



A CGIAR Challenge Programme

Call for Genotyping Support Service proposals

23 June 2008

Revised 17th July 2008; 28th August 2008, 4th September 2008

**The CGIAR Generation Challenge Programme
in coordination with**

**the Global Crop Diversity Trust
and
the Global Initiative on Plant Breeding**

announces the

**Second Call for Proposals
Genotyping Support Services**

1 Submission and selection: modes and dates

Submission

1 July 2008 – 30 September 2008

Proposals to be submitted online at <http://www.cropster.org/gcpwf/gss/apply/1>

This link will be activated on 1st July and deactivated on 30th September 2008.

Applicants who will have submitted GSS proposals by 30th September 2008 will have up to **Wednesday 8th October 2008** to revise and polish their proposals. Please note that this proposal editing window (30th September to 8th October) will only apply to proposals already registered by 30th September. New proposals submitted after 30th September **will not be accepted.**

Selection

Selection will start when the call closes, and implementation will begin as soon as selection is completed (see 3.3).

2 OVERVIEW

Modern plant breeding programmes need novel genetic variation and effective breeding tools and strategies to meet the growing global demand for food. The CGIAR Generation Challenge Programme (GCP) contributes to poverty reduction and food security by developing tools and techniques to enhance the knowledge and use of genetic resources and by using comparative genomics approaches for gene discovery to improve plant breeding programmes for the benefit of the resource-poor. More information on GCP can be found at www.generationcp.org, and a list of our funders at <http://www.generationcp.org/gcppartners.php?da=0646141#funders>

Recognising the bottleneck in the use of germplasm collections the **Global Crop Diversity Trust** initiated in 2007 a competitive grants scheme to support the evaluation of crop genetic resources. The grants will enable breeders and others to screen germplasm collections for phenotypic characteristics of particular importance in adaptation to climate change, and to make the information generated publicly available. This is the second call under this Award Scheme. All interested parties are hereby invited to submit proposals for consideration by the Trust for an award in early 2009. The current call for proposals and further information are available at <http://www.croptrust.org/main/trust.php?itemid=84>

The **Global Partnership Initiative for Plant Breeding Capacity Building** (GIPB) is an internationally facilitated platform dedicated to enhancing the capacity of developing countries to improve crops for food security and sustainable development through better plant breeding and delivery systems. GIPB operates a pilot programme to support plant breeders dedicated to widening the genetic and adaptability base of improved cultivars in developing countries. The call for proposals by GIPB targets pre-breeding programmes in national

agricultural research systems (NARS), academia, and civil society organisations in developing countries. Capacity building is a major priority to GIPB but this call has the objective to support pre-breeding efforts to widen the genetic and adaptability base of improved cultivars in developing countries. GIPB's current call for proposals and further information are available at http://km.fao.org/gipb/index.php?option=com_content&task=section&id=33&Itemid

3 GCP call for proposals: Genotyping Support Service

3.1 Scope and Objectives

While molecular marker technology accelerates progress in plant breeding programmes in the developed world, the use of these technologies lags behind in developing countries. The reasons for this are numerous and complex, but lack of facilities and expertise are major causal factors. Although setting up labs in developing countries could be a step in the right direction, this alone is not enough to promote the dissemination of molecular marker technology at the pace needed for adoption.

To assist in technology dissemination, GCP offers the Genotyping Support Service (**GSS**). The service is extended to breeding programmes in the developing world to facilitate access to molecular marker technologies for the analysis of germplasm. GSS hires competent high-throughput genotyping facilities (**GF**) and trains researchers in data analysis, interpretation and implementation of the new knowledge.

Subject to (a) the availability of suitable populations and breeding materials, (b) the availability of appropriate markers to address the needs of applicants, and (c) identifying appropriate GF able to carry the specified work, GSS will produce molecular marker data to address issues such as:

- 1) Germplasm management of collections linked to breeding programmes: evaluation of diversity, accurate indexing of germplasm, comparison with GCP germplasm reference sets, detection of new alleles, etc.
- 2) Fingerprinting of parental lines for improved management of breeding populations, such as assisting decision-making to generate new genetic combinations, enhanced pedigree management, substantiation of paternity in open pollinated progenies, etc
- 3) Measure of linkage disequilibrium (LD) in selected germplasm
- 4) Alternative to 3), if appropriate populations are available, conventional mapping with a suitable marker technology
- 5) Marker-assisted selection for relevant single gene traits
- 6) Other requests that fit well within the scope and capabilities of GSS

Together with the genotyping outputs, the GSS commits to generate high-quality results that may be published in refereed journals. Therefore, applicants **must** be willing to publish. To this end, the GCP will provide statistical support and might cover publishing costs if feasible.

In addition to building technical capacity in the use of this technology, a key GSS objective is helping participants understand how to outsource genotyping services to laboratories outside their countries. This will assure that they can continue using the technology independently of the GSS support.

