

IRRI Rice Genetic Design and Validation Unit

TERMS OF REFERENCE

Background

Our group is working on understanding the molecular basis of grain micronutrients with the major objective of main-streaming of rice Zinc breeding. This will help in development of micronutrient rich rice varieties through marker assisted selection and genomic selection approaches. We have developed multiple mapping populations by crossing micronutrient rich rice donor lines with several popular rice varieties. Presently we are genotyping and phenotyping these mapping populations to identify major effect QTLs/genes for grain micronutrients, especially for grain Fe and Zn.

Functions/Duties and Output Expectations

The intern will be provided with the opportunities to learn the following:

- Introduction to breeding for biofortification
- Breeding strategies to develop biofortified rice
- Phenotyping of grain micronutrients
- Strategies for Mapping of QTLs and genes for grain micronutrients
- *In silico* analysis of candidate genes
- Statistical analysis of agronomic and grain micronutrients
- Updates on statistical analysis to map QTLs
- Assignments related to biofortification

At the end of the internship, the following outputs will be expected:

1. Gained knowledge and skills on phenotyping for micronutrients, genotyping and mapping of QTLs/genes.
2. Presentation of the intern's outputs to IRRI Education unit

Qualifications and Competencies:

Graduate or undergraduate student interested and has background and knowledge in plant breeding and genetics.

Duration of Work:

- Duration of the internship is for 6 months

Duty Station

Remote Internship/purely online

IRRI Rice Breeding Innovation Platform - Rice Genomics Unit

TERMS OF REFERENCE

Background

The unit where the interns will be placed works on the Genomics of diverse rice, applied Computational Genetics, Bioinformatics and Biosystematics. These efforts create various resources: large-scale sequencing and genotyping datasets (e.g. the 3000 Rice Genomes); pre-breeding populations (RILs, BILs, NAM and MAGIC); high quality, multiple reference genomes for cultivated and wild rice; databases and tools ([SNP-Seek database](#) and the [Rice Galaxy](#)). Breeders, geneticists, and physiologists make use of these to understand the links between genotypes and phenotypes; in other words, what genes or genomic regions are associated with a trait of interest, its expression and regulation. This information can then be applied in current (or future) rice improvement programs using molecular breeding and genomic selection methods.

Functions/Duties and Output Expectations.

The intern will be tasked to do any of the two listed activities below.

1) Data Hub Development

Project will involve developing static and dynamic pages for displaying data from phenotyping trials and background information.

OR

2) Data Analysis of Phenotyping Data

Project will involve analysis of phenotyping data using genome-wide association for datasets across locations. Post-GWAS analyses will follow to determine most likely candidate genes and add support for their involvement in trait(s).

At the end of the internship, the following outputs will be expected:

1. Gained knowledge and skills on data analysis of phenotyping data

Qualifications and Competencies:

For the no. 1 task. The candidate is required to be familiar with HTML and Javascript , basic web development, familiarity with web development frameworks.

For the no. 2 task. The candidate should have a background and knowledge/familiarity with computational tools, and basic R statistics.

Duration of Work:

- Duration of the internship is for 6 months

Duty Station

Remote Internship/purely online

IRRI Education

Content Design and Development Intern TERMS OF REFERENCE

Background

IRRI Education is the education arm of the International Rice Research Institute (IRRI) and its vision is to provide knowledge and skills to all stakeholders in the rice-based agri-food sector.

Functions/Duties and Output Expectations

Under the direct supervision of IRRI Education's Associate Manager, the intern is expected to perform the following tasks:

- Develop multimedia learning materials (manuals, presentation, video, etc.) that supplement the capacity development program
- Review content and materials

At the end of the internship, the following outputs will be expected:

1. A report on leads generated and converted for the unit and findings of market research/competition analysis conducted
1. Presentation of the intern's report to IRRI Education unit

Qualifications and Competencies:

- Minimum bachelor's/college degree in international development, development communication, social science, agriculture
- Suitability to undertake the responsibilities mentioned above at the required level
- High competency in research and analysis
- Excellent written and verbal communication skills in English
- Highly proficient in Microsoft Office (Word, Excel, and Powerpoint) or Google Suite (Docs, Sheets, and Slides)
- Strong organizational skills, attention to detail, able to prioritize multiple tasks, and take direction
- Demonstrates knowledge and understanding of current development (agriculture) issues and challenges
- Proactive in keeping knowledge and skills up to date

Duration of Work:

- Duration of the internship is for 6 months

Duty Station

- The internship will be home-based, done virtually

IRRI Business Development Unit

TERMS OF REFERENCE

Background

IRRI's Business Development Unit (BDU) is responsible for strategic planning, knowledge management and coordination on developing new large strategic commissioned funding opportunities across the institute.

