

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
Reporting period: July-September 2004

CCRP News

- The 23 invited proposals for the CCRP's theme on food security in the Andes RFP were received and translated. Proposals and supporting documents were sent to the Oversight Committee on CD in preparation for the November OC meeting in Vaals, at which a group of projects will be selected for recommendation to the McKnight board.
- An RFP focusing on millet- and sorghum-based systems in West Africa was posted to the website ahead of the September 1 release date. An announcement email was sent out to approximately 150 contacts in research and development organizations around the world.
- Final preparations are being made for the 2004 grantee conference to be held in Vaals in early November. The program for the 2004 grantee conference is now available on the website. <http://mcknight.ccrp.cornell.edu/participants/granteeneth04.html>. If you are unable to access the program, please email [Kelly Lindsay](mailto:Kelly.Lindsay@cornell.edu). We will have a session on administrative issues. Please let Rebecca know if you would like to put an issue on the agenda for that session.
- A paper by members of the CCRP's Rice (Thailand) project was awarded the Best Article Award by the International Rice Research Notes. Their paper, entitled "Varietal turnover and seed exchange: implications for conservation of rice genetic diversity on-farm" was judged best in the Genetic Resources category. Congratulations to authors Sirabanchongkran, Boonma, Yimyam, Rerkasem, Coffey, Pinedo-Vasquez and Padoch!
- The new look of CCRP web was completed and the entire site converted, edited and uploaded to a test site before the October 1 deadline. See the CCRP web section for more details.
- Annual reports were received from the tef, (Ethiopia) and sweetpotato (Uganda) projects. The maize/sorghum (Brazil/Kenya) project was approved for release of funds.
- Charity Kabutha, Richard Jones, Rebecca Nelson, Robert Mwanga and George Sonda met with Simon Gichuki in Nairobi for a site visit with the sweetpotato (Kenya) project in July. The group visited farmer field schools testing orange-fleshed sweetpotato varieties and clones.
- See the last section of this update for news from each of the CCRP projects.

Related News

- In September, the CGIAR's "Generation Challenge Program" held an inaugural meeting in Brisbane, Australia. Rebecca Nelson attended and presented a talk on "The realities of reaching farmers."
- A conference on "Farming Systems and Poverty: Making a Difference, a global learning opportunity" will be held September 12-16 in Rome, Italy. A Global Learning Opportunity (GLO).
- InterDrought-II, the 2nd international conference of integrated approaches to sustain and improve plant production under drought stress will be held in Rome, Italy from September 26-30, 2005. For more information, visit www.plantstress.com/id2.
- Broad-band, shared high-speed satellite access provides service to countries with limited telecommunication abilities. See this site for more information: <http://www.globaltt.com>

Upcoming Events *[This list does not include all steps in the grant selection process]*

2004

November

6 Oversight Committee meeting, The Netherlands

The Oversight Committee will meet in Vaals, The Netherlands as part of the grant selection process for the Andes RFP. Full proposals will be reviewed and the final set chosen to be recommended to the McKnight board for funding.

6-10 2004 Grantee conference, The Netherlands

The biennial grantee conference will be held at the Dolce Kasteel Vaalsbroek in Vaals, The Netherlands on November 6-10. This conference center is located on the borders of Germany, Belgium, and The Netherlands and has room for 130 guests. For more information, click [here](#).

2005

April

1-2 Oversight Committee meeting, venue to be announced

The Oversight Committee will meet as part of the grant selection process for the west Africa RFP. Pre-proposals will be reviewed and a subset selected for solicitation of full proposals.

CCRP Web

Over the past few months, Kelly Lindsay has been working diligently on redesigning the CCRP web to include a more fluid navigation system for seamless browsing. Kelly established a four phase process to map out site progress leading up to the November 1 public release date.

Phase planning sheet

Phase	Description	Dates	Deadline
I	<u>Site structure conversion</u> Converting old site structure to new navigation system that includes drop-down menus and all public pages	6/8/2004-8/24/2004	8/24/2004
II	<u>Content update</u> Checking all web pages and text for timeliness; improving information and style structure; adding documents to site folder	8/25-9/24/2004	10/1/2004
III	<u>Beta testing</u> Final link checks, releasing to limited audience for feedback	9/25/2004-10/22/2004	10/22/2004
IV	<u>Final release</u> Implement feedback, final checks, putting up on server, emailing our grantees and OC	10/23/2004-11/1/2004	11/1/2004

Currently, the new CCRP web design is being hosted and beta tested on a private webspace. Links to this private site were given to Oversight Committee members for testing, and PIs for project page updates. The deadline for feedback and update submissions is October 22. After a final week of checks and testing on the actual server, the new CCRP web will be released to the public on November 1.

User feedback is critical to making any website truly useful. For those Please contact [Kelly Lindsay](#) for any questions, comments and/or concerns you may have. Your input is valuable to us!

