



RFP(Request for Proposal) Breeding Management System (BMS) Development – IBP/ABEE Project

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PSU UNIT

1- CONTEXT- IBP/ ABEE Project





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1- CONTEXT- IBP/ ABEE Project

- The ABEE project Fostering breeding networks and institutional breeding capacity in West Africa to develop climateresilient crops for African smallholder farmers – ABEE (West Africa Breeding Networks and Extension Empowerment) is a 5 years' project, funded by the European Commission and coordinated by the West and Central African Council for Agricultural Research and Development (CORAF). The objective of this project is to foster a more coordinated regional and national approach to plant breeding, placing breeders from the three participating countries (Senegal, Burkina Faso and Niger) in the driving seat to lead the change, in close partnership with experienced actors in the Research for Development arena.
- The project will provide expertise, tools and technologies to breeders working on five target crops (cowpea, groundnut, millet, sorghum and Fonio) to help them to manage their ongoing breeding programmes effectively and efficiently, delivering improved varieties with traits based on the needs of farmers and value chains actors (Demand-Led Breeding, or DLB), and to engage entrepreneurs (especially youth) to establish seed businesses to ensure that farmers have access to the new varieties and other inputs necessary to improve productivity.
- In this project, the breeding programmes will be digitised, to improve data quality, documentation and analysis. Therefore, AfricaRice/IBP has been contracted to support the national programmes in the target countries to modernize their breeding programmes and to better manage their breeding data, using the Breeding Management System (BMS).



2- PURPOSE OF THE RFP

The Breeding Management System (BMS) (<u>https://bmspro.io/</u>) is a comprehensive suite of software tools for crop breeding. It is designed to help breeders manage their breeding programmes more efficiently so that they may develop improved cultivars faster and at lower cost. The BMS is a web-based product that is delivered to our customers as SaaS (Software as a Service) or directly on the client premises.

- Over the last few years, the BMS has adopted the principles of an API driven architecture represented by these four interconnected layers:
- Presentation Layer Angular JS/ Angular, Vaadin 6;
- Service Layers Custom API services and BrAPI standard ones;
- Middleware Java, Spring;
- Persistence layer Hibernate, MySQL (InnoDB).



2- PURPOSE OF THE RFP

Within the context of this project we're looking at software engineering resources provided by a contractor to extend the four layers described above - primarily the service layer - to support data exchange between different BMS instances in terms of being able to seamlessly distribute study evaluations and resulting germplasm within a customizable federation of BMS instances. The vision is that interoperability would be achieved using exclusively the BrAPI standard for RESTFul APIs.

The Breeding API (BrAPI) project (<u>https://brapi.org/</u>) is an effort to enable interoperability among plant breeding databases. BrAPI is a standardized RESTful web service API specification for communicating plant breeding data. This community driven standard covers a variety of types of plant breeding data like germplasm management, field trials, and genotyping. These can be used independently or combined for added functionality.

In addition, there is an evolutive feature development driven by customer requests and support (bug fixing) component that will also be part of the scope of this project.

The BMS Development considered in ABEE will be a 3 years project, supported by an estimated total of 12 500 hours work over 3 years





Schedule of the Tender

- The estimated timetable for the tender procedure is as follows
- Launch of tender: 06th November 2020
- Deadline for submitting bids: 06th December 2020 at 4:00pm, Abidjan local time.
- A committee will review and analyze proposals received.
- Notification and signing of 3 years contract will be done at the end of the selection process
- And a Notification will be sent to the non-winning Bidders

Joint Venture

Where a joint venture or any other form of partnership approach is proposed, bidders are required to provide full details of the JV and nature of relationship with other Joint Venture members. Bidders forming a joint venture shall nominate an authorized representative of the Joint Venture (duly evidenced by submitting a power of attorney signed by a legally authorized representative of the Joint Venture who shall have the authority to conduct all business for and on behalf of all members and enter into the contract. All members shall be jointly and severally liable for the performance of any resulting contract.



