance Center (<https://www.usamvcluj.ro/studenti/centrul-de-consiliere-si-orientare-in-cariera/>) that supports the strategy and mission of USAMV Cluj-Napoca in the area of professional training coming to support the students, both during the studies and after their completion, the doctoral students being able to address the specialists working in the center to solve various problems that may arise during the training period.

At the level of USAMV Cluj-Napoca, the Alumni Association from USAMV Cluj-Napoca operates legally, which facilitates the integration of students and graduates in the life of the community and on the labor market.

*The doctoral school is proof of the constant development of the process of evaluation and internal assurance of its quality.*

*Recommendations: -*

***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.*

PhD students provide feedback to doctoral supervisors through regular meetings. PhD students assess the level of satisfaction with the learning environment by completing an online questionnaire through their institutional account at: [https://docs.google.com/forms/d/e/1FAIpQLSczU8wQLp2yYJw6fTaU\\_BU3SaZlcHxy\\_E4G6rb8iMDz/](https://docs.google.com/forms/d/e/1FAIpQLSczU8wQLp2yYJw6fTaU_BU3SaZlcHxy_E4G6rb8iMDz/)

Examples of the use of the analysis of satisfaction questionnaires in order to improve academic processes are presented in Annex C.1.1.2. CEACSD minutes.

*Recommendations: -*

*The indicator is fulfilled.*

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

USAMV Cluj Napoca offers, through the web page of the university ([www.usamvcluj.ro](http://www.usamvcluj.ro)), the web pages of the faculties, the web page of the Doctoral Schools, information and data, quantitative and / or qualitative, updated and correct, about the qualifications, study programs, diplomas, teaching and research staff, facilities offered to students and other aspects of interest to the public in general and to students in particular. Also, all the decisions of the Board of Directors / Senate / CSUD are published on the university website. Access to information of public interest is ensured, through the Center for Information and Institutional Transparency, which appears in the USAMV Cluj-Napoca organizational chart with the purpose of ensuring the free and unrestricted access of students to information of public interest. (<https://www.usamvcluj.ro/universitatea/documente-publice/443-2/>). The university publishes on its website the fundamental documents, such as the University Charter, the Code of Ethics, the regulations in force, the annual reports, the financial resources, the acquisitions, etc.

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

IOSUD makes available to candidates all information of public interest that describes the operation of the activity of doctoral schools on the website of the University <https://www.usamvcluj.ro/>.

*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, information such as:*

All regulations, methodologies and regulations regarding the organization and development of doctoral studies, as well as other information of public interest are available on the website of the University <https://www.usamvcluj.ro/> in compliance with personal data protection regulations.

**a) the Doctoral School regulation**

<https://www.usamvcluj.ro/wp-content/uploads/2021/05/RU-65-Regulament-de-organizare-s%CC%A6i-funct%CC%A6ionare-al-S%CC%A6colii-Doctorale-de-S%CC%A6tiint%CC%A6e-Agricole-Ingineres%CC%A6ti.pdf>

**b) the admission regulation**

<https://www.usamvcluj.ro/wp-content/uploads/2021/06/RU-45-Regulament-privind-organizarea-s%CC%A7i-desfa%CC%86s%CC%A7urarea-concursului-de-admitere-pentru-anul-universitar-2021-2022.pdf>

**c) the doctoral studies contract**

<https://www.usamvcluj.ro/invatamant/doctorat/regulamente-proceduri-formulare/>

**d) the study completion regulation including the procedure for the public presentation of the thesis**

<https://www.usamvcluj.ro/wp-content/uploads/2021/05/RU-24A-Regulament-de-finalizare-a-studiilor-universitare-de-doctorat-la-IOSUD-USAMVCN-1.pdf>

<https://www.usamvcluj.ro/invatamant/doctorat/acte-necesare-pentru-sustinerea-publica/>

<https://www.usamvcluj.ro/wp-content/uploads/2020/04/Procedura-sustinere-teze-online.pdf>

**e) the content of training program based on advanced academic studies**

<https://www.usamvcluj.ro/invatamant/doctorat/fise-discipline/>

**f) the academic and scientific profile, thematic areas/research themes of the Doctoral advisors within the domain, as well as their institutional contact data**

