



A CGIAR Challenge Programme

Call for GENOTYPING SUPPORT SERVICES Proposals

15 August 2007

The Generation Challenge Programme
Cultivating Plant Diversity for the Resource-Poor

**Genotyping Support Services:
Call for Proposals**

Submissions

By email: hgomez@cigar.org

OVERVIEW

Modern plant breeding programmes need novel genetic variation and effective breeding tools and strategies to meet the growing global demand for food. The Generation Challenge Programme (**GCP**) contributes to poverty reduction and food security by developing tools and techniques to enhance the understanding 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. All GCP outputs are created for public release, ensuring fair access for researchers and the possibility of benefit sharing for resource-poor farmers. More information on the GCP can be found at www.generationcp.org.

The activities of the CP are organised around five Subprogrammes:

- Subprogramme 1 – Genetic diversity of global genetic resources (leader: J.-C. Glaszmann)
- Subprogramme 2 – Comparative genomics for gene discovery (leader: R. Varshney)
- Subprogramme 3 – Trait capture for crop improvement (leader: P. Monneveux)
- Subprogramme 4 – Bioinformatics and crop information systems (leader: T. van Hintum)
- Subprogramme 5 – Capacity-building and enabling delivery (leader: C. de Vicente)

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. While 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.

As an alternative, 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 and reliable high-throughput genotyping facilities (**GF**), ensures the generation of quality data and trains researchers in data analysis, interpretation and implementation of the new knowledge. In this way, GSS assists GCP's effort to support and motivate plant breeding 'champions' in developing regions.

Subject to (a) the availability of suitable populations and breeding materials for applicants, (b) the availability of appropriate markers to address their needs, 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 in breeding programmes and germplasm collections, like: evaluation of diversity, accurate indexing of germplasm, comparison with GCP 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 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

Eligibility

- Organisations with functional breeding programmes (eg. National Agricultural Research Systems, academia, civil society organisations) located in developing countries (**Appendix 1**).
- Priority will be given to organisations that are involved with ongoing GCP projects or activities
- Organisations working in the crops listed in **Appendix 2**.
- The expected results can be beneficial to the GCP priority farming systems (**Appendix 3**)

Note: GSS may consider proposals from recurrent applicants, if there is evidence of satisfactory implementation of previous results.

Application, selection, implementation, and deadline for submission of proposals

1) To apply, interested programmes should submit a draft proposal (**Appendix 4**) in electronic format. The 'Genotyping Support Services Request Form' (**Appendix 5**) must also be filled and sent (faxed or scanned). Appendix 5 contains a number of legally binding obligations with respect to the use of data and participation in the GSS programme. Applicants should read and ensure that they understand and can comply with those obligations **before** submitting the 'Genotyping Support Services Request Form'.

2) Submitted draft proposals will be evaluated and the applicants informed of their suitability. For suitable drafts, applicants will be requested to develop a detailed proposal. In addition to the eligibility criteria, evaluation of proposals will consider the potential for impact and a fair balance in resource allocation across institutions and regions. Upon acceptance of the final proposal, GSS will locate a GF able to carry the work according to the approved plan.

3) The applicant will be notified of the selected GF and a firm schedule established for producing and sending the DNA according to GF specifications and in compliance with the legal requirements of sender and recipient countries. In due time, GSS will sponsor a workshop where the participants will have the opportunity to analyse their data and prepare an implementation plan based on results from their ongoing research.

4) Deadline for submission of draft proposals (Appendix 4): ***15th October 2007***

Subsistence Use Agreement, Intellectual Property, and Data Policies

It is required that GSS participants 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 which 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, 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.

Size of the proposals

As an example, the proposals may request genotyping up to 150,000 data points if addressed with diversity arrays (DArT), or up to 15,000 data points if addressed with SSR. Other marker technologies (eg. SNP, Eco-Tilling) will be considered as appropriate.

GSS assume most of the costs, but it is expected that recurrent participants will gradually share the costs. This will be considered a proof of commitment and sustainability after the life of the GCP.

Queries

Contact Humberto Gómez Paniagua (hgomez@cgiar.org), GSS Coordinator.

