



Decree of the Rector n. 1536 of 10/12/2024
Competition for awarding 1 research grant at the University of Udine

DISCLAIMER:

The official and legally binding call for applications is in Italian only.
This document cannot be used for legal purposes and is only meant to provide information in English on the call for applications (Decree of the Rector n. 1536 of 10/12/2024). Please refer to the official call published on: <https://www.uniud.it/it/albo-ufficiale>

Any change and integration will be made available on the above-mentioned web page. Therefore, no personal written communication regarding the examination date and/or competition results shall be provided to applicants.

Annex 1

Call for applications for the award of 1 grant for the performance of research activities at the University of Udine on the topic "Development of an innovative and eco-friendly water-jet system for weed control, green care and other operations in rural and civil areas ("SUSTAINER-H2O" project)" SSD: AGRI-04/B (principal investigator, Rino Gubiani).

Research grant funded by Fondazione Cassa di Risparmio di Verona Vicenza Belluno e Ancona – CARIVERONA. CUP G23C24002110003.

Art. 1

A selection proceeding is hereby announced for the award of 1 research grant at the University of Udine for the performance of the research activity identified in Annex A, which forms an integral and substantial part of this call. The research grant is linked to the research project on which it is based and is subject to the corresponding financial coverage.

The grant may be renewed with the winner in accordance with the provisions of Article 22 of Law no. 240 of 30 December 2010 (in the text prior to Leg. Decree no. 36 of 30 April 2022, converted with amendments by Law no. 79 of 29 June 2022) and the Regulations of the University of Udine for the awarding of research grants issued by Rector's Decree no. 182 of 31 March 2021, in the presence of a positive assessment by the scientific supervisor of the activity carried out by the research fellow, adequate scientific justification and related financial coverage, within the limits set out in Article 3, letters b) and c) below.

The research grant does not entitle the successful candidate to any rights as regards access to University roles.

At the starting date of the research project on which the research grant is financed, set on the **31st December 2024**, the candidate:

- must not have reached the age of 40;
- must be in possession of a Research doctorate or equivalent qualification obtained abroad.



Any personal communication to candidates relating to this selection will be sent exclusively to the email address indicated in the application form.

Art. 2

The activities covered by the research grant referred to in this call for competition and the admission requirements are indicated and described in Annex A. Failure to meet the admission requirements at the time of applying shall result in the **exclusion** of the candidate from the selection process.

Possession of a PhD qualification or equivalent qualification obtained abroad or, for the sectors concerned only, of a medical specialisation qualification accompanied by an adequate scientific production, constitutes a preferential requirement for the awarding of the grant envisaged for this selection, if it has not been mentioned as an admission requirement.

The Selection Board shall assess, for the sole purpose of admission to the competition, the suitability of any qualification obtained abroad, without prejudice to the assessment of the medical specialisation qualification to which Article 38, paragraph 3.1 of Legislative Decree 165/2001, as amended, and the relevant Community regulations apply.

The Board assesses the qualification obtained abroad based on the relevant documentation enclosed with the application to take part in the selection and may exclude the candidate if the submitted documentation does not provide sufficient elements for the assessment.

Candidates are therefore invited to enclose all documentation in their possession relating to their qualifications in order to provide the Board with sufficient elements to assess their position.

Candidates are admitted to the selection process subject to a reservation and their exclusion, for failure to meet the requirements, may be ordered at any time by reasoned decision.

Art. 3

The research grant referred to in this call cannot be awarded to the following subjects:

- a) Employees of Universities and the entities referred to in Article 22(1) of Law no. 240 of 30 December 2010 (in the text prior to Leg. Decree no. 36 of 30 April 2022, converted with amendments by Law no. 79 of 29 June 2022).
- b) Recipients of previous research grants pursuant to Law no. 240 of 30 December 2010, for the maximum period allowed by the regulations, excluding the period in which the grant was received in conjunction with a PhD, up to the legal duration of the relevant course.
- c) Those who have already been awarded research grants and fixed-term researcher contracts pursuant to Law no. 240 of 30 December 2010 for a total of 12 years, even if not consecutive.
- d) Those who have a degree of kinship or relationship, up to and including the fourth degree, with:
 - The Rector, the Director General or a member of the Board of Directors of the University of Udine.
 - The principal investigator or a professor/researcher belonging to the department or structure of interest where the research grant activity takes place.