<u>Cost</u>

The Bidder shall bear all costs related to the preparation and/or submission of the Bid, regardless of whether its Bid was selected or not. AfricaRice shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the procurement process.

<u>Language</u>

The Bid, as well as any and all related correspondence exchanged by the Bidder and AfricaRice, shall be written in English.

Currency

All bidders must submit their quotes in United States Dollars (USD) and all financials offers should exclude VAT .

Validity period of Proposals

Bid shall remain valid for ninety (90) days commencing on the submission deadline date. A Bid valid for a shorter period shall be immediately rejected by AfricaRice and rendered non-responsive. In exceptional circumstances, prior to the expiration of the Bid validity period, AfricaRice may request Bidders to extend the period of validity of their Bid. The request and the responses shall be made in writing and shall be considered integral to the Bid.





Submission of bids

- Bids should be sent electronically at <u>A.Quotation@cgiar.org</u>
- The technical offer should be separated from the financial offer. The offers should be sent in different files.
- Bidders should send an electronic proposals password protected in PDF format only, with separate passwords for Technical and Financial proposals, and free of virus.
- Password for the Technical and Financial Proposal will be provided when AfricaRice will communicate the date of Bid Opening.
- The Subject of the mail should be titled: RFP/2020-009/ IBP_ABEE Project/ PSU/DOF
- It is strongly recommended that the bidders write the passwords and save it in a safe place. If AfricaRice is unable to open the file because of forgotten password(s) the proposal will be disqualified.



- As an e-mail can take some time to arrive after it is sent, we advise all Bidders to send e-mail submissions
 well before the deadline.
- Bidders should be aware that bids e-mailed to AfricaRice will be rejected if they are received after the deadline for bid submission.
- When choosing to submit their proposals electronically, Bidders are solely responsible for ensuring that any and all files sent to AfricaRice are readable, that is, uncorrupted, in a good electronic format, and free from viruses and malware.
- Proposal sent to the private email addresses of any procurement staff may be rejected. All files should be
 password protected. Technical and Financial Proposals must have different passwords that prevent
 opening of file.



• Clarification of the Tender

Bidders may request clarification of any article of the tender no later than five (05) days prior to the Bid submission date. Any request for clarification must be sent in writing through electronic means to <u>A.Quotation@cgiar.org</u> AfricaRice will respond in writing, transmitted by electronic means and will transmit copies of the response (including an explanation of the query but without identifying the source of inquiry) to all Bidders who have provided confirmation of their intention to submit a Bid.

• Amendment of the Tender

At any time prior to the deadline for submission of Bid, AfricaRice may for any reason, such as in response to a clarification requested by a Bidder, modify the tender in the form of a Supplemental Information to the Request. All prospective Bidders will be notified in writing of all changes/amendments.

In order to give, prospective Bidders, reasonable time to consider the amendments in preparing their Bid, AfricaRice may, at its discretion, extend the deadline for submission of Bid, if the nature of the amendment justifies such an extension.

• Deadline for the submission of Bid and late bids

Bids must be received by AfricaRice at <u>A.Quotation@cgiar.org</u> not later than 06th December 2020_at 4:00 pm. Abidjan local time

AfricaRice shall not consider any Bid that arrives after the deadline for submission of Bid. Any Bid received by AfricaRice after the deadline shall be declared late, rejected, and Unsuccessful bidder notified.



<u>Confidentiality</u>

Information relating to the examination, evaluation, and comparison of Bid, and the recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with the process, even after publication of the contract award.

Any effort by a Bidder to influence AfricaRice in the examination, evaluation and comparison of the Bid or contract award decisions may result in the rejection of its Bid.

· Amendment or withdrawal of an offer

Any change to the tenders must be received before the deadline for submission of bids. Bidders must clearly indicate that the change cancels the initial offer and then specify the changes in relation to the first offer.

Similarly, bidders may withdraw their offers by asking AfricaRice headquarters in writing to the email address indicated and with the subject line before the bid analysis.