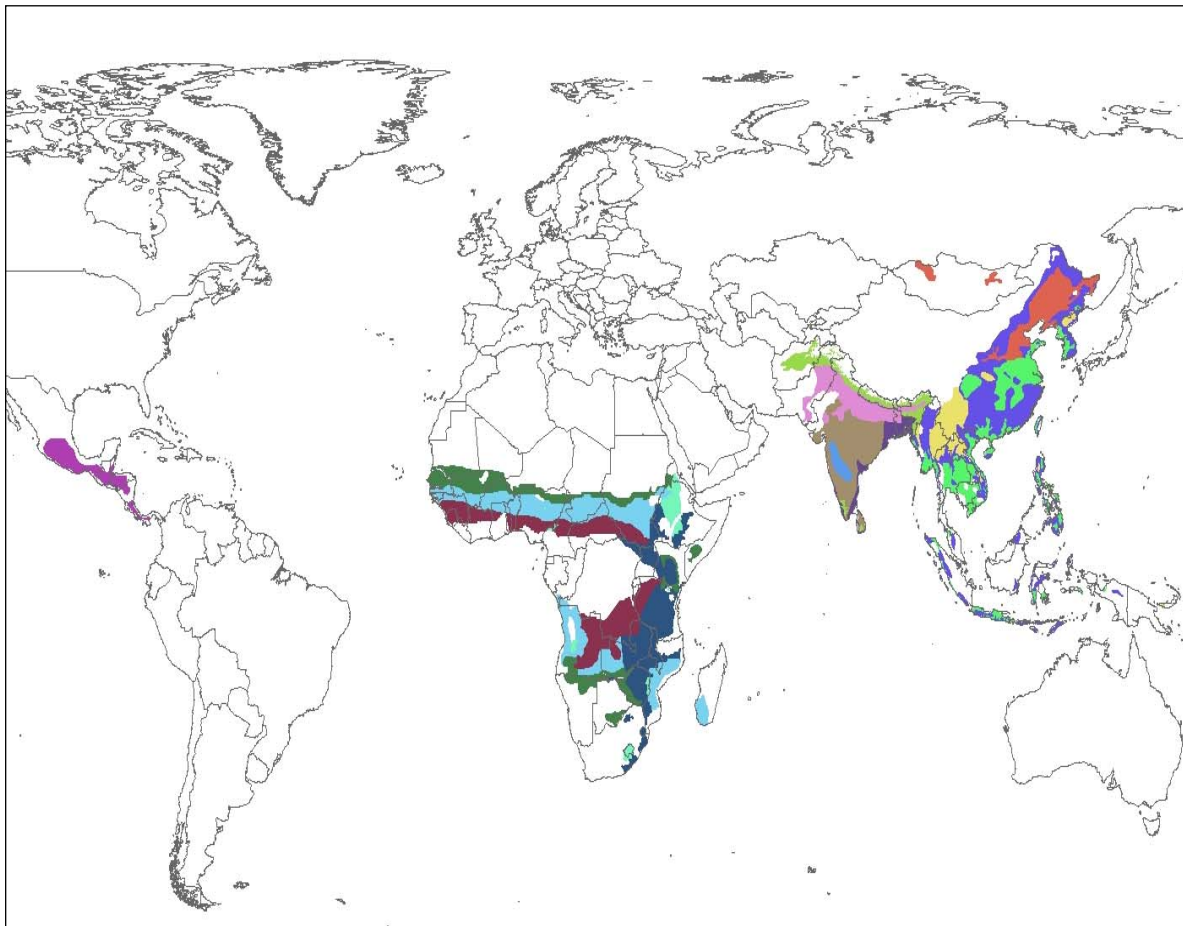
APPENDIX 1
Developing Countries (as defined by the World Bank)

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	

APPENDIX 2
List of Crops

Barley
Cassava
Chickpea
Coconut
Cowpea
Finger millet
Groundnut
Lentil
Maize
Musa
Pearl millet
Common bean
Pigeon pea
Potato
Rice
Sorghum
Sweet potato
Wheat
Yam

APPENDIX 3
Priority farming systems of the GCP



- | | | |
|--------------------------------|------------------------------|-----------------------------|
| LAC Maize-beans (Mesoamerica) | SSA Highland temperate mixed | SA Dry rainfed |
| SSA Agro-pastoral millet/sorgh | SA Rice | EA Upland intensive mixed |
| SSA Root crop | SA Rice-wheat | EA Lowland rice |
| SSA Cereal-root crop mixed | SA Highland mixed | EA Highland extensive mixed |
| SSA Maize mixed | SA Rainfed mixed | EA Temperate mixed |

For further information on the Farming Systems, please visit
<ftp://ftp.fao.org/docrep/fao/003/Y1860E/Y1860E00.PDF>

APPENDIX 4
2007-8 pre-proposal application form for genotyping services to be completed by applicant – *please see separate attachment*

APPENDIX 5
Genotyping Service Request Form to be completed by applicant - *please see separate attachment*