


THE McKNIGHT FOUNDATION

Collaborative Crop Research Program


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CCRP Quarterly Newsletter

To: The McKnight Foundation grantees
From: Office of the CCRP Program Director
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CCRP News

- The second annual meeting of the Andes Community of Practice (CoP) took place July 18-21, 2006 in Tabacundo, Ecuador. This meeting brought together representatives of the eight Andean CCRP projects. The groups exchanged updates on their progress and tackled a series of issues of mutual interest. A panel of invited speakers provided insights on monitoring and evaluation. A field day, organized by Max Ochoa and his colleagues, showcased the work of MACRENA, World Neighbors and several other organizations. The workshop was organized by Claire Nicklin (Andes CoP coordinator), Myriam Paredes (workshop facilitator), Rebecca Nelson (CCRP Program Director), Max Ochoa (MACRENA), Kathy Rysted (Director of Research Programs at The McKnight Foundation), Betsy Campbell (CCRP CoP consultant) and Eliana Suarez (PUMA Foundation).
- The Oversight Committee met in London, England from June 20-22. The purposes of this meeting were to select a set of proposals on East African legumes to recommend for funding; to work on a monitoring and evaluation plan; and to meet with candidates for the OC chair position. The projects to be funded will be announced once they have been approved by the Foundation board.
- We have been updating the publications sections of each project page. Since the CCRP is a research program, publications are a key project output and we would like the publications coming out of CCRP-sponsored work to be as visible as possible. Over the past quarter, we have asked projects to submit an updated list of their project team's publications resulting from work supported by their CCRP grants. Publications of interest include refereed and non-refereed papers; theses and dissertations; posters, abstracts and oral presentations given at meetings; and other communications such as extension leaflets, radio broadcasts, etc. As of this date, we have received full lists of publications from the CCRP projects listed on the next page. We thank these project teams for providing the information requested, and ask that others follow their lead.
- Major CCRP Web updates took place in this quarter. See the CCRP Web section below for more details.
- Please see the last section of this update for news from the CCRP projects.

Update on CCRP Publications

Project	Refereed publications	Book chapters	Proceedings	Dissertations	Theses	Posters / presentations
P Cereal roots (Brazil/East Africa)	14	3	11	2	2	25
P Chickpea (India)	18	0	0	3	0	0
P P-efficient legumes (China/Mozambique)	35	0	17	8	13	0
P Rice biodiversity (Southeast Asia)	29	6	27	5	9	58
P Tef/finger millet (East Africa)	20	0	6	1	6	17
P Sweetpotato (Uganda)	26	3	11	1	1	36
P Wheat scab (China)	48	1	16	0	0	12
P Biodiversity/soil (Peru)	0	0	0	0	0	1
P Seed systems (Ecuador)	0	1	0	0	1	3

First funding cycle (1995-2006)

- [P Chickpea \(India\)](#): From 1995-2006, this project team produced 21 publications.
- [P Sweetpotato \(Uganda\)](#): From 1995-2006, this project team produced 78 publications.
- [P Tef/finger millet \(East Africa\)](#): Originally the Tef (Ethiopia) project, this team has produced 50 publications from 1995-2006.
- [P Wheat scab \(China\)](#): From 1995-2006, this project team produced 77 publications.

Second funding cycle (2001-2005)

- [P Cereal roots \(Brazil/East Africa\)](#): From 2002-2006, this project team produced 57 publications.
- [P P-efficient legumes \(China/Mozambique\)](#): Originally the Soybean roots (China) project, this team produced 73 publications from 2001-2005.
- [P Rice biodiversity \(Southeast Asia\)](#): Originally the Rice biodiversity (Thailand) project, team produced 134 publications from 2001-2005.

Third funding cycle (2005-2009)

- [P Biodiversity/soil \(Peru\)](#): Since starting last year, this project has produced one publication.
- [P Seed systems \(Ecuador\)](#): This project produced five publications since last year.

Some but not all projects acknowledged McKnight CCRP support in their publications. This is a reminder to please acknowledge Foundation support where appropriate.

Publications of interest will be available through [Kelly Lindsay](#). Please be sure to send us copies of CCRP-supported publications so that we may archive and have them available for dissemination.