Erasure or corrections made in the bid should be explained and must bear the signature of the authorized person. It is advisable for bidders to read all the instructions provided to them. Any bidder who does not respect this clause will bear the risks and inconvenience.

AfricaRice's rights

AfricaRice reserves the right to accept or reject an offer.





- <u>AfricaRice</u>, also reserves the right to:
 - Contact customers as references cited by the applicant;
 - Request additional information to bidders;
 - Arrange interviews with applicants;
 - Reject any or all the bids;
 - Award the contract to several tenderers in order to achieve the objectives
- Ethics clauses
 - Any attempt by a candidate or bidder to obtain confidential information, reach unlawful agreements with competitors or influence the selection committee during
 - the examination procedure, request for clarification, evaluation and comparison will lead to the rejection of his proposal.
 - A bidder shall not have a conflict of interest that would call into question its participation in the procurement process and award of contract. Bidders shall disclose any potential or actual conflict of interest in the disclosure form and during execution of any contract. All bidders found to have a conflict of interest may be disqualified. If during performance of the contract, such a situation occurs, the Contractor must immediately inform AfricaRice.
 - The contractor must at all times act impartially and as a faithful adviser in accordance with AfricaRice's professional code of ethics. He cannot engage AfricaRice, in any way without its prior written consent.



- During the course of the contract, the selected supplier and his staff are committed to respect human rights and shall not engage in discriminatory practices related to race, ethnicity, religion, nationality, gender, age, sexual orientation, marital status, citizenship status, infirmity etc...
- The contractor and its staff are bound by professional secrecy for the entire duration of the contract and after its completion. All reports and documents drawn up or received by the holder in connection with performance of the contract are confidential.
- It is AfricaRice's policy that bidders/suppliers observe the highest standard of ethics during the procurement
 process and execution of such contracts. In pursuance of this policy, AfricaRice shall reject a proposal if it
 determines that the bidder, or any of its personnel, agent, consultant, subcontractor or service provider, has,
 directly or indirectly, engaged in "Corrupt', "Fraudulent', "Collusive", "Coercive" or "Obstructive" practices in
 competing for the contract in question. AfricaRice may also declare the bidder ineligible for participation in
 future procurement and award of contracts, either indefinitely or for a stated period of time.
- A bidder/supplier who offers any gift of any value to AfricaRice's staff will be considered to be influencing the procurement process. AfricaRice will reject a proposal if it determines that any such gift has been offered.



Background and Objectives

- Pls refer to the Purpose of the RFP
- Management & methodology:
 - Solid experience using in Agile Methodologies (Scrum for Evolutive development, Kanban for support);
 - Experience using Atlassian suit of products for software lifecycle management (Confluence, JIRA, TM4J) will be a plus.
- Experiences in software development:
 - Experience building and integrating API RESTful services;
 - Experience in information security;
 - Experience building, integrating and defining BrAPI standard services;
 - Service should include both development and quality assurance resources;
 - Extensive experience with full stack development with emphasis on Angular 8, Java (including deep experience in frameworks such as Spring), polyglot persistence and API design/development;
 - User interface/usability design expertise for responsive applications and mobile applications;
 - Experience building sophisticated native mobile applications on Android and iOS involving Bluetooth;
 - Practical experience developing real-world IoT and NB-IoT applications in challenging environments with poor connectivity;
 - Experience with machine learning;
 - Experience with data warehousing and analytical platforms;