Functions/Duties and Output Expectations

Under the direct supervision of IRRI's Business Development Manager, the intern is expected to perform the following tasks:

- Assist in updating BDU's market research files (i.e. rice statistics, country and donor strategies, country and donor briefs, etc.)
- Identify new opportunities and funding sources for IRRI through conducting literature reviews and web-based research
- Monitor global business, economic, social, and political developments that may have potential relevance to IRRI's resource mobilization efforts
- Communicating findings and analysis through written reports, oral briefings, or visual representations using Powerpoint or Excel
- Assist in orchestrating meetings and agendas for BDU team, scientists, or country and regional representatives, where applicable
- Contribute to the improvement of BDU's knowledge base, operations, processes, tools, and promote knowledge sharing

At the end of the internship, the following outputs will be expected:

1. A research report on a donor/s based in a country or region that is determined jointly by the supervisor and intern
2. Presentation of the report to BDU and other selected IRRI staff -- Portfolio Management Office (PMO) & IRRI Education Business Development (IE BD)

Qualifications and Competencies:

- Minimum bachelor's/college degree in international development, social science
- Suitability to undertake the responsibilities mentioned above at the required level
- High competency in research and analysis
- Excellent written and verbal communication skills in English
- Highly proficient in Microsoft Office
- Strong organizational skills, attention to detail, able to prioritize multiple tasks, and take direction
- Demonstrates knowledge and understanding of current development (agriculture) issues and challenges
- Proactive in keeping knowledge and skills up to date

Duration of Work:

- Duration of the internship is for 3 months

Duty Station

- The internship will be home-based, done virtually

IRRI Portfolio Management Office

I. Portfolio Development TERMS OF REFERENCE

Background

The Portfolio Development (PD) team identifies, reviews, and recommends funding opportunities from open or advertised calls. PD ensures that IRRI's pipeline portfolio matches IRRI's mission, research thrusts, and comparative strengths. The team also supports IRRI's researchers in preparing call-compliant and competitive bids to respond to requests for expressions of interest, concept notes, and/or full proposals. PD, with the support of the Management Information System (MIS) and Financial Planning and Reporting Unit (FPR) maintains the IRRI Pipeline Dashboard, which enables IRRI Senior Management to determine the status of and make forecasts on IRRI's project portfolio. PD works with donors and relevant stakeholders—both directly and in coordination with relevant IRRI units—to translate mutually shared goals and objectives into investments for research and development impact.

Functions/Duties and Output Expectations

Objectives of the assignment:

1. Contribute to the development of donor intelligence information in the field of agriculture research, natural resource management, and other related fields targeting Southeast Asia, South Asia and Africa;
2. Identify relevant, new potential donors and update available information on IRRI's current list of donors
3. Identify and recommend different pathways to access donor funding of identified donors (new and existing) by providing information on their funding replenishment cycle and mode/s of eliciting funding applications.

At the end of the internship, the following outputs will be expected:

Tasks

1. Identify relevant key donors and their funding priorities and programs for the next three to five years in Southeast Asia, South Asia, and Africa;
2. Develop and compile succinct donor briefing notes for existing and new donors each for Southeast Asia, South Asia and Africa;
3. Contribute to the development of a database of relevant donor requirements, funding and intellectual property policies, and contractual obligations with donees such as IRRI through collection of materials, infosheets, documents and the like.