Upcoming CCRP Events

2007

March

5-10 First Meeting of the CCRP's West African Community of Practice
Mr. Mamadou Chetima will coordinate the meeting. More details will follow as they are developed.

December

1-6 Triennial Grantee Conference to be held in Chantilly, France
Planning continues for the next Grantee Conference, which will take place in Chantilly, France in December 2007. Representatives of all active CCRP projects will be invited to the meeting. More details will follow as the meeting is organized.

Recent and Upcoming Related Events

2006

October

9-13 The 2006 International Rice Congress to be held in New Delhi, India
The 2006 International Rice Congress, entitled "Science, technology and trade for peace and prosperity," will be held October 9-13 in New Delhi, India. This Congress is being jointly organized by the Indian Council of Agricultural Research (ICAR) and the International Rice Research Institute (IRRI) and will feature four major events. The aim of the Congress is to bring together diverse stakeholders of the international rice community to address emerging issues and to provide a common platform for sharing knowledge and expertise. For more information, go to this website: <http://www.irri.org/irc2006> or <http://www.icar.org.in>.

November

20-23 Innovation Africa Symposium, Kampala, Uganda.
An international symposium on agricultural innovation systems in Africa will be held on 20-23 November 2006 in Kampala, Uganda. It is jointly organized by CIAT (International Centre for Tropical Agriculture), IFPRI-ISNAR (International Service for National Agricultural Research division of the International Food Policy Research Institute), ILRI (International Livestock Research Institute), IIRR-Africa (International Institute of Rural Reconstruction) and ProInnova (Promoting Local Innovation). The Innovation Africa Symposium will bring together researchers and practitioners involved in innovation systems to share current thinking and experiences and to draw lessons for research, development, policy and practice of innovation in agriculture and natural resource management in Africa. It will include a field visit on 20 Nov 2006 to sites of farmer innovation and participatory research and development. The field visit will be organized by ProInnova-Uganda and the Ugandan office of IIRR-Africa. For more information, visit www.innovationafrica.net and the ProInnova website www.prolinnova.net

2007*January*

23-27 [Linking knowledge and action for Sustainable Production and Consumption Systems \(The SPACES Dialogue\)](#). “Dialogues on Science and Practice in Sustainable Development aims to foster effective collaborations between scientists and practitioners to advance the practice of sustainable development, through knowledge sharing and promoting national, regional, and international actions and implementation.” For more information, click the following link: <http://www.sustdialogue.org/>




March

23-27 [Second International Conference on Plant Molecular Breeding \(ICPMB\), Sanya City, Hainan Province, P.R. China](#). “The 2nd International Conference on Plant Molecular Breeding (ICPMB), will be held in Sanya City, Hainan province, P. R. China on March 23-27, 2007. This event will focus on applied plant genomics and molecular plant breeding in view of the increasing need to use new molecular approaches and mine novel gene resources. All important aspects of plant molecular breeding and related transgenic ecological risk and intellectual property right (IPR) will be covered in several sessions and satellite workshops.” For more information, click the following link: <http://www.icpmb.org/142.html>

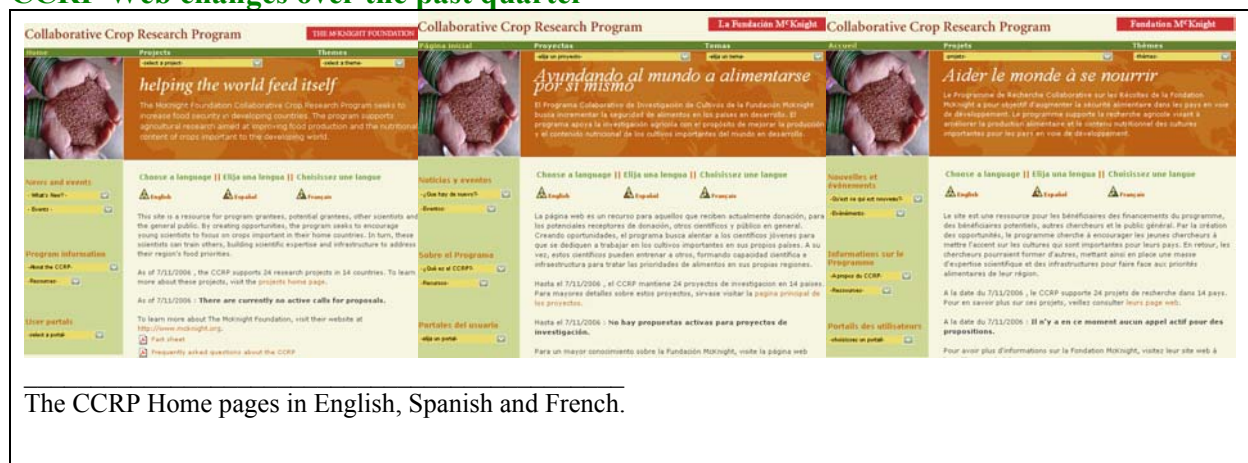
The CCRP Web is located at... <http://mcknight.ccrp.cornell.edu>