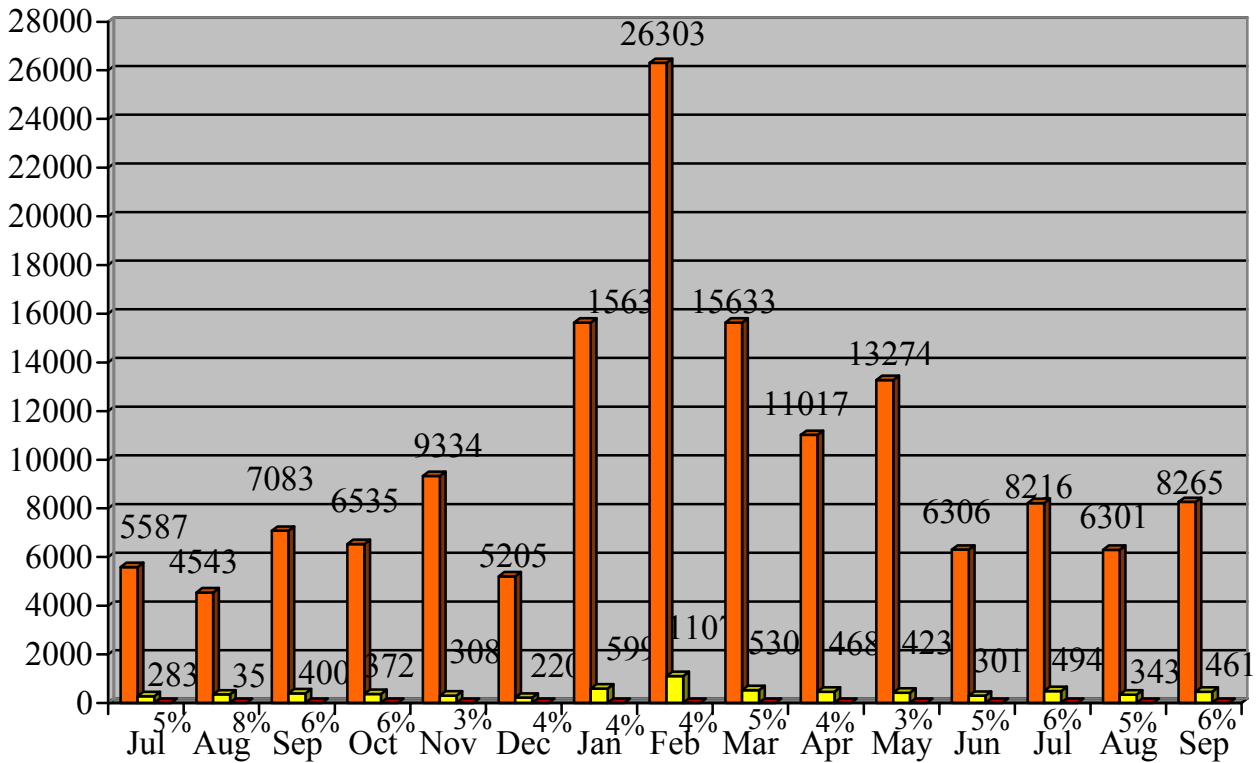
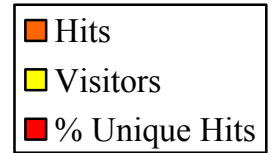
CCRP Literature Service

The last quarter's activity remained steady since last report. A total of 15 articles were sent to various project leaders, grantees, students and non-CCRP affiliates with similar research interests. We encourage literature requests both within and outside of the CCRP.

CCRP Web Statistics Summary

Webalizer is a free program that generates web site usage reports. Over the past few months, we have been using Webalizer to interpret the CCRP Web's log files to determine how many hits, visitors, and countries have visited the web site.

Hits and Visitors to the CCRP Website



Hits: Total number of times the site was visited. This is every single request made to the server.

Visitors: Total number of unique IP address requests made to the server.

% Unique hits: What percentage of hits were from unique users.

To view full web statistics reports by month, click [here](#).

Updates from the CCRP Projects

The updates below are published as received. Minimal edits have been made.

Chickpea (India)

- Chickpea line Phule G-9425-5 found to be best suited for irrigated and rainfed conditions in participatory programme and with bold size, attractive grain colour and resistant to Fusarium wilt is ready for release as variety for Central India.
- A single nucleotide polymorphism (SNP) has been identified in a chickpea BAC clone 4m 10 spanning QTL responsible for Ascochyta blight resistance in chickpea.
- A primary transgenic chickpea line containing winged bean proteinase inhibitor gene has reached to maturity stage.

Potato (Brazil/Chile)

- **Agreement:** An agreement to exchange germplasm and jointly develop potato varieties was signed in August 2004 by Presidents of EMBRAPA and INIA-Chile when Brazil's President Mr. Luis Ignacio Lula da Silva visited Chile in a State Visit. The agreement was signed before the Presidents of both countries in a ceremony in the Chilean government palace.
- **Abstracts in Proceedings of National and International Meetings:** Several abstracts related to the project are included in Proceedings of National and International Meetings that took place in 2004: (1) XXI Meeting of