

1st Call

Results of the Global Crop Diversity Trust Award Scheme: Enhancing the Value of Crop Diversity (2008 Awards)

Project Description	Institute	Traits	Crop	Collection/ No Accessions	Country
<p>Evaluation of indigenous chickpea and wheat germplasm for traits of economic importance for farmers</p> <p>Wheat and chickpea germplasm will be screened for abiotic and biotic traits and quality characteristics. The material identified as promising will be available to plant breeders for use in their crop improvement programmes.</p>	<p>National Genebank, Plant Genetic Resources Program, National Agricultural Research Center (NARC), Pakistan</p>	<p>Chickpea: Blight tolerance and protein content</p> <p>Wheat: Rust resistance, drought resistance and bread making quality</p>	<p>Chickpea (<i>Cicer arietinum</i>)</p> <p>Wheat (<i>Triticum aestivum</i>)</p>	<p>Chickpea: 300 Local accessions</p> <p>Wheat: 400 Local accessions</p>	<p>Pakistan</p>
<p>Wild wheat and barley recollection in Israel and testing for drought resistance after 30 years in view of global warming</p> <p>Wild wheat and barley germplasm will be tested for drought tolerance with measurement of three important traits. The best performing genotypes will be made available for additional studies and breeding.</p>	<p>Genebank, Institute of Evolution, University of Haifa, Israel</p>	<p>Drought resistance, grain yield, total protein content, the time of anthesis</p>	<p>Wild wheat (<i>Triticum dicoccoides</i>)</p> <p>Wild barley (<i>Hordeum spontaneum</i>)</p>	<p><i>T. dicoccoides</i>: 10</p> <p><i>H. spontaneum</i>: 10 old -70's samples-contrasted with new collections</p>	<p>Israel</p>

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<p>Heat-tolerant rice to combat global warming</p> <p>This study will characterize rice germplasm for heat tolerance and molecular diversity measuring the following traits: percent seed sterility/fertility, pollen fertility/sterility, time/duration of flowering, duration of anthesis. Promising germplasm and related information will be disseminated to breeders worldwide through INGER (the International Network for Genetic Evaluation of Rice).</p>	<p>International Rice Research Institute (IRRI) and Philippine Rice Research Institute (PhilRice)</p>	<p>i) Heat tolerance: (percent seed sterility/fertility, percent pollen fertility/sterility at anthesis) ii) Heat avoidance: (time of day flowering (start/end), diurnal duration of anthesis, duration of flowering period, days to flowering) iii) Other traits: (plant height, phenotypic acceptability, panicle number per plant, grain yield per plant) iv) Molecular data: DNA profiles of the best 25 entries using SSR markers</p>	<p>Rice (<i>Oryza sativa</i>)</p>	<p>450 from in trust collection, from PAK, IND, AFG, IRA, IRQ</p>	<p>Philippines</p>

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<p>Dynamic trait specific GIS-based subset development of cereal and food legume landraces residing in the ICARDA genebank for deployment to screening programs</p> <p>Ecogeographic data and distribution maps of major biotic and abiotic stress data will be used to predict where selection pressures for a given trait will be highest. Available information will be compiled for selected cereals, food and feed legume species regarding distribution, information on prevalence of pests and diseases and virulences and on the origin of available genes for resistance and tolerance. This information will be used to derive sub-samples of accessions for each major biotic and abiotic constraint for introduction into appropriate screening programs, with subsequently the best available material for breeding.</p>	International Center for Agricultural Research in the Dry Areas (ICARDA)	<p>i) Resistance to major diseases: rusts and septoria, cereal cyst nematode, Russian wheat aphid and Hessian fly for wheat</p> <p>ii) Powdery mildew, net blotch and scald for barley</p> <p>iii) Tolerance to abiotic stresses: heat, drought and salinity for both cereal and legume species</p>	<p>Bread wheat (<i>Triticum aestivum</i>)</p> <p>Durum wheat (<i>Triticum durum</i>)</p> <p>Barley (<i>Hordeum vulgare</i>)</p> <p>Lentils (<i>Lens Culinaris</i>)</p> <p>Kabuli chickpeas (<i>Cicer arietinum</i>)</p>	Up to 6000 accessions from the international collections held in trust by ICARDA	Syria