CCRP Web Snapshot

As of 8/1/2006,

- Total number of files associated with the CCRP Web: 1829
- Total number of links: 18497
- Total number of HTML files: 751
- Total number of tagged HTML (those that we update on a regular basis): 211
-  Total number of pages in English: 141
-  Total number of pages in Spanish: 46
-  Total number of pages in French: 24

CCRP Web changes over the past quarter



The CCRP Home pages in English, Spanish and French.

Trilingual progress

Over the past couple of months, Kelly Lindsay and our team of translators have been translating web pages into Spanish and French. As of this date, there are 46 pages in Spanish and 24 in French with more coming every day! Be sure to check the CCRP Web often for new translations. If a page is available in multiple languages, the language bar at the top right corner of each main page space will link you to the Spanish and/or French version of the page as they are available.

New user portal

A new user portal drop down menu was added last month and now includes the “Community of Practice” portal. This link allows site visitors to go directly to the Community of Practice (CoP) main page, which will contain information about the CCRP’s three CoPs, their related events and other features.

New topic pages

The new topic pages have been improved and updated, thanks to the efforts of Beth Medvecky, Rachel Bezner Kerr and Rebecca Nelson. We are working to update more of these pages.

Upcoming changes to the CCRP Web

- Several more pages that have been translated into Spanish and French will be made available on the website.
- The remaining topics pages will be developed
- The organization and look of the project home page will be changed to reflect the newly established Communities of Practice, and the new country partnerships of the renewed non-CoP projects.

In April-June 2006, we had an average of 3,300 unique visitors per month. In June alone, we had 4,004 unique visitors.

Keep checking the site to know what is happening in the CCRP, **and update your project pages regularly!**

Updates from the CCRP Projects. The updates below are published as received. Minimal edits have been made.

Chickpea (India)

- Ajay Srinivasan, a research scholar at National Chemical Laboratory received his Ph.D. degree for this thesis entitled CHICKPEA-*Helicoverpa armigera*: A SYSTEM TO ELUCIDATE PLANT - INSECT PEST INTERACTION. During his Ph.D. tenure, he also worked for nine months at University of Durham, UK with Prof. John Gatehouse, Project Leader in Chickpea programme.
- In memory of Prof. Vincent Franceschi, Project Leader in Chickpea programme, an International Symposium on Plant cell: Structure-Function Relations was organized at Washington State University, Pullman, USA on June 9-10, 2006 WSU, USA. Three members involved in the chickpea programme, namely Fred Muehlbaer, Vidya Gupta and Mechthild Tegeder made presentations in the meeting.