<https://www.usamvcluj.ro/invatamant/doctorat/883-2/>

**g) the list of doctoral students within the domain with necessary information (year of registration; advisor)**

<https://www.usamvcluj.ro/wp-content/uploads/2021/06/Evidenta-doctoranzi-conducatori.pdf>

**h) information on the standards for developing the doctoral thesis**

[https://www.usamvcluj.ro/wp-](https://www.usamvcluj.ro/wp-content/uploads/2020/03/norme_redactionale_teza_de_doctorat-incepand-cu-2015.pdf)

[content/uploads/2020/03/norme\\_redactionale\\_teza\\_de\\_doctorat-incepand-cu-2015.pdf](https://www.usamvcluj.ro/wp-content/uploads/2020/03/norme_redactionale_teza_de_doctorat-incepand-cu-2015.pdf)



- i) links to the doctoral theses' summaries to be publicly presented and the date, time, place where they will be presented; this information will be communicated at least twenty days before the presentation***

<https://www.usamvcluj.ro/invatamant/doctorat/sustineri-teze-de-doctorat/>

*All information is public on the university / IOSUD website*

*Recommendations: -*

***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.*

Doctoral students in the field of Agronomy - Doctoral School of Agricultural Engineering Sciences have access to all the necessary resources for carrying out doctoral studies in good conditions. They have free access to platforms with academic databases relevant to the field of study, they have access to existing libraries within USAMV Cluj-Napoca.

Doctoral students are allowed access to the scientific research laboratories within the institution, in this sense IOSUD has also concluded a series of collaboration agreements with other scientific research and production institutions.

***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.***

USAMV Cluj Napoca is a partner of the ANELIS + project (<https://www.e-nformation.ro/>). All PhD students have free access to databases via the Internet (web interface), by authenticating the public IP addresses of the subscribing institution, 24 hours a day. Access to platforms is free and can be used outside the institution for users who have an account Information, or from mobile (Annex A.2.1.1. Access to databases). The databases with permanent or temporary / occasional access were presented at indicator A.2.1.1.

*Students' access to information on the platform with free and open databases is ensured.*

*Recommendations:-*

***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.***

All PhD students from USAMVCN have access to the electronic system for verifying the degree of similarity [sistemantiplagiat.ro https://sistemantiplagiat.ro/despre-sistem/](https://sistemantiplagiat.ro/despre-sistem/), available in the secretariat of the doctoral school. (Annex 6 - Pest control software).

The existence and operation of an electronic system for verifying the degree of similarity with other scientific creations is confirmed.

*Recommendations:-*

*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.*

All USAM CN PhD students have unrestricted access to the entire research infrastructure of the university, depending on the specifics of the field. The regulations of the Institute of Life Sciences (ISV) allow the access of doctoral students and regulate the way in which doctoral students can carry out scientific research activities under the guidance of the doctoral supervisor or other teachers and researchers (Art. 3, Art. 7 paragraph 5) (RU 56). The ICHAT Regulation (RU 57) establishes the conditions for the access of doctoral students in Art. 10; Article 36; Art.42. "PhD students, coordinated by doctoral teaching staff affiliated or not affiliated to ICHAT, can carry out their research activities as users of existing laboratories if they can finance their activity through scientific research projects, projects from doctoral school funds, through any financial sources that have the agreement of the management of ICHAT and to cover the costs under a contract ". The access of teachers and doctoral students to the research infrastructure is also regulated by the operational procedure PO-124.

The doctoral schools financially support the research activity of the students by allocating annually an amount of 2000 lei for reagents and material (Annex A.1.3.3.a Decision of the Board - Research Funds and Conference Participations). However, most of the material costs for PhD students' research activity are supported by the research projects in which they are involved.

*Recommendations:-*

*The indicator is fulfilled.*

### Criterion C.3. Internationalization

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

IOSUD USAMV CN is affiliated to the EUA Doctoral Council (CDE Member Directory, individual full member), is part of the EUA working group for co-supervised doctorates and participates in the Erasmus + and AUF programs. Within the EUA group for cotutelle (Annex C.3.1a. Acceptance Letter Cluj\_TPG cotutelle). USAMV CN was selected on the basis of an application submitted by the Vice-Rector for International Relations Prof. Dr. Andrei Mihalca to host the 2022 EUA-CDE THEMATIC WORKSHOP Doctoral education futures meeting, which will take place at our university in January 2022 (Annex C.3.1b IOSUD won CEI Cooperation unit funding for the organization of the Danube Future Interdisciplinary School summer school for PhD and postdoctoral students: "2020: Sustainable development in the Danube River Basin. Where are we and how do we tackle future challenges?" (Annex C.3.1. c).