Outputs

1. Donor reports and briefing materials of selected donors
2. Copies of sample contracts, financial and intellectual property guidelines from selected donors and funding programs
3. Brief donor/funding landscape report covering Southeast and South Asia and Africa

IRRI Portfolio Management Office

II. Portfolio Management TERMS OF REFERENCE

Background

The portfolio management team coordinates and facilitates monitoring and management of active projects at IRRI. The intern will be requested to assist the Portfolio Management team around these activities. Specifically the successful candidate will be tasked to:

- Capture project summaries from project proposals and encode them in an online document (ex: Google docs/ Sheet) for mass uploading in the project system
- Make necessary follow-ups from project teams on the country of benefit, and SDG of active projects and concluded projects as necessary. Help in completing a table for mass uploading in the project system
- Capture and document all categories of terms & conditions that are signed into by IRRI in grant contracts to serve as a directory or profile of conditions that IRRI needs to adhere to in implementing projects
- Counter-check list of active partner letter of agreements and tag contracts that need to be labeled as completed for updating in the system. Research on different types of subrecipient contracts for further refinement of PMO

Qualifications and Competencies required for position:

1. BS/BA degree in international development, social science or any related field; a background in agriculture is an advantage
2. Has perfect command of the English language;
3. Proficient in Word, Excel and Powerpoint
4. Good analytical and writing skills

Duration of Work:

- Duration of the internship is for 6 months

Duty Station

- The interns will be home-based; all tasks assigned will be done virtually

IRRI Seed Viability Research & Trait Development Team

TERMS OF REFERENCE

Background

IRRI's Seed Viability Research & Trait Development (SVRTD) team performs seed longevity prediction for diverse rice accessions held at genebank (seed bank) and contributes to trait development activities within the Breeding Innovations and Informatics unit, to help identify and develop promising traits for rice breeding programs. In coordination with the IRRI-Korea Office (IKO) and Business Development Unit (BDU), the team expands on linkages with Korean institutes for international cooperative projects.

Functions/Duties and Output Expectations

The intern will be provided with the opportunities to learn the following:

- Introduction of IRRI's missions contributing to the SDGs
- Applied seed science improving the long-term conservation of the World Rice Collection
- Important rice traits developed and deployed for IRRI breeding programs
- Case studies of successful IRRI breeding programs such as the green revolution in Korea
- Review of the research partnership between IRRI and Korean government institutes/agencies
- Searching potential partner institutes/donors in Korea for the future cooperation
- Communicating with research and administrative units at IRRI
- Scientific writing and effective presentation skills

At the end of the internship, the following outputs will be expected:

- The final internship report with five short monthly-reports containing overall outputs
- Presentation of the report to IRRI supervisors as well as MAFRA and FAO Korea Office

Qualifications and Competencies:

- Graduate or undergraduate student interested and has background and knowledge in food security, agricultural research or agricultural economics/ social science
- Fluent in English and basic writing skills
- Highly proficient in Microsoft Office
- Demonstrates knowledge and understanding of current development (agriculture) issues and challenges
- Experience in agricultural project activities led by international organizations or Korean government agencies preferred

Duration of Work:

- Duration of the internship is for 6 months

Duty Station

- Remote Internship/mostly online
- There could be opportunities to visit the IRRI-Korea Office and IRRI's partner institutes in Korea, while the supervisor is traveling in Korea

IRRI Grain Quality and Nutrition Center

TERMS OF REFERENCE

Background

IRRI-KOREA FAO Association collaborative internship program hosted at CERRA, ISARC, Varanasi, India will help an interested candidate to explore different aspects of rice grain quality and nutrition. During the six months of internship duration the candidate will focus on compilation of different sets of phenotype data of grain quality and nutrition traits into a common platform. The candidate will also carry out different genome-phenome association analysis based on the available genotype data.

Functions/Duties and Output Expectations

The intern will be provided with the opportunities to learn the following:

- Curate and arrange all the phenotype data available from different analysis into a systematic manner
- Create a database scheme suitable for keeping the available phenotype data in order while ensuring a user friendly interface, using available computational skills.
- Conduct the genome-phenome analysis, assess the quality of the available individual genome sequence data and subsequently create the genotype data.
- Develop a pipeline to study the genome-phenome association analysis and carry out the analysis on available data sets.
- Summarize and collate all the outputs created from above exercise in a systematic manner

At the end of the internship, the following outputs will be expected:

- A phenotype database with a user-friendly interface
- A pipeline that allows conducting of genome-phenome association analysis based on available resources.
- Outputs of genome-phenome association analysis

Qualifications and Competencies:

- Graduate or undergraduate student interested and has background and knowledge in basic bioinformatics analysis.
- Basic knowledge of database development and genomic analysis
- Fluent in English and basic writing skills
- Highly proficient in Microsoft Office

Duration of Work:

- Duration of the internship is for 6 months

Duty Station

Remote Internship/purely online