P-efficient legumes (China/Mozambique)

- Mr. Randy Clark, a prospective Ph.D. student in Dr. Leon Kochian's lab at Cornell University, visited the Root Biology Center at South China Agricultural University in Guangzhou, China from March 31 to June 30, 2006. During his stay at SCAU, Mr. Clark collaborated with staff and students of Dr. Xiaolong Yan's lab to work on computer reconstruction of 3-dimensional root architecture and modeling of physiological processes of phosphorus and aluminum interactions in the rhizosphere. Mr. Clark successfully finished some preliminary experiments and will continue on the collaborative projects after returning to Cornell University.
- Drs. Xiaolong Yan, Hai Nian, and Hong Liao from the Root Biology Center of South China Agricultural University were invited to the Third International Symposium on Phosphorus Dynamics in the Soil-Plant Continuum held at Uberlândia, Minas Gerais, Brazil from May 14-19, 2006. During the symposium they presented their research results entitled "Physiological and genetic mechanisms of P efficiency in soybean (Invited presentation by Xiaolong Yan), "Breeding soybeans for aluminum tolerance and phosphorus efficiency in South China" (Oral presentation by Hai Nian), and "Phosphorus and aluminum interactions in soybean in relation to al tolerance mediated by exudation of specific organic acids from different regions of the intact root system" (Poster presentation by Hong Liao), which were all well received by the participants. After the symposium, they visited the Maize and Sorghum Institute, Soybean Institute, and Cerrado Institute of EMBRAPA for possible collaborations on subjects closely related to the McKnight Funded CCRP project.
- From June 4-10, 2006, the Root Biology Center of South China Agricultural University successfully organized a Training Class for National Soybean Regional Trials in Tropical and Subtropical Regions sponsored by the Chinese Ministry of Agriculture. More than 30 trainees from South China attended this class, in which 6 lectures were given by nationally well-known soybean researchers and extensionists. Simultaneously, the Root Biology Center also hosted a National Variety Certification Conference, during which the National Variety Certification Committee evaluated and certified more than 30 varieties from all over China, including the 5

new varieties applied by the Root Biology Center of South China Agricultural University. The final results will be released later this year.

Rice biodiversity (Southeast Asia)

- The project featured prominently in the 47th Annual Meeting of Society for Economic Botany in Chiang Mai on June 5-9, 2006:
 - A keynote paper on “Diversity, Management, Utilization and Conservation of Local Rice Germplasm” was delivered.
 - An invited symposium paper on “Wild Rice: Genetic and Conservation” at the Special Symposium on "Historical Perspectives on the Gain and Loss of Plant Genetic Resources in Monsoon Asia", sponsored by the Sato Project - Plant genetic resources in Eurasia, of the Research Institute for Humanity and Nature, Kyoto, Japan.
 - An invited workshop paper on “Farmers’ Knowledge, Management and Use of Local Rice Germplasm”, for a workshop on “Learning from Farmer’s Crop and Landrace Conservation Strategies”, sponsored by the International Potato Center (CIP, Peru) and Chicago Field Museum.
 - An exhibition on “Rice Biodiversity You Can Eat (and drink, sell, export etc)” in collaboration with Thai partners of our local Thai rice germplasm network (Chiang Mai and Prachin Buri Rice Research Centres of the Thai Rice Research Institute; Chiang Mai University’s Purple Rice Research Unit, PRRU)
- Visits by collaborating researchers
 - Kevin Coffey, PhD student of Christine Padoch and Miguel Pinedo Vasquez at Columbia University spent May and June for field research on farmers’ management of rice germplasm.
 - Chanakan Prom-u-thai, Post Doctoral Fellow at Queensland University is visiting for 2 months (July – September) to work with graduate students (Saicome Pintasen, Chorpetch Saenchai) on rice grain Fe.
 - Lay Hout, trainee from CARDI (Cambodian partner) arrived for 3 months (July – September) training on biodiversity analysis.
- Graduate students associated with project completed their studies:
 - Narit Yimyam, PhD in Agronomy, thesis title, “Fallow regeneration and upland rice yield variation in a system of shifting cultivation with pada (*Macaranga denticulata* (bl.) muell. arg) as the fallow enriching species in northern Thailand.”
 - Dang Huu Thang, MSc in Agronomy, thesis title, “Comparing Growth, Yield and Nutrient Uptake of Rice in Alternate Aerated and Anaerated Conditions.”
 - Pojjanee Supamongkol, MSc in Agronomy, thesis title, “Genetic of Local Rice cv. Moey Nawng”
 - Adirek Punyalue, MSc in Agronomy, thesis title, “Characterization of Common Wild Rice Populations from Main Rice Growing Regions of Thailand.”