- Demonstrated DevSecOps practices to build, package, test and deploy software with a focus on security and automation.
- Experience with modern MVC programming frameworks, advanced SQL, version control, automated testing;
- Solid knowledge about relational databases, database design and querying;
- Experience creating windows installers and docker images will be a plus.
- Support:
 - Proven record of support and troubleshooting of production systems with +150 users;
 - Multiplatform infrastructure support (Windows, Linux);
 - Ability to provide technical support 24x5.
- The participation criteria of the firms (the minimum requirements to apply)
 - Fully featured software development company comprised of scientific/business analysts, software architects, project managers, devops, front-end developers, back-end developers, database engineers, test engineers, functional testers and UI and usability designers;
 - The firm is a SME that has global operations with a minimum of 10 years of doing business in Agtech with a focus on crop breeding management systems;
 - The project team has solid experience using in Agile Methodologies (Scrum for Evolutive development, Kanban for support);
 - The project team has solid experience Atlassian suit of products for software lifecycle management (Confluence, JIRA, TM4J) will be a plus;
 - The project team has experience building, testing and integrating secure API RESTful services;



- The project team has experience building, testing and integrating and defining BrAPI standard services;
- The project team has experience with modern MVC programming frameworks, advanced SQL, version control, automated testing;
- The project team has extensive experience in finding and using Open Source codes from existing libraries;
- The project team has experience in developing technical and functional support documentation.
- The methodology for the work to do
 - The selected firm has assembled a flexible development team ("the project team") that IBP will direct towards software development objectives;
 - IBP will manage the project team in terms of development objectives;
 - These will include the addition of new functionality, upgrading the underlying technology and new products as directed. The primary focus of the Team will be across the following work streams:
 - Integration and development of RESTful APIS;
 - Interoperability within difference instances of the BMS;
 - New functionality to be prioritized and defined by the IBP.



- The project team will perform all their evolutive development work in sprint iterations of 3 weeks;
- The project team will perform all their support work following the support queue (Kanban) managed by the IBP;
- IBP will provide a list of candidate items for the next increment ("Sprint Backlog") with their corresponding functional design and acceptance criteria. The scope and definition of these items will be detailed enough for the project to be able to estimate requirements;
- The project team will estimate the effort needed for the next increment to be ultimately approved by IBP;
- If a Sprint Backlog item is not detailed enough to be estimated, the Team can decline to scope it;
- IBP and the project team negotiate a scope for the iteration that is achievable and valuable within the context of a sprint planning meeting;
- After 3 weeks the project team will demo the features to the IBP for acceptance testing and a new iteration will start;
- Depending on the scope of the sprint, the amount of work requested by the project team might vary significantly from one sprint to another;
- A new release of the application will be done every 4 sprint iterations.





- Firms profile
 - The following requirements are expected from the firms to apply:
 - At least 10 years of experience in developing complex software;
 - The capacity to ramp up a dedicated project team in 2 months from award date
 - Proven experience in developing both cloud-based and desktop installable software platforms to support plant sciences;
 - Providing support in international projects;
 - Experience in the domain of Breeding (germplasm accessions management, phenotypic studies, ontologies);
 - Good understanding and existing working relationships with the CGIAR.
 - Enough qualified staff to adjust the size and the composition of the project team depending of the nature of the scope and the workload defined at each sprint
- The qualifications of the project team
 - The project team size and composition might evolve from one sprint to another depending on the scope of the sprint, and might require up to 10 staff for a given sprint including Senior/semi senior full stack JAVA developers, Senior quality assurance analysts and at least 1 tech lead;
 - The members of the team have prior experience of plant breeding software development in the public or private domain and RESTful API services;
 - The project team, and the tech lead in particular, shall have full English proficiency for communicating with the IBP and availability within the Americas and Europe/Africa time zones for sprint related communication and planning;
 - The firm shall manage the administrative side of the employees and ensure that the employee performs according the IBP expectations;
 - The development cost per hour (everything included) should be indicated as part of the bid.