The research grant referred to in this call cannot be cumulated with the following:

- a) Awarded scholarships of any kind, except those granted by national or foreign institutions useful for supplementing, by means of stays abroad, the fellow's training or research activities.
- b) Other research grants.



- c) Employment relationships, even if part-time, without prejudice to the provisions of the regulations for employees of public administrations.

The grant referred to in this call is also incompatible with simultaneous attendance of degree courses, master's degrees, and PhDs with scholarships and medical specialisation, in Italy and abroad.

Persons who have been convicted of a criminal offence resulting in disqualification from holding public office or inability to contract with the public administration as a secondary penalty are not eligible for selection.

Art. 4

Applicants must submit, in the manner described in Article 5 below, the application to take part in the selection, duly signed in handwritten or digital form. An application without a signature will result in the **exclusion** of the candidate, except in the case of access through the use of the Public Digital Identity System (SPID) in which case the signature will not be necessary.

The application must be uploaded in its entirety (i.e., every page), **otherwise** the applicant will be **excluded** from the selection.

Applicants must enclose the following with their application for participation in the selection, **under penalty of exclusion**:

1. The professional scientific *curriculum vitae* in Italian or English or one of the additional languages, if any, indicated in Annex A, highlighting the candidate's aptitude for carrying out and implementing the research programme.
2. Copy of valid identity document or other identification document. Citizens of non-EU countries must enclose a copy of their passport or, if available, a copy of the Italian identity document and of the valid residence permit.
3. Limited to citizens of non-EU states residing or authorised to reside in Italy, a copy of their residence permit or authorisation to reside in Italy.
4. For candidates who cannot provide a self-certification under the conditions set out below, documentation proving possession of the academic qualification required for admission to the selection. Possession of a higher academic qualification does not exempt the candidate from producing such documentation, which, if missing, will result in exclusion:
 - **Candidates who are Italian citizens or citizens of a European Union Member State** must submit a declaration in lieu of certification and, if necessary, a notarial deed regarding the academic qualification needed for admission (indicating the academic qualification, the academic institution awarding the qualification, the year it was awarded and the mark obtained) and the publications and other qualifications held, indicating for each one all the identification details necessary for the Board's assessment. **The application for participation counts as a declaration in lieu of certification of the declared academic qualification.** If the subject matter of the declaration is not clearly identified in terms of its nature, duration, time setting and institution concerned, the selection board will disregard it. The Administration reserves the right to carry out appropriate checks on the truthfulness of the content of the declarations made; in the event of a false declaration, the provisions of Article 76 of Presidential Decree no. 445/2000 and Articles 483, 485, and 486 of the Italian Criminal Code shall apply. The University will not take into account any certificates attached by candidates who are Italian citizens or citizens of a state belonging to the European Union.
 - **Citizens of a non-European Union State** must submit documents and qualifications in Italian or English or one of the additional languages, if any, indicated in Annex A, under penalty of exclusion from the selection or, as the case may be, non-assessment.



Documents and titles, originally in a different language, must be accompanied by a translation, made by the candidate under his or her responsibility, into Italian or English or any other language indicated in Appendix A. With reference to the dissertation only, the translation may be limited to an extended abstract.

- **Citizens of a non-EU State regularly residing in Italy** may use declarations in lieu of certification only in respect of states, personal qualities or facts that can be certified or attested to by Italian public bodies, without prejudice to the special provisions contained in the laws and regulations governing immigration and the status of foreigners.
- **Citizens of non-EU states authorised to reside in Italy** may use the aforementioned declarations in cases where they are produced pursuant to international conventions between Italy and the declarant's country of origin.