- Chanikarn Koomnok, PhD in Biology, thesis title, “Diazotroph Endophytic Bacteria in Cultivated and Wild Rice in Thailand”
- Students won best papers award:
 - Tonapha Pusadee, “Genetic structure of a Local Thai Rice (*Oryza sativa*) Variety” at the RGJ PhD Congree VII, 20-22 April 2006, Pattaya.
 - Nednapha Insalud, “Morphological and physiological responses of rice to limited phosphorus supply in aerated and stagnant solution culture” at the RGJ PhD Congress VII, 20-22 April 2006, Pattaya.
- Paper published (4 more submitted or *in press*):
 - Youpensuk S, Lordkeaw S and Rerkasem B. 2006. Comparing the effect of arbuscular mycorrhizal fungi on upland rice and *Macaranga denticulata* in soil with different level of acidity. *ScienceAsia* 32:121-126.
 - Jason P. Londo, Yu-Chung Chiang, Kuo-Hsiang Hung, Tzen-Yuh Chiang, and Barbara A. Schaal. 2006. Phylogeography of Asian wild rice, *Oryza rufipogon*, reveals multiple independent domestications of cultivated rice, *Oryza sativa*. *PNAS* 103: 9578–9583.

Seed systems (West Africa)

- Planning workshops were held with farmer organizations in Burkina Faso and Mali, in April and May 2006. Project Scientists met with members of the farmers’ organizations to plan activities for the 2006 rainy season. In each of the project areas, farmers discussed the performance of specific varieties during the past season, and the conditions under which they have been successful. Farmers decided which varieties to grow for seed production, and which one to continue testing in more detail.
- In Mali, two farmer organizations (AOPP and ULPC) organized seed fairs to initiate marketing of seed produced during the past season. In the Dioila area, this was the first seed fair to be organized. At both fairs, farmer brought not only sorghum, for marketing, but also groundnut, maize, millet and rice. The demand for the different species and varieties was markedly different, and consequences shall be analyzed by the seed cooperative in Siby, working with AOPP, and the farmers’ organization in Dioila.
- Farmers’ organizations in Niger initiated seed production of pearl millet varieties, as well as variety trials to identify new varieties for further testing. Demand for seed of early maturing pearl millet varieties has been strongly rising in Niger, due to the recurrent food shortages, caused in part by drought periods during the past cropping seasons.
- In Mali, farmers producing seed for marketing received a training course introducing them to principles of seed quality control, and options maintaining varietal purity and seed health in sorghum

Sorghum/millet improvement (Niger)

- The ICRISAT-Niamey pearl millet improvement team held a series of workshops with farmers at four pilot sites in Niger (Torodi, Tera, Falwel and Serki Houssa) in April 2006, to plan joint activities within the frame of two McKnight Foundation-funded projects, (1) “Farmer-participatory improvement of sorghum and pearl millet genetic resources for increased adaptation to diverse production environments in West Africa”, and (2) “Sustainable seed supply: Farmer-managed seed marketing initiatives for sorghum and pearl millet in Mali, Burkina Faso and Niger”. The workshops served to discuss farmer-preferred traits of pearl millet, to perform an initial diagnostic of farmer’s management of pearl millet diversity, and to jointly agree on activities in the rainy season 2006. These will include participatory selection of farmer-preferred parental populations that will be recombined by ICRISAT in the off-season to form the diversified populations for recurrent selection; farmer’s experimentation with improved cultivars; selling of small seed packets of improved cultivars in the input shops; and training in planning community-based seed production activities. There was great interest of farmers to participate in the projects. The ICRISAT team was particularly happy to have been able to identify a group of highly motivated woman (at Serki Houssa) who were ready to provide their own field for a woman-specific participatory improvement of pearl millet – a crop whose cultivation in Niger is normally dominated by men.
- Follow-up visits were conducted in May or early June to train farmers in proper installation of the planned trials. But until the end of June, rains failed to come in most parts of the country, and farmers were still waiting to plant.



Farmers at the pearl millet workshop conducted at Falwel, Niger.