- All prospective service providers must submit a technical and financial proposal.
- <u>Technical proposal content</u>
 - The Technical bid should comprise of:
 - A Company profile which provides a brief description of the organization / firm submitting the Bid; its legal
 mandates/authorized business activities, number of employees, the year and country of incorporation. The Template in
 Appendix 1(A or B) may be used;
 - The litigation history form in Appendix 2 filled and signed;
 - The bidder's experience in similar jobs: The bidder must have at least 10 years of experience in developing complex software, dissemination of technologies in agricultural commodities, ideally for Africa by providing:
 - The list of projects executed during the last five (5) years or more with similar nature and complexity;
 - The outputs of these projects;
 - Client's contact details who may be contacted for further information on those contracts;
 - A proof of at least one experience in successfully similar project realized;
 - The staff composition and expertise currently employed by the service provider susceptible to be engaged in the project team to contribute to the BMS development plus their CVs/Resume. Please refer to Appendix 3A and 3B Form, to fill out the required informations;
 - Please note that the project lead must possess basic knowledge of agricultural research and development in Africa;
 - Ability to deal with Open Source licenses compatibility, considering that the BMS is under the GPL3 OS license;
 - Ability to produce materials in English.





- Financial proposal content
 - The financial proposal should comprise of:
 - A development cost per hour estimated in US dollars. The hourly cost estimate should include all the cost
 - The 3 years project cost will be: cost per Hour * 12 500

Evaluation of Bids

- The bids submitted and received on time will be reviewed and analyzed by a tender committee set up for the purpose.
- Technical proposals shall be evaluated using a two stages evaluation procedure.
- Bidders which have satisfied the minimum technical evaluation score (based on documentation submitted in the technical proposals) of 70 points (Qualifying Technical Score) will be considered for financial evaluation and its Financial Proposal will be opened. Bidders scoring less than 70 points will be rejected.
- The award shall be made to the bidder receiving the highest combined final score and ranked no "1" and with whom satisfactory price and terms can be negotiated and agreed upon.

Technical evaluation

- At this stage, the committee will select suppliers who:
- have proven experience in knowledge and qualified staff in developing complex software;
- have proven specific experience in successfully and substantially implemented projects of a similar nature and complexity provided strong references;
- have proposed a coherent methodology for implementation, and planning;
- have the capacity and the flexibility to implement a coherent work plan developed by the IBP across following sprints;
- The evaluation of the technical proposals is noted on one hundred (100) points. An offer is declared technically valid to be considered for financial analysis when it obtains at least 70 points. Thus, only technical proposals that have totaled a minimum of 70 points out of 100 points will be qualified for the financial evaluation.



• Appendix 4: Technical Analysis Evaluation sheet details the evaluation criteria.

Bidders whose bids have not obtained the required minimum score or have been found to be non-responsive to the Tender Documents, will be notified and will be advised that their financial proposal will be returned to them without having been opened at the end of the selection process.

<u>Financial evaluation</u>

Bidders obtaining the minimum Qualifying Technical Score will have the financial proposals opened.

The financial proposals shall be evaluated in accordance with the formula below. The bidder with the lowest financial proposal (Fm), shall be given 100 points. The financial scores of the other bidders (F) shall be computed as follows:

Nf (financial score) = $100 \times Fm / F$

(F = amount of financial proposal of other bidders)



1) Final ranking and award

• Proposals shall be ranked according to technical score (Nt) and financial score (Nf) using the weights (the weight given to the technical proposal, 70%) and (the weight given to the financial proposal 30%) indicated in the above:

• Final Score (NG) = Nt x 70% + Nf x 30%

• The bidder with the highest combined technical and financial score will be ranked first and eligible for award of the contract and with whom satisfactory price and terms can be negotiated and agreed upon. In case of failure of the negotiations, AfricaRice will consider the second ranked bidder and so on until an agreement is reached with one of the qualified bidders.

1) <u>Post-qualification/Due Diligence</u>

• Prior to award of the contract, AfricaRice carry out due diligence exercise which may include but need not be limited to all or any combination of the following:

- Verification of accuracy, correctness and authenticity of information provided by the Bidder;
- reference checking with previous clients on the performance on on-going or completed contracts, including physical inspections of previous works, as deemed necessary;
- Physical inspection of the Bidder's offices, branches or other places, with or without notice to the Bidder;
- Other means that AfricaRice may deem appropriate, at any stage within the selection process, prior to awarding the contract.