Applicants may also enclose with their application for assessment purposes their publications and any other qualification deemed useful to prove their qualification in relation to the research programme described in Annex A and to certify any research activity carried out in public and/or private entities (with the indication of the starting date and duration). The submission modalities are similar to those indicated in point 4 of the previous paragraph.

Only the qualifications possessed by the candidate on the date of submission of the application for selection and presented in accordance with Article 5 will be assessed.

Any exclusion from the selection procedure due to lack of eligibility requirements, absence of mandatory documents, failure to sign the application to take part in the selection or submission of the application in a manner other than that provided for in this call will be communicated to the parties concerned exclusively by email to the email address indicated in the application to take part in the selection.

Art. 5

Registration for this selection will begin on December 20, 2024 at 2:00 pm (Italian time) and will end on January 20, 2025 at 2:00 pm (Italian time).

The application to take part in the selection must be completed, under penalty of exclusion, using the appropriate online procedure, available at <https://pica.cineca.it/>.

For those who do not already have a user account, the procedure involves a registration phase for the applicant, and a subsequent phase for completing the application online.

Once completed, the application must be signed in the manner (handwritten signature, with attached identity document, or digital signature) described in the online procedure, under penalty of exclusion from the selection. The application does not have to be signed if the above-mentioned online procedure is accessed using the Sistema Pubblico di Identità Digitale (SPID - Digital ID Public System). In the case of a handwritten signature, the applicant must upload the application to the system in its entirety. The information entered in the application form shall constitute a declaration in lieu of certification and affidavit, pursuant to Articles 46 and 47 of Presidential Decree no. 445/2000.

The qualifications referred to in Article 4 must be attached to the application in .pdf format. Individual files, in .pdf format, may not exceed 30MB in size.

It is not permitted to submit attachments to the application in the form of links to files residing on "online storage/file sharing" services or web pages. Reference may not be made to documents or publications submitted to this or other administrations or documents attached to the application for participation in another selection procedure.



The application for participation in the selection is automatically sent to the University of Udine with the final closure of the online procedure.

The University Administration:

- accepts no liability if it is impossible to read the submitted documentation in electronic format due to damaged files;
- does not accept or take into consideration qualifications or documents received in paper form or by any other means than those specified in this article.

The Administration accepts no liability in the event of incorrect indication by the candidate of his/her email address or in the event of failure or delay in communicating a change in the email address indicated in the application, nor for any digital transmission errors attributable to third parties, unforeseeable circumstances or force majeure.

Applicants are advised not to wait until the last few days before the deadline to submit their application. The University accepts no liability for any malfunctions due to technical problems and/or overloading of the communication line and/or application systems.

Art. 6

The selection test takes place according to the modalities set out in Annex A.

The test will aim to ascertain the candidates' preparation, experience and research aptitude. It will consist of an assessment of the professional scientific curriculum, publications and titles submitted, and an interview, where applicable.

Failure of the candidate to attend the interview will be considered as withdrawal from the selection, whatever the cause.

Candidates who intend to avail themselves of the benefits provided for by Article 20 of Law no. 104 of 1992 (need for assistance, possible use of additional time for the performance of examination tests) in relation to their disability situation, must declare this and accompany the application with appropriate medical certification in order to allow the Administration to prepare in time the means and tools to guarantee the statutory benefits; failure to submit the medical certification exempts the Administration from any obligation in this regard.

Art. 7

The Competition Selection Board is identified in Annex A to this call, of which it forms an integral part. At its first meeting, the Board appoints the Chairperson and the Secretary taking the minutes, and establishes the criteria and procedures for assessing the qualifications and the interview, where applicable.

The results of the assessment must be made known to the parties concerned at the interview, where provided for.

The Board can attribute to the selection a total number of 100 points (one hundred hundredths). At the end of its work, the Board formulates the overall merit list based on the total marks obtained by each candidate and draws up the minutes of the competition operations.



The grant may be awarded, subject to the ranking list, to candidates who have obtained a minimum overall mark of 70/100 (seventy hundredths).

The Board's judgement is final on the merits.

The ranking list will be made public exclusively by publication on the University's official notice board; the outcome of the assessment will not be the subject of personal communication to candidates.