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<p>Characterization of indigenous coconut germplasm in Sri Lanka</p> <p>There are 20 indigenous coconut forms in Sri Lanka; these are rare and found in home-gardens but are now rare as a result of the high rate of genetic erosion in the country. This project will carry out morphological and molecular characterization of these forms. Drought tolerance will be evaluated <i>in vitro</i>. The materials to be characterized will be purified by self-pollination and conserved in field genebanks for future utilization.</p>	Coconut Research Institute, Sri Lanka	<p>Yield and yield components.</p> <p>Fruit components and related quality traits such as fatty acid composition, of oil and sugar content of the water.</p> <p>Drought tolerance, and Tolerance to <i>Aceria</i> mite and other pest and diseases.</p>	Coconut (<i>Cocos nucifera</i>)	20 local forms	Sri Lanka

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<p>Evaluating taro germplasm for drought and salinity tolerance for the benefit of resource-poor farmers in the Pacific region</p> <p>This project will identify taro varieties with tolerance to drought and salinity for inclusion in a regional 'climate ready' collection. Involvement of a regional organization (PAPGREN) and a regional genebank (CePaCT) will ensure that the benefits of this project, (e.g. the accessions, the methodology and the information) will be made available throughout the Pacific region.</p>	<p>Secretariat of the Pacific Community, Fiji with the National Agricultural Research Institute (NARI), Papua New Guinea</p>	<p>Tolerance to drought and salinity stress</p>	<p>Taro (<i>Colocasia esculenta</i>)</p>	<p>20 from taro core collection selected with members of SPC CePaCT</p>	<p>Papua New Guinea</p>
<p>Agro-morphological characterization of West and Central African accessions selected from the GCP pearl millet reference collection</p> <p>This project is aimed at multiplication and multi-location characterization for agro-morphological traits and <i>Striga</i> resistance of 200 pearl millet accessions selected from the reference collection established by the Generation Challenge Program (GCP). This activity is considered a starting point for</p>	<p>International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) – Sahelian Center, Niger with the Institut d'Economie Rurale (IER), Mali and Lake Chad Research Institute, Nigeria.</p>	<p>Agro-morphological characterization for 18 traits in 3 contrasting locations (Niger, Nigeria and Mali) incl. field scoring of resistance to pests and diseases. Farmers invited to sites to select. Resistance to <i>Striga</i> at ISC, Niger</p>	<p>Pearl Millet (<i>Pennisetum glaucum</i>)</p>	<p>200 accessions selected from the West and Central African material in the GCP reference collection taken from the international pearl millet collection held in trust by ICRISAT</p>	<p>Niger, Nigeria and Mali</p>

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integration of molecular tools generated in the GCP with national pearl millet breeding programs, and a basis for further selection of adapted accessions for specific phenotyping and crossing activities.					
<p>Evaluation of yam collections at National Root Crops Research Institute for key traits of importance to breeders and farmers in Nigeria</p> <p>Through this project 120 yam accessions (mainly Nigerian landraces) will be evaluated for major traits of interest to farmers and breeders.</p>	Genetic Resources Unit, National Root Crops Research Institute, Nigeria	Early maturity; stay-green ability; resistance to yam mosaic virus disease; resistance to yam tuber rot disease; resistance to yam beetle	Yams: <i>Dioscorea rotundata</i> <i>D. alata</i> <i>D. cayenensis</i> <i>D. bulbifera</i> <i>D. dumentorum</i>	100: <i>D. rotundata</i> = 40 <i>D. alata</i> = 20 <i>D. cayenensis</i> = 20 <i>D. bulbifera</i> = 10 <i>D. dumentorum</i> = 10	Nigeria