APPENDIX 1 APPENDIX 1 A: BIDDER INFORMATION SHEET

1. Bidder's Legal Name:				
2. In case of joint venture or any other form of partnership (JV), legal name of				
each party:				
3. Bidder's actual or intended Country of Registration, Constitution or				
Incorporation:				
4. Bidder's actual or intended Year of Registration, Constitution or				
Incorporation:				
5. Bidder's legal address in Country of Registration, Constitution or				
Incorporation:				
6. Bidder's Authorized Representative Information:				
Name:				
Address:				
Telephone/Fax numbers:				
Email Address:				
7. Attached are copies of original documents of:				
Articles of Incorporation or Registration of firm named and information on				
the capital structure.				
In case of JV, letter of intent to form a legally enforceable JV including a				
draft agreement, or JV agreement				
Organizational chart of the company and list of current staff				









APPENDIX 1 B: PARTY TO JOINT VENTURE INFORMATION SHEET

1. Bidder's Legal Name:

2. JV's Party legal name:

3. JV's Party Country of Registration, Constitution or Incorporation:

4. JV's Party Year of constitution or registration into a legally enforceable JV:5. JV's Party Legal address in Country of Registration, Constitution or Incorporation:

6. JV's Party Authorized Representative Information:

Name:

Address:

Telephone/Fax numbers:

Email Address:

- 7. Attached are copies of original documents of:
- □ Articles of Registration, Constitution or Incorporation of firm named and information on the capital structure.
- A letter of intent to form a legally enforceable JV including a draft agreement, or JV agreement and power of attorney nominating an authorized representative of the JV
- Organizational chart of the company and list of current staff

APPENDIX 2: LITIGATION HISTORY

Non-Performing Contracts – contracts terminated in the past three(3)						
years for unsatisfactory performance or default						
Cont	□ Contract non-performance did not occur during the stipulated period					
Contract non-performance during the stipulated period						
Year	Outcome		Total Contract			
	as	Contract Identification	Amount (current			
	Percent	Contract identification	value, US\$			
	of Total		equivalent)			
	Assets					
		Name of Purchaser:				
		Address of Purchaser:				
		Contract description:				
		Contract award date:				
		Termination date:				
		Reason for termination:				









APPENDIX 3 A: KEY PERSONNEL

Key Professional Personnel				
Name of Staff	Organization	Area of Expertise	Position Assigned	Task Assigned





APPENDIX 3 B: RESUME OF PROPOSED PERSONNEL

Position*			
Personnel informati on	Name* Professional qualifications		
Present employm ent	Name of employer Address of employer		
	Telephone	Contact (manager / personnel officer)	
	Fax	E-mail	
	Job title	Years with present employer	

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	То	Company / Project / Position / Relevant technical and management experience	





Acceptance criteria of bid (if(the following criteria are not met the technical proposal will not be analyzed)	Pass/faill
The bidder does not have a contract(s) terminated in the last three (3) years for unsatisfactory performance or default	Pass/faill
The bidder is not involved in litigation that represents more than 50% percent of the bidder's net worth.	Pass/faill
TECHNICAL EVALUATION	SCORE
EXPERIENCE	30
At least 10 years of experience in developing complex systems including Open Source software and Apps	10
Proven experience in developing both cloud-based and desktop installable software to support plant sciences	10
Proven support in international projects and exposure to multi-cultural environment	5
Good understanding and existing working relationships with the CGIAR	5
METHODOLOGY OF THE WORK	30
Compliance with the technical terms of reference	10
Working methodologies to implement development activities as requested	10
Skills for code documentation/publication + Ability to produce support material in English and French	10
RESOURCES	40
Team Composition and Professional Experience of Team Members	20
Expertise and qualification of the Project manager (at least 5 years experience in project management similar to this one)	10
Capacity to provide support services (24/5)	10
	DTAL 100