

Request for proposals (RFP)

High Throughput Field Plant Phenotyping Platform for World Vegetable Center, Shanhua, Taiwan

1) Summary of Key Requirements

The World Vegetable Center (WorldVeg) is seeking to establish a high throughput field plant phenotyping platform to be based at its headquarters in Shanhua, Taiwan.

The plant phenotyping system will be utilized by WorldVeg to assess growth and performance parameters of germplasm accessions and breeding lines of a wide range of different crops, also in response to a range biotic and abiotic stresses, including pests, diseases, salinity, heat stress and other areas relating to its research interests.

A flexible and adaptable high throughput plant phenotyping platform is sought that will allow measurements of single plants and plots with the capacity to provide measurements of parameters including plant height, 3D leaf area, projected leaf area, digital biomass, color index (including hue value, greenness) and vegetation indices (such as NDVI).

The system must be adaptable for use across a variety of plant types with differing canopy architecture and growth habits.

The system must be supported by fit-for-purpose data management and data analytics capabilities that are flexible and adaptable to evolving research requirements.

Timely, reliable technical and support services must be available in Taiwan.

2) About the World Vegetable Center

WorldVeg builds quality partnerships in research and development to the production and consumption of safe, nutritious and health promoting vegetables for faster, greater and lasting positive impact on the nutritional status, incomes, and well-being of people, particularly youth and women in Africa and Asia.

Mission

Research and development to realize the potential of vegetables for healthier lives and more resilient livelihoods

What we do

WorldVeg research provides small-scale farmers with knowledge, skills, technologies and opportunities to boost their vegetable yields and increase their incomes.

Our activities aim to strengthen the entire vegetable value chain to unleash the economic and nutritional power of vegetables, from breeding and vegetable seed systems to market access and awareness of the need for a healthy diet.

3) Technical Information and Broad Specifications

The requirements for the high-throughput field plant phenotyping system are as follows; essential criteria that have to be met are in bold:

- High throughput field phenotyping capability across a field size of 20m x 100m;
- **Capacity to measure plant height, 3D leaf area and leaf area index, projected leaf area, leaf inclination, digital biomass, color indices (including hue and greenness), vegetation indices (such as NDVI) of single plants and plots;**
- Minimal post-processing time requirement for captured data;
- Resolution of plant digital scans in the mm range;
- **Ability to produce growth curves for single plants as well as plots;**
- **Reliable measurements of plant architecture of single plants up to 1 metre in height;**
- **Automatic / Autonomous data capture;**
- Capacity for multiple measurements over the whole field area – preferably minimum of four scans per day;
- **Dedicated server for data storage. Minimum capacity: storage of scanning data of six months (based on 4 scans per day);**
- User-friendly user interface and data analysis and visualization software;
- **Ability to export data to CSV file formats;**
- **Dedicated environmental data monitoring station;**
- System must be ruggedized and must be able to operate in extreme conditions of temperature and humidity as experienced in the Shanhua region of Taiwan. Provisions should also be considered for protection against earthquakes and severe weather conditions including typhoons;
- The selected provider must be able to provide on-going technical support for the systems commissioned and be willing to work with WorldVeg scientists to continue to adapt the instrumentation, supporting software and analytics (including system upgrades) to address evolving research requirements and opportunities;
- **Warranty of minimum 1 year;**
- Date of final hand-over of installation.

4) Submissions

Submissions are sought from qualified and proven vendors of quality high throughput field plant phenotyping systems that will allow WorldVeg to deploy and exploit the evolving opportunities afforded by phenotyping technologies and data analytics.

Vendors interested in bidding for this proposal should submit their proposals not later than **2 July 2018, 3 pm Taiwan time** to:

Mr. Kenski Chang

Purchasing Office

World Vegetable Center (WorldVeg)

Mailing Address: PO Box 42, Shanhua, Tainan,

74199, Taiwan

Tel: +886-(0)-6-583-7801 ext. 210

Fax: +886-(0)-6-583-0009

Email: purchasing@worldveg.org

Website: <https://avrdc.org>

Bids may be hand delivered, posted by registered mail or sent by courier. The Purchaser shall, on request, provide the Bidder with a receipt.

Proposals submitted should remain valid until at least 31 August 2018. The best offer will be selected. Offers will be evaluated on the basis of the company's profile and relevant experience; technical specifications, project management methodology, terms of delivery and post-delivery support, and price.

Any inquiries regarding this tender should be directed to the Purchasing office. After the submission deadline and until the Contract is signed no Bidder shall make any unsolicited communication to the Purchaser (including any WorldVeg staff) or try in any way to influence the examination and evaluation of the Bids.

5) Content of the proposal

The Bidder shall enclose the original proposal in one envelope and four copies of the Bid in another envelope, duly marking the envelopes as "ORIGINAL" and "COPY." The two envelopes shall then be enclosed and sealed in one single outer envelope which will identify the bidder and bear the markings: "Tender Phenotyping platform" and "DO NOT OPEN BEFORE 2 July 3 pm".

Submissions from interested vendors must:

- Provide a comprehensive company profile outlining qualifications, capabilities, company compliances and other related information; complete bidder information sheet (**annex 1**);
- Provide a detailed response regarding the vendor's instrumentation, technical support and other capabilities that address the requirements as identified in Section 3 (Technical Information and Broad Specifications) above; complete specifications submission sheet (**annex 2**);
- Provide structured pricing information on available systems and technical support structures or packages. Price shall include all custom duties and taxes, transportation, insurance, to final destination exclusive of import tax;
- Provide examples of recently deployed plant phenotyping systems and any information that may assist in the evaluation of their performance within the defined applications;
- Provide the names of at least three (3) referees – preferably clients who have recently undertaken similar field plant phenotyping installations;
- Provide any other company information or details (including warranties or undertakings) that are relevant in demonstrating the capacity to supply, install, operate and support field plant phenotyping systems.

6) WorldVeg general terms and conditions regarding Contractual / Legal Requirements

(Procurement to provide)