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<p><i>In vitro</i> screening for sweetpotato salinity tolerance: development of methodology and evaluation of 100 accessions</p> <p>Sweetpotato genetic resources conserved in trust at the International Potato Center (CIP) will be screened utilizing <i>in vitro</i> methodologies for abiotic stress tolerances. The project focuses on screening for salinity tolerance in sweetpotato landraces. Based on literature review and database information, cultivated genotypes from arid and saline areas will be subjected to this study. The most promising materials selected as salinity tolerant will be tested on fields with known high salt concentration in the dry coastal area of Peru. Materials with salinity tolerance will be available for use by breeding programs and farmers.</p>	<p>International Potato Center (CIP), Peru in collaboration with the Instituto Nacional de Tecnologia Agropecuaria (INTA), Argentina</p>	<p>Salinity tolerance</p>	<p>Sweet potato landraces (<i>Ipomoea batatas</i>)</p>	<p>100 of the international collection held in trust by CIP</p>	<p>Peru and Argentina</p>

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<p>Grasspea (<i>Lathyrus sativus</i> L.) germplasm characterization and evaluation</p> <p>Grasspea is a high-yielding, drought-resistant legume consumed as food in Bangladesh, northern India and neighbouring countries as well as Ethiopia. Its value as an important food legume has been hindered by the presence of neurotoxin (ODAP) in seeds, which, if consumed in large quantities for prolonged periods, can cause irreversible paralysis. This project aims to characterize the grasspea collection and evaluate the germplasm on qualitative traits such as ODAP and protein content.</p>	<p>Plant Genetic Resources Research Centre (PGRC), Bangladesh Agricultural Research Institute</p>	<p>ODAP content (neurotoxin that causes paralysis/Lathyrism in humans and animals); protein content</p>	<p>Grasspea (<i>Lathyrus sativus</i>)</p>	<p>1000</p>	<p>Bangladesh</p>

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<p>Banana germplasm for drought tolerance for the benefit of resource-poor farmers</p> <p>This project will aid in the identification of drought tolerant banana accessions by developing standard protocols for drought screening and evaluating priority accessions.</p>	National Research Center for Banana (NRCB), Indian Council for Agricultural Research (ICAR), India in collaboration with ProMusa and global collection at Bioversity International	Tolerance to drought stress	Banana and Plantains (<i>Musa</i>)	20 from the core collection of Global <i>Musa</i> collection held in trust by Bioversity	India
<p>Characterization and evaluation of <i>Ipomoea batatas</i> and <i>Vigna unguiculata</i> collections of the Agricultural Research Council (ARC) and the National Plant Genetic Resources Centre (NPGRC)</p> <p>Important collections of cowpea and sweetpotato will be morphologically characterized to quantify the genetic diversity. The collections will be evaluated for drought and heat tolerance. Furthermore, because malnutrition, and specifically Vitamin A deficiency, is one of Africa's most important but most treatable public health problems, the identified drought tolerant sweetpotato accessions will be nutritionally analyzed for their nutritional value.</p>	Agricultural Research Council – Vegetable and Ornamental Plant Institute, South Africa and National Plant Genetic Resources Centre (NPGRC), South Africa	Morphological characterization; drought and heat tolerance; nutritional value Fe; total carotenoids/beta-carotene; Alternaria resistance	Cowpea (<i>Vigna unguiculata</i>) Sweetpotato (<i>Ipomoea batatas</i>)	Cowpea = 100 (50 landraces and 50 cultivars) Sweet potato = 100 (50 landraces and 50 cultivars)	South Africa



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<p>Characterization of accessions of maize germplasm bank for drought tolerance, leaf disease tolerance and combining ability</p> <p>Maize accessions will be evaluated for drought tolerance, grain yield, agronomic performance, disease resistance and heterotic pattern classification with the aim of increasing the use of these materials.</p>	Brazilian Agricultural Research Corporation (EMBRAPA)	Drought tolerance; corn stunt tolerance; Polisoro Southern Rust tolerance; <i>Phaeosphaeria</i> leaf spot tolerance; combining ability	Maize (<i>Zea mays</i>)	10 accessions from maize genebank previously identified as being drought tolerant crossed with in bred lines.	Brazil