*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.*

USAMV CN has concluded international agreements with a number of 38 universities abroad, most of them in the European Union (Annex C.3.1.1a Collaboration agreements). USAMV Cluj-Napoca encourages and supports mobility, both incoming and outgoing, both in terms of students, but also teachers, researchers and staff of the University administration. USAMV Cluj-Napoca is a signatory to the Erasmus Charter and has concluded a number of 154 active agreements with 57 countries (including ERASMUS +): 109 ERASMUS + agreements with 21 EU countries and 45 ERASMUS + agreements with 25 non-EU countries (Annex C.3.1. 1.b Erasmus Agreements). Based on these agreements, there were mobilizations, both of the doctoral students and of the teachers, from and in the University.

In the field of Agronomy, a number of 18 doctoral students participated in other types of research internships (EFSA, COST), internship preparation courses or conferences, with a total number of 31 participations (Annex C.3.1.1.c PhD student mobility).

*Recommendations: Continuing efforts through financial support provided by the university or from various sources of funding for PhD students participating in mobility.*

**The indicator is 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.*

Within the SAI doctoral school, in the field of Agronomy, lectures for doctoral students were invited and held, within the ERASMUS program or through other types of exchanges: Mohamedali Babiker Hassan Ibrahim, Sudan, United Nation Office for the Coordination of Humanitarian Affairs (OCHA); Jaladet Mohammed Saleh Jubrael Alsofi (Annex C.3.1.2 Guests). Prof. Dr. Maria Antonietta Fiore held during the academic year 2020/2021 an optional course (4 hours) for all PhD students in IOSUD. During the reported period, 2 theses in international co-supervision were defended, and at the time of submitting the report there is another thesis in international co-supervision. (Annex C.3.1.2.).

*Recommendations: Completion of doctoral theses in international co-supervision, which would lead to an increase in the percentage of theses developed in a language of international circulation.*

**The indicator is fulfilled.**

*Performance Indicator C.3.1.3. The internationalization of activities carried out during the*



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*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.).*

USAMVC N participated, in the period 2015-2020, in several international exhibitions and fairs, during which it promoted the academic offer of the Doctoral School such as: NAFA: Association of International Educators, May 26-31, 2019, Washington, USAMV Cluj-Napoca invited by the National Council of Rectors; BMI Dubai International Academic Offers Fair, March 1-4, 2018; Education Abroad International Educational Fair, April 19-22, 2018, Kiev; The Romanian International University Fair, 2018, 2019 and 2020 editions, along with over 100 other universities around the world (REI p. 71).

*Recommendations: Inclusion of international experts in the commissions for guidance or defense of doctoral theses.*

***The indicator is fulfilled.***

## IV. SWOT Analysis

Based on the Self-Assessment Report and its annexes, the discussions / on-site visits that took place in accordance with the program of the visit, the SWOT analysis of the doctoral field Agronomy. It aims to be a tool capable of providing an overview of the doctoral field, while assessing internal and external influencers in order to highlight strengths and weaknesses in relation to existing opportunities and threats.

<u><b>Strengths:</b></u>	<u><b>Weaknesses:</b></u>
<ul style="list-style-type: none"> <li>• USAMV Cluj-Napoca is a high-performing university that enjoys prestige among Romanian universities, with a tradition in the field of agronomy;</li> <li>• Diverse educational offer, specific to the field at all three cycles of studies;</li> <li>• ARACIS accreditation for all study programs: bachelor's, master's, doctorate;</li> <li>• High-performing teaching and research staff, with meritorious activities in the field of professional training based on skills and abilities, but also in guiding the activity of doctoral students;</li> <li>• Human resource represented by doctoral supervisors in the field of Agronomy with proven skills in scientific research, in university management - a fundamental condition for conducting scientific research at a high scientific level;</li> <li>• Existence of quality assurance policies and strategies targeting doctoral schools, as well as their fields;</li> <li>• Existence of specific measures to promote professional ethics and deontology, avoidance of plagiarism;</li> <li>• Transparency in the selection, admission and enrollment of students in doctoral university study programs;</li> <li>• The material base, characterized by the existence of a modern equipment of education and research, which offers optimal conditions for teaching, as well as for practical training in research centers, experimental resorts and units (farms);</li> <li>• Consistent university library in terms of the number and diversity of books and publications, access to scientific literature in the field, databases provided free of charge to doctoral students;</li> <li>• Effective communication with doctoral students, in terms of career path, research directions, access to bibliography, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced capitalization of international collaborations by including foreign specialists in the commissions for guiding doctoral students or defending the doctoral thesis;</li> <li>• Attracting doctoral students from abroad.</li> </ul>