3.2 Eligibility

Applicant organisations must have functional breeding programmes (National Agricultural Research Systems, academia, civil society organisations); be located in developing countries (Table 1); and, be working on the crops listed in Table 2. Applicant organisations should be willing to incorporate the use of molecular

maker technologies with a long-term perspective, i.e., demonstrate readiness to take the steps needed to become self-sufficient in outsourcing genotyping work in the medium term.

- Priority will be given to applicants:
 - in organisations already engaged in GCP projects or activities; and/or
 - who qualify for any of the other two simultaneous and complementary calls by the Trust and GIPB (see No 2 above)
- Applications should have potential for direct impact on the 15 GCP target farming systems at http://www.generationcp.org/UserFiles/File/gcp-target-systems_brief.pdf
- Applicants may apply only **once**. However, the GSS reserves the right to include previous applicants in subsequent GSS opportunities, based on the applicants' previous performance in the GSS Programme, and their interest in pursuing more advanced avenues within the scope of the GSS Programme.
- Applicants who do not qualify for this call are welcome to re-apply in subsequent calls.

3.3 Application, selection and implementation

1) From July 1st 2008, proposals will be accepted online (<http://www.cropster.org/gcpwf/gss/apply/1>). ***This URL will be activated on July 1 2008 and deactivated on 30th September 2008.*** Applicants who will have submitted GSS proposals by 30th September 2008 will have up to **Wednesday 8th October 2008** to revise and polish their proposals. Please note that this proposal editing window (30th September to 8th October) will only apply to proposals already registered by 30th September. New proposals submitted after 30th September **will not be accepted.** **For a step-by-step guide on how to submit a GSS proposal, please refer to Annex I further below.**

2) Applicants should **first** read and ensure that they understand and can comply with the obligations **before** submitting the 'Genotyping Support Services Request Form' (<http://www.generationcp.org/UserFiles/File/GENOTYPING-SERVICE-REQUEST-FORM.pdf>)

3) Proposals will be evaluated based on the eligibility criteria, the potential for impact and a fair balance in resource allocation across institutions and regions.

4) Applicants will be informed of the outcome of the evaluation and, upon approval of the proposal; GSS will locate a GF to conduct the work according to the approved workplan.

5) The applicant will be notified of the selected GF and a schedule established for producing and sending the DNA according to laboratory specifications, and in compliance with the legal requirements of source and destination countries.

Note: Proposals will receive final approval **only** after successful applicants send the required supporting data, and the DNA is submitted to the GF within the agreed schedule.

6) Based on previous experience, to ensure all funds are disbursed to the maximum number of recipients possible, an excess of proposals may be accepted as eligible for funding. Thereafter, actual funding will be on a 'first come, first served' basis.

7) GSS will sponsor a workshop where grantees will have the opportunity to analyse their data and prepare an implementation plan based on the results obtained. The content of the workshop will include statistical analysis, 'best practices' for experimental design and data management. This activity is coordinated by GCP's Statistical Support Helpdesk at:

<http://www.generationcp.org/bioinformatics.php?da=08106902>

3.4 Subsistence Use Agreement, Intellectual Property and Data Policies

GSS participants are under an obligation to allow all GCP Consortium Members and other GCP researchers to use data obtained through the GSS Programme for GCP activities. To prevent dissemination of genotypic data outside the GCP, participants may **request** in the Genotyping Services Request Form that data relating to germplasm that they have submitted for analysis be treated as confidential. If a participant requests such confidentiality by so marking the Request Form, the GCP will treat the data as confidential in accordance with the GCP Consortium Agreement, at

http://www.generationcp.org/sccv10/sccv10_upload/Consortium_agreement.pdf,

except that the GCP Consortium Members' and GCP researchers' obligations of confidentiality with regard to such data shall expire **eighteen months** after the date of their designation as confidential.

3.5 Scope of the proposals and funding

The proposals may request genotyping of up to 150,000 data points if using diversity array technology (DArT), or up to 15,000 data points if using microsatellites (SSR). Other marker technologies (SNP, Eco-Tilling...) may also be considered. The GSS may exercise flexibility to increase the final size of the approved proposals.

- Genotyping costs under the GSS Programme will be covered in full.
- The GSS will also fund the participation of first-time grantees in the data analysis workshop. Subsequent participation in the workshop is welcome at own cost.

Note: GCP is developing a Molecular Breeding Platform that will include a Portal, Information System, Toolbox and Services. Users of the GSS will be encouraged to benefit from the support and advice available through the Platform, which will be widely publicised once established.

3.6 Timeframe

Approximately six to eight months, depending on the individual factors of each successful proposal, such as availability of DNA, procedures to be followed, etc.

3.7 Contact person

In case you have any questions or require further information, please contact Humberto Gómez Paniagua (h.gomez@cgiar.org), GSS Coordinator.