Those who do not declare their acceptance of the research grant and do not present themselves at the structure where the research activities are to be carried out to sign the contract by the deadline communicated by the same to the email address indicated by the candidate in the application shall forfeit their right to the research grant, except for health reasons or reasons of force majeure duly documented and promptly notified.

Candidates holding qualifications obtained abroad, if successful, must submit the following, if not already attached to the application:

- **For degrees issued by a country that is a party to the Lisbon Convention (<https://www.enic-naric.net/>), the following documentation:**
 - *Supplement* Diploma or similar certificate in English issued by the competent University.
 - "Certificate of Verification of Foreign Qualification - CIMEA" issued by CIMEA (Centre for Information on Academic Mobility and Equivalences) via the "*diplome*" service at <https://cimea.diplo-me.eu/udine/#/auth/login>
- **For degrees issued by a country not party to the Lisbon Convention (<https://www.enic-naric.net/>), one of the following options:**
 - Declaration of the on-site value of the qualification held and the certificate relating to the qualification with examinations and grades. The certificate in a language other than Italian or English must be accompanied by an official translation into one of those languages (certified by the competent diplomatic-consular authority or sworn at a court in Italy).
 - "Certificate of Comparability and Verification of Foreign Qualifications - CIMEA" issued by CIMEA (Centre for Information on Academic Mobility and Equivalences) via the "*diplome*" service at <https://cimea.diplo-me.eu/udine/#/auth/login>

If the aforementioned documentation is not available at the time of the conclusion of the contract, the candidate must prove that he or she has requested it and submit it as soon as possible; if it is not submitted within six months of the start of the contract, the candidate will forfeit the contract and will be required to repay any related sums received to date.

Art. 8

The research activity cannot be started before the contract defining the terms of the collaboration is signed.

The activity covered by the research grant must have the following characteristics:

- a) Be carried out in the context of the research programme covered by the grant and not be a purely technical support to the same.
- b) Close connection with the implementation of the research programme that is the subject of the relationship with the winner.
- c) Having a continuous and in any case temporally defined character, not merely occasional, and in coordination with the overall activity of the University.



- d) Performance in a condition of autonomy, within the sole limits of the programme prepared by the Head of the same, without predetermined working hours.

The research fellow is obliged to submit a detailed written report on the work carried out and the results achieved, together with the opinion of the scientific supervisor, to the reference structure within the deadlines laid down in the contract. The research fellow will also have to submit interim reports and time sheets if requested by the reference structure and/or the scientific supervisor.

The research fellow is bound to strict confidentiality regarding the data and information to which he/she becomes privy in the course of his/her research activity. At the request of the scientific coordinator, he/she will be required to sign an appropriate confidentiality agreement.

The industrial property rights to the results obtained by the research fellow in the performance of the research activity belong exclusively to the University, without prejudice to the moral right of the research fellow to be recognised as an author or inventor.

The University reserves the right to revoke this call for competition for reasons of public interest, should the research project and/or the financial backing on which the research grant is based cease to exist. Should these causes arise after the contract has been signed, the University may terminate the contract without notice.

Art. 9

The following apply to the grant under this call:

- On tax matters, the provisions of Article 4 of Law no. 476 of 13 August 1984, as amended.
- On social security matters, the provisions of Article 2(26) et seq. of Law no. 335 of 8 August 1995, as amended.
- On compulsory maternity leave, the provisions of the Ministerial Decree of 12 July 2007.
- On sick leave, the provisions of Article 1(788) of Law No 296 of 27 December 2006, as amended.

During the period of compulsory maternity leave, the allowance paid by INPS pursuant to Article 5 of the Ministerial Decree of 12 July 2007 is supplemented by the University up to the full amount of the research grant.

The grant will be paid in monthly instalments in arrears.