<u>Opportunities:</u>	<u>Threats:</u>
<ul style="list-style-type: none"> <li>• Increasing the educational and vocational training offer by developing postdoctoral and postgraduate study programs, continuing vocational training and lifelong learning programs, vocational retraining programs, etc. and increasing its competitiveness and visibility in the European Higher Education Area;</li> <li>• International cooperation programs for doctoral students that offer doctoral students the opportunity to carry out training courses in the form of various external mobilities for their professional development;</li> <li>• Availability of the private sector to hire PhD students due to skills, knowledge, etc. with consequences on the interest for doctoral studies and the facilitation of the collaboration between the university and companies (investments, additional financing, joint projects, possibility of financing doctoral students) ;</li> <li>• Possibility of collaboration with foreign research centers involved in the international network of agricultural research centers;</li> <li>• Constant adaptation of research topics, in accordance with existing research directions at national and international level;</li> <li>• Development of new European programs such as Life Long Learning and e-Platforms that offer the possibility of doctoral theses in international co-supervision, as well as stimulating doctoral students to carry out external training courses;</li> <li>• Developing relations with the socio-economic environment and creating the premises for its involvement in the development of research projects through partnerships in the field of doctoral schools;</li> <li>• Additional funding based on performance criteria, which also includes the results of doctoral students' research.</li> </ul>	<ul style="list-style-type: none"> <li>• The tendency of demographic decrease, with a negative impact on the dynamics of the number of students and the gradual increase of the costs that contribute to the lack of interest for university studies;</li> <li>• Reducing the number of master's graduates who want to complete their professional training through doctoral studies;</li> <li>• Significant reduction of research funds in recent years, while increasing standards for minimum eligibility criteria, for attracting research grants at national level, for project managers;</li> <li>• International competition for attracting students and aggressive policy of European universities;</li> <li>• Insufficient duration of doctoral research internships conditioned by climate developments and the need to postpone the defense of doctoral theses;</li> <li>• Reduced salary compared to the private sector;</li> <li>• Low budget available for research and academia;</li> <li>• Reduced duration of research to 3 years - makes it impossible to conduct research in the field of agriculture subject to the influence of climatic conditions.</li> </ul>

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

No.	Type of indicator (*, C)	Performance indicator	Judgment	Recommendations
1	*	Indicator A.1.1.1.	fulfilled	It is recommended to publish documents related to doctoral studies in English on the university's website.
2	*	Indicator A.1.1.2	fulfilled	
3	*	Indicator A.1.2.1	fulfilled	
4	*	Indicator A.1.2.2	fulfilled	
5	*	Indicator A.1.3.1	fulfilled	
6	*	Indicator A.1.3.2	fulfilled	It is recommended to continue collaborations with the professional socio-environment to attract funding in the form of private scholarships for doctoral students.
7	*	Indicator *A.1.3.3	fulfilled	
8	C	Indicator A.2.1.1	fulfilled	
9	C	Indicator A.3.1.1	fulfilled	
10	*	Indicator *A.3.1.2	fulfilled	
11	*	Indicator A.3.1.3	fulfilled	
12	*	Indicator *A.3.1.4	fulfilled	Emphasis will be placed on completing research and public defense of doctoral theses on time and also on attracting new PhD supervisors in the field to respond to requests from candidates to pursue doctoral studies.
13	C	Indicator A.3.2.1	fulfilled	
14	*	Indicator *A.3.2.2	fulfilled	
15	*	Indicator B.1.1.1	fulfilled	Attracting to the doctoral studies a larger number of master's degree graduates from other universities in the country or abroad.
16	*	Indicator *B.1.2.1	fulfilled	
17	*	Indicator B.1.2.2	fulfilled	
18	*	Indicator B.2.1.1	fulfilled	
19	*	Indicator B.2.1.2	fulfilled	
20	*	Indicator B.2.1.3	fulfilled	
21	*	Indicator B.2.1.4	fulfilled	
22	C	Indicator B.2.1.5	fulfilled	
23	C	Indicator B.3.1.1	fulfilled	
24	*	Indicator *B.3.1.2	fulfilled	
25	*	Indicator *B.3.2.1	fulfilled	
26	*	Indicator *B.3.2.2	fulfilled	
27	*	Indicator C.1.1.1	fulfilled	
28	*	Indicator C.1.1.2	fulfilled	
29	C	Indicator C.2.1.1	fulfilled	
30	*	Indicator C.2.2.1	fulfilled	
31	*	Indicator C.2.2.2	fulfilled	
32	*	Indicator C.2.2.3	fulfilled	
33	*	Indicator *C.3.1.1	fulfilled	Continuing efforts through financial support provided by the university or from various sources of funding for PhD students participating in mobility.
34	*	Indicator C.3.1.2	fulfilled	Completion of doctoral theses in international co-supervision, which would lead to an increase in the percentage of theses developed in a language of international circulation.
35	*	Indicator C.3.1.3	fulfilled	Inclusion of international experts in the commissions for guidance or defense of doctoral theses.