Table 1
Developing Countries (as defined by the World Bank)

Afghanistan	Dominica	Lithuania	Serbia and Montenegro
Albania	Dominican Republic	Macedonia, FYR	Seychelles
Algeria	Ecuador	Madagascar	Sierra Leone
American Samoa	Egypt, Arab Rep.	Malawi	Slovak Republic
Angola	El Salvador	Malaysia	Solomon Islands
Antigua and Barbuda	Equatorial Guinea	Maldives	Somalia
Argentina	Eritrea	Mali	South Africa
Armenia	Estonia	Marshall Islands	Sri Lanka
Azerbaijan	Ethiopia	Mauritania	St. Kitts and Nevis
Bangladesh	Fiji	Mauritius	St. Lucia
Barbados	Gabon	Mayotte	St. Vincent and the Grenadines
Belarus	Gambia, The	Mexico	Sudan
Belize	Georgia	Micronesia, Fed. Sts.	Suriname
Benin	Ghana	Moldova	Swaziland
Bhutan	Grenada	Mongolia	Syrian Arab Republic
Bolivia	Guatemala	Morocco	Tajikistan
Bosnia and Herzegovina	Guinea	Mozambique	Tanzania
Botswana	Guinea-Bissau	Myanmar	Thailand
Brazil	Guyana	Namibia	Timor-Leste
Bulgaria	Haiti	Nepal	Togo
Burkina Faso	Honduras	Nicaragua	Tonga
Burundi	Hungary	Niger	Trinidad and Tobago
Cambodia	India	Nigeria	Tunisia
Cameroon	Indonesia	Northern Mariana Islands	Turkey
Cape Verde	Iran, Islamic Rep.	Oman	Turkmenistan
Central African Republic	Iraq	Pakistan	Uganda
Chad	Jamaica	Palau	Ukraine
Chile	Jordan	Panama	Uruguay
China	Kazakhstan	Papua New Guinea	Uzbekistan
Colombia	Kenya	Paraguay	Vanuatu
Comoros	Kiribati	Peru	Venezuela, RB
Congo, Dem. Rep.	Korea, Dem. Rep.	Philippines	Vietnam
Congo, Rep.	Kyrgyz Republic	Poland	West Bank and Gaza
Costa Rica	Lao PDR	Romania	Yemen, Rep.
Côte d'Ivoire	Latvia	Russian Federation	Zambia
Croatia	Lebanon	Rwanda	Zimbabwe
Cuba	Lesotho	Samoa	
Czech Republic	Liberia	São Tomé and Príncipe	
Djibouti	Libya	Senegal	

Table 2
List of Crops

1. barley	10. <i>Musa</i>
2. cassava	11. <i>Phaseolus</i>
3. chickpeas	12. pigeonpeas
4. coconuts	13. potatoes
5. cowpeas	14. rice
6. groundnuts	15. sorghum
7. lentils	16. sweet potatoes
8. maize	17. wheat
9. millets	18. yams

ANNEX I.

HOW TO SUBMIT A GSS PROPOSAL: A STEP-BY-STEP GUIDE

Proposals must be submitted by filling in an online form. For this, follow the steps below:

- 1- Register by creating a username and password via the link <http://www.cropster.org/gcpwf/user/register/274/gss/0>. After registering, you will receive a confirmation email with instructions on how to activate your account and log in.
Note: By activating your account, the system will create a space where you will be able to review the state of your proposal, modify its content at will, and exchange messages with the GSS staff regarding your proposal.
- 2- Log in to the system via the link <http://www.cropster.org/gcpwf/gss/apply/1>
- 3- Once there, click on the “GSS” button on the left-hand side of the screen. This will open an online form. Explore the form to get familiar with it and then fill it in with your proposal details.
- 4- This form may be filled in on separate sessions, if needed. Make sure you hit the “**Save and continue editing**” button every time you make changes.
- 5- Download the "Genotyping Request Form" via the link <http://www.generationcp.org/UserFiles/File/GENOTYPING-SERVICE-REQUEST-FORM.pdf>, then print it, fill it in, have it signed by your Unit administrative superior and convert it into digital file (ie: PDF, jpg, tiff)
- 6- Prepare a list of the germplasm you intend to submit, in either Excel or Word format.
- 7- You may submit additional documents (images, text, pdf, spreadsheets, etc) to support your proposal.
- 8- Once ready, the documents mentioned in steps 5, 6, and 7 above can be uploaded into your proposal. Find two uploading tools at the bottom of the form and follow the instructions provided.
- 9- The form also provides you with a space to write down comments, suggestions or questions. These will be automatically be directed to the GSS Coordinator.
- 10- Once your proposal is ready for submission, simply hit the “**Save and send for review**” button, located at the bottom of the form.
- 11- Your completed form will be reviewed, and responses to your comments will be provided along with instructions and guidance in due course.

- 12- Comments will be exchanged with you within this space, and e-mail alerts will notify you of postings.
- 13- For specific questions or comments, please contact the GSS coordinator Humberto Gómez at h.gomez@cgiar.org