Art. 10

The data collected as part of the procedure referred to in Article 5 is necessary for the proper management of the selection procedure, for the possible subsequent management of the research grant and purposes related to the management of the services provided by the University. The University of Udine is the Data Controller. At any time, the data subject may request access, rectification and, compatibly with the institutional purposes of the University, cancellation and restriction of processing or may object to the processing of his/her data. He/she can always lodge a complaint with the Italian Data Protection Authority. The full information is available on the University of Udine website in the "Privacy" section accessible from the home page www.uniud.it Direct Link: <https://www.uniud.it/it/it/pagine-speciali/guida/privacy>

Art. 11

For any matters not expressly mentioned in this call, reference is made to the relevant regulations in force cited in the introduction and to the "Internal regulations for the award of research grants pursuant to Law no. 240 of 30 December 2010" of the University of Udine issued by Rector's Decree no. 182 of 31 March 2021.



Art. 12

The official in charge of the proceeding is Dr. Sandra Salvador, Head of the Research Services Area of the University of Udine.

The reference office at the University of Udine is the “Area Servizi per la Ricerca - Ufficio Formazione per la Ricerca”, Via Mantica 31 - 33100 Udine.

To request information on the call, please complete the following form available on the University of Udine website:
https://helpdesk.uniud.it/SubmitSR.jsp?type=req&accountId=universityofudine&populateSR_id=42105



Annex A

Responsabile scientifico della ricerca / Principal investigator:

Nome e cognome / Name and surname: Rino Gubiani

Qualifica / Position: Professore Associato / Associate Professor

Dipartimento / Department: Scienze Agroalimentari, Ambientali e Animali (DI4A) / Agricultural, Food, Environmental and Animal Sciences

Area MUR / Research field: 07 - Scienze agrarie e veterinarie

Settore concorsuale e Settore scientifico disciplinare / Scientific sector: 07/AGRI-04; AGRI-04/B - Meccanica agraria

Titolo dell'assegno di ricerca / Topic of the research fellowship "assegno di ricerca":

I bandi sono consultabili dal sito dell'Ateneo, del MUR e di Euraxess / The calls are available on the University, MUR and Euraxess websites

Testo in italiano:

Sviluppo di Un SisTemA INnovativo ed Eco-fRIENDLY a getto d'acqua per il diserbo, la cura del verde ed altre operazioni in ambito rurale e civile (Progetto "SUSTAINER-H2O").

Text in English:

Development of an innovative and eco-friendly water-jet system for weed control, green care and other operations in rural and civil areas ("SUSTAINER-H2O" project).

Obiettivi previsti e risultati attesi del programma di ricerca in cui si colloca l'attività dell'assegnista di ricerca / Foreseen objectives and results of the research programme performed by the research fellow "assegnista di ricerca":

I bandi sono consultabili dal sito dell'Ateneo, del MUR e di Euraxess / The calls are available on the University, MUR and Euraxess websites

Testo in italiano:

Il progetto mira a produrre come output una gamma di attrezzi agricoli smart ed eco-friendly basati sulla tecnologia waterjet cut, quindi aventi la capacità di operare secondo i principi dell'Agricoltura di Precisione ("realizzare l'intervento giusto, nel posto giusto, al momento giusto"), estremamente efficienti dal punto di vista energetico e rispettosi verso le risorse naturali utilizzate/coinvolute e gli habitat circostanti al punto di utilizzo. Attualmente tale tecnologia è utilizzata, in ambito agrario, in una sola macchina, realizzata dall'azienda partner di progetto, coperta da brevetto (la macchina "Grass Killer"); essa può potenzialmente rimpiazzare più sistemi tradizionali (sostanze chimiche, elementi assolcatori, utensili di taglio) ora utilizzati per controllare la crescita/estensione della biomassa. Se una macchina di tale tipo, opportunamente evoluta, venisse adeguatamente interfacciata con sistemi di geolocalizzazione, visione artificiale, riconoscimento automatico dei target, posizionamento robotizzato dell'end-effector, sarebbe possibile dare origine a attrezzi di nuovissima generazione, come appunto si propone questo progetto. Specificamente: una nuova macchina per il diserbo (il generaz. della Grass Killer), capace anche di operare una contestuale fertilizzazione o arricchimento del suolo diserbato con microorganismi, una macchina per il diradamento delle chiome, eventualmente coincidente anche con la precedente macchina, un kit di ammodernamento per seminatrici da sodo nelle quali il sistema waterjet sia responsabile del taglio dei residui in campo prima del passaggio dell'organo di semina. Contestualmente allo sviluppo di questi attrezzi, vi è la necessità e l'interesse nello studiare maggiormente (dal punto di vista teorico e applicativo) alcuni sottosistemi: (1) la linea di azionamento delle macchine ad opera del trattore, proponendo delle alternative ibride meccaniche e elettriche/idrauliche, con punti di accumulo/recupero dell'energia che gestiscano meglio i transitori; (2) il sistema di approvvigionamento della portata d'acqua agli ugelli di taglio, studiando un sistema di filtraggio/decantazione diverso da quello attuale; (3) il sistema di applicazione/direzionamento della portata d'acqua pressurizzata, con attuatori intelligenti, sistemi ottici di riconoscimento delle aree inerbite e del tipo di suolo e una logica interpretativa