## VI. Conclusions and general recommendations

Based on the information contained in the Self-Assessment Report prepared, the on-site visit and online discussions with representatives of USAMV Cluj-Napoca management, doctoral schools, teachers, PhD students and employers, as well as with those who coordinate the activity of research centers and laboratories in In general, the activity within the doctoral field Agronomy was analyzed by reporting on the way of fulfilling the indicators.

The doctoral field of Agronomy is integrated to the Doctoral School of Agricultural Engineering Sciences and has as main mission the formation of competences and scientific and technological expertise in the culture of agricultural plants. This mission supports the use of the existing infrastructure and material and human resources in USAMV Cluj-Napoca, an offer of professional training at higher doctoral level (third cycle of studies in the Bologna process; EQF / ISCED-8), with applications in key areas of agriculture, such as: enhancing the genetic production potential of crop plants, ensuring national food security, producing residue-free food to ensure human and animal health, and protecting the environment in which technologies culture can provide economic and social benefits.

Of the 23 doctoral supervisors in the field of Agronomy existing at the reporting date, 18 meet the qualification standards for commission 14, Plant and Animal Resources Engineering, representing 78.26%. The PhD supervisors in the field of Agronomy have remarkable achievements in terms of the number and quality of publications. Thus, for the whole activity, the number of articles published by each of the supervisors in indexed journals Web of Science varies between 3 and 74. Also, the doctoral supervisors coordinated during the reporting period 31 research projects, of which 3 international, 12 human resources projects / institutional development, in many of these projects being involved doctoral students.

PhD students in the field of Agronomy have access to all the research infrastructure of USAMVCN and to the 15 existing laboratories and research centers within the Faculty of Agriculture.

The PhD students in the field of Agronomy who defended their theses during the reporting period published between 3 and 19 papers during their doctoral internship.

For the analyzed period, a number of 65 theses were defended and in the field of Agronomy no doctoral thesis was rejected / invalidated and there was no suspicion of plagiarism.

In the Strategic Plan of the University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, quality occupies a central place and follows a continuous process of improvement. One of the components of the University's qualitative mission is to ensure excellence, both in the educational process and in research.

### Recommendations:

- Publication of documents related to doctoral studies in English on the university website;
- Continuing the collaborations with the socio-economic environment in order to attract some financing in the form of a private scholarship to the doctoral students;
- Increasing the number of candidates attracted from other higher education institutions abroad;
- Performing doctoral theses in international co-supervision, which would also increase the percentage of theses developed in a language of international circulation;
- Inclusion of international experts in the commissions for defending doctoral theses.



## Conclusion and general recommendations

The doctoral studies in the field of Agronomy within USAMV Cluj-Napoca are properly structured, benefit from a modern research infrastructure and adequate to the assumed mission and have doctoral supervisors with expertise in the field, elements that ensure the high quality training of doctoral students in the field.

All employers of doctoral graduates in the field of Agronomy showed a high level of satisfaction regarding their professional quality.

In České Budějovice 6<sup>th</sup> November 2021

Assoc. Prof. Petr KONVALINA, Ph.D.