Sweetpotato breeding (Uganda)

- Our research team harvested and planted orange-fleshed sweetpotato (OFSP) trials at the Kachwekano highland research station in western Uganda during June/July 2006. The intensity of the orange color of the sweetpotato flesh of the roots was noticeably reduced compared to

other locations at lower altitude. We can increase our chances of selecting for high beta-carotene content by screening more OFSP clones at high altitude.

- The Belgian government has approved a project titled “Increasing food security in Central Africa by reducing sweetpotato losses due to weevils and viral diseases using biotechnology”. The collaborators on the project are: International Potato Center (CIP), Institute for Plant Biotechnology for Developing countries (IPBO), Institute, ISAR in Rwanda, University of Burundi, INERA of DR. Congo, and Namulonge Agricultural and Animal Production Research institute (NAARI). The project will last three years with a total budget of about 370,000 Euro per year for all the partners. In Uganda the project will complement the on-going sweetpotato projects funded by the McKnight Foundation and the Rockefeller Foundation. The McKnight Foundation has funded the development of artificial diet for weevils in the laboratory. Artificial diet development was essential for conducting Bt bioassays on sweetpotato weevils, the project that is currently funded by the Rockefeller Foundation. The whole processes of engineering sweetpotato for weevil resistance will require substantial funding, but it is being tackled in a stepwise manner with funding coming from different sources.
- The National Agricultural Research Organization (NARO) in Uganda has undergone restructuring. With effect from July/August, Namulonge Agricultural and Animal Production Research institute (NAARI) will be called Namulonge Agricultural Crops Research Institute, the other main crops research institute will be Serere. Sweetpotato is hosted at Namulonge, so there will be no relocation of the NAARI physical address.

Tef/finger millet (East Africa)

- In Ethiopia, we have concluded our Participatory Plant Breeding (PPB) activity at Akakai and Ada districts where farmers were involved in the selection process among tef genotypes at the pre-release/yield testing stages. A manuscript titled "Incorporating Farmer Participation into Formal Breeding: An Example from the Ethiopian Cash Cereal Tef [*Eragrostis tef* (Zucc.) Trotter]" is under review for publication in the journal *Experimental Agriculture*. The paper describes a methodology applied to enhance the development and release of a tef variety with farmer participation within the formal breeding system. The main features include; clear objective, target cross, early-stage researcher selection, multi-location yield trial (mother trial), farmer on-station selection, judicious selection of few candidate varieties based on farmers' and researchers' selections, on-farm (baby) trials, and release through the existing formal procedure. Our work contributes two things to the international literature on participatory breeding. 1) It lends credence to the recent proposal to remove the dichotomy between participatory and non-participatory (formal) breeding programs. 2) The remarkable agreement between the overall rankings, farmers' general assessment and the decision of the NVRC to approve RIL-355 ("Quncho") for official release provides supportive evidence that farmer participation could be accommodated within the existing institutional breeding schemes and variety release procedures. We intend to apply similar methodology for the search of early maturing and high seed quality tef varieties for the moisture-stress prone areas. Towards this end, we have selected, from our off-season nurseries, about 120 homozygous lines from two targeted crosses.
- At Cornell, 23 new markers derived from rice and finger millet were mapped in the tef mapping population using single strand conformation and fragment length polymorphisms. Twelve inflorescence architecture gene markers were evaluated on tef mapping parents including five maize

genes from Elizabeth A. Kellogg (University of Missouri) and seven sorghum genes from Stephen Kresovich (Cornell University). Three of these gene markers were polymorphic and mapped in the tef population. Red pericarp gene primers from rice provided by Susan R. McCouch (Cornell University) but were not polymorphic for the parents of the tef mapping population.

- Publications:

- Ju-Kyung Yu, Qi Sun, Mauricio La Rota, Hugh Edwards, Hailu Tefera, and Mark E. Sorrells. 2006. Expressed sequence tag analysis in tef (*Eragrostis tef* (Zucc) Trotter). *Genome* 49 (4): 365-372.
- Ju-Kyung Yu, Ramesh V. Kantety, Elizabeth Graznak, David Benscher, Hailu Tefera, and Mark E. Sorrells. Construction of a Genetic Linkage Map of Tef [*Eragrostis tef* (Zucc) Trotter]. *Theoretical and Applied Genetics* (In press).