"intelligente". Dal punto di vista tecnico ci si aspettano i seguenti risultati in merito agli attrezzi che verranno sviluppati (la quantificazione avverrà in paragone con la macchina Grasskiller di I generazione e gli altri attrezzi convenzionali già sul mercato): (1) risparmio di energia, quindi minori emissioni del trattore collegato, grazie al miglioramento della linea di azionamento, che include anche elementi di accumulo, e/o allo spegnimento selettivo degli ugelli in caso di zone nelle quali non si debba agire (dove non siano presenti le malerbe/biomassa da tagliare), e/o alla possibilità di effettuare più azioni contemporaneamente (fertilizzazione/arricchimento del terreno con biostimolanti/microorganismi); (2) risparmio di acqua, quindi riduzione degli sprechi e estensione dell'operatività tra due successivi rifornimenti (quindi minori tempi morti); (3) riconoscimento automatico della tessitura del terreno, necessario a modulare l'intensità dei getti nel caso debbano penetrare il terreno (kit di retrofit per seminatrici da sodo), e di riconoscimento delle malerbe, per meglio tarare l'intensità dei getti; (4) posizionamento automatico dei bracci di taglio, per effettuare un diradamento mirato delle chiome o dei fiori. Alcuni singoli componenti di interesse, che faranno parte dei macchinari che verranno sviluppati nell'ambito di questo progetto, verranno primariamente testati (prove su banco o di laboratorio) all'interno dell'azienda partner e nei laboratori dell'Università di Udine. In un secondo momento, si procederà con prove in officina/laboratorio sui macchinari completi. Gli stessi macchinari verranno poi testati in campo nel territorio circostante all'azienda, nel quale essa ha la disponibilità di alcuni terreni già ora utilizzati per effettuare prove e collaudi finali delle altre macchine che produce, oppure presso i terreni della Azienda Agricola Sperimentale "Antonio Servadei" dell'Università di Udine.

Le attività che verranno svolte dal candidato sono indicativamente le seguenti: analisi di mercato degli attrezzi utilizzati per la cura del verde e la semina; indagine delle possibilità di estensione operativa dei sistemi attuali; progettazione di nuovi sistemi (struttura, sensori e attuatori, sistemi di pressurizzazione/ erogazione di liquidi, predisposizione del sistema di controllo); progettazione ed effettuazione degli esperimenti finalizzati alla caratterizzazione operativa ed energetica dei sistemi esistenti e in sviluppo; interfacciamento tra controparte accademica ed aziendale.

Text in English:

The project aims at creating as an output a range of smart and eco-friendly agricultural implements based on waterjet-cut technology, i.e., having the capacity to operate according to the principles of Precision Farming ("carry out the right intervention, in the right place, at the right time"), extremely energy-efficient and respectful of the used/involved natural resources and of the habitats surrounding the application point. At present, this technology is used, in the agricultural field, in only one machine, made by the project partner company and covered by a patent (the 'Grass Killer'); it can potentially replace several traditional systems (chemicals, furrowing elements, cutting tools) now used to control the growth/extension of biomass. If such a machine, suitably evolved, were properly interfaced with systems of geo-localisation, artificial vision, automatic target recognition, and robotic positioning of the end-effector, it would be possible to give rise to a new generation of tools, as precisely this project proposes. Specifically: a new weeding machine (2nd generation of the Grass Killer), also capable of operating a contextual fertilisation or enrichment of the weeded soil with micro-organisms, a pruning machine, possibly also coinciding with the previous machine, a retrofitting kit for seed drills in which the waterjet system is responsible for cutting residues in the field before the seeding apparatus passes through. At the same time as the development of these implements, there is a need and interest in further studying (from a theoretical and applicative point of view) some subsystems: (1) the drive line of the machines by the tractor, by preparing hybrid mechanical and electric/hydraulic alternatives, with energy storage/recovery points that better manage the transients; (2) the water flow supply-system to the cutting nozzles, by studying a filtering/decanting system different from the current one; (3) the system for applying/directing the pressurised water flow rate, with intelligent actuators, optical systems for recognising grassed areas and soil type, and "intelligent" interpretation logic. From a technical point of view, the following results are expected with regard to the implements to be developed (quantification will take place in comparison with the 1st generation of the Grasskiller machine and with other conventional implements already on the market) (1) energy saving, hence lower emissions from the connected tractor, due to the improved drive line, which also includes accumulation elements, and/or selective switching off of the nozzles in case of areas in which no action should be taken (where weeds/biomass to be cut are not present), and/or the possibility of performing several actions at the same time (fertilisation/soil enrichment with biostimulants/microorganisms); (2) water saving, thus reducing wastes and extending operation between two



successive fill-ups (thus with less downtimes); (3) automatic recognition of soil texture, necessary to modulate the intensity of the jets in case they have to penetrate the soil (retrofit kit for seed drills), and weed recognition, to better calibrate the intensity of the jets; (4) automatic positioning of the cutting arms, to carry out targeted thinning of the foliage or flowers. Some individual components of interest, which will be part of the machinery to be developed as part of this project, will primarily be tested (through bench tests or laboratory tests) within the partner company and in the laboratories of the University of Udine. In a second step, workshop/laboratory tests will be carried out on the complete machinery. The same machinery will then be tested in some fields in the area surrounding the company, at the disposal of the company and already used to carry out tests and final trials of the other machines it produces, or on the land of the "Antonio Servadei" Experimental Farm of the University of Udine. The activities that will be carried out by the candidate are indicatively as follows: market analysis of the equipment used for crop care and sowing; investigation about the possibilities of operational extension of the current systems; design of new systems (structure, sensors and actuators, pressurisation/liquid delivery systems, preparation of the control system); design and execution of experiments aimed at the operational and energy characterisation of existing and under-development systems; interfacing between the academic and company counterparts.

Struttura dell'Università di Udine e soggetti esterni presso la quale verrà sviluppata l'attività di ricerca / Department or other structure of the University of Udine and external organizations where research activities will be carried out:

- Dipartimento di Scienze Agroalimentari, Ambientali e Animali (DI4A), gruppo di ricerca in Ingegneria Agraria. / Department of Agricultural, Food, Environmental and Animal Sciences, Agricultural Engineering REsearch (AGÈRE) group;
- Azienda Caffini S.p.A., via Guglielmo Marconi, 2 - 37050 Palù (VR).

Importo dell'assegno di ricerca (al lordo oneri carico assegnista) / Total grant gross for the research fellowship:

€ 47.019,00

Durata dell'assegno di ricerca / Duration of the research fellowship "assegno di ricerca":

22 mesi / months

Finanziamento / Financed by:

L'assegno di ricerca è finanziato dalla Fondazione Cassa di Risparmio di Verona Vicenza Belluno e Ancona – CARIVERONA. Bando "Ricerca e Sviluppo 2023/2024". CUP G23C24002110003.

Requisiti di ammissione / Minimum qualifications necessary:

Alla data di avvio del progetto di ricerca su cui l'assegno di ricerca è finanziato, fissata al 31 dicembre 2024, il candidato: / At the starting date of the research project on which the research grant is financed, set on the 31st December 2024, the candidate:

- non deve aver compiuto 40 anni / must not have reached the age of 40;
- deve essere in possesso del titolo di Dottore di ricerca o titolo equivalente conseguito all'estero / must be in possession of a Research doctorate or equivalent qualification obtained abroad.

Nota / Note: nella valutazione dei titoli la Commissione giudicatrice terrà in particolare considerazione il possesso di una laurea magistrale in Ingegneria (Meccanica o Energetica o Meccatronica o Chimica o dei Materiali; indicativamente classi di laurea: LM22-LM25-LM30-LM33-LM53) e di un Dottorato nella stessa materia (o di titoli equivalenti conseguiti all'estero). Inoltre, la Commissione valuterà positivamente un'esperienza nell'ambito del



settore Agromeccanico e una propensione allo studio di nuovi macchinari aventi anche dei risvolti di tipo ambientale. / In evaluating the qualifications, the Examining Board will keep in particular consideration the possession of a University degree in Engineering (Mechanics or Energy or Mechatronics or Chemistry or Materials) and a PhD in the same subjects (or equivalent degree obtained abroad). The Examining Board will positively evaluate experience in the Agromechanical Sector and an inclination to study new machinery that also has environmental implications.

Modalità di presentazione della documentazione oggetto di valutazione / Arrangements for the submission of documents:

La modalità di presentazione della documentazione oggetto di valutazione è specificata all'art. 4 del bando. / The way of presenting the documentation under evaluation is specified in art. 4 of the present notice.

Ai fini valutativi, i candidati potranno presentare le pubblicazioni e ogni altro titolo ritenuto utile a comprovare la propria qualificazione in relazione al programma di ricerca descritto nell'Allegato A, nelle seguenti lingue: / For evaluation purposes, candidates may present publications and any other qualifications deemed useful to demonstrate their qualification in relation to the research program described in Attachment A, in the following languages:

- Italiano / Italian
- Inglese / English

Procedura selettiva / Competition procedure:

Valutazione per titoli e colloquio. / Evaluation of titles and oral exam.

I risultati della valutazione dei titoli saranno resi noti agli interessati nel corso del colloquio. / The evaluation of the qualifications will be disclosed to candidates during the interview.

Calendario del colloquio / Calendar of the oral exam	Modalità / Modality	In presenza / On site
	Data / Date	28 gennaio / January 2025
	Ora / Time	17:00 / 5:00 pm (Italian time)
	Luogo / Place	Sala riunioni di Ingegneria Agraria (edificio Rizzi, stanza B2.15) Via delle Scienze, 206 – 33100 Udine

Per sostenere il colloquio i candidati devono esibire un valido documento di riconoscimento. / Candidates must come to the interview with a valid identity document.

Eventuali variazioni saranno rese note esclusivamente mediante pubblicazione all'albo ufficiale on line dell'Ateneo / Any change will be made public solely through publication on the University web site http://web.uniud.it/ateneo/normativa/albo_ufficiale

I candidati impossibilitati a partecipare alla prova orale presso la sede possono chiedere alla Commissione giudicatrice di svolgere il colloquio in videoconferenza, allegando alla domanda di partecipazione alla selezione istanza motivata. / Candidates unable to attend the interview at the University of Udine, may request to the Examining board to take the interview by video conference, attaching the request to the online application.



Commissione giudicatrice / Examining Board:

Nome e Cognome	Qualifica	SSD	Università
Membri Effettivi / Permanent members			
Rino Gubiani	PA	AGRI-04/B	Università degli Studi di Udine
Marco Bietresato	RTD	AGRI-04/B	Università degli Studi di Udine
Giovanni Cortella	PO	IIND-07/A	Università degli Studi di Udine
Massimiliano Renzi	PA	IIND-06/A	Libera Università di Bolzano
Membri Supplenti / Temporary members			
Enrico Salvati	PA	IIND-03/A	Università degli Studi di Udine
Giovanni Pernigotto	PA	IIND-07/B	Libera Università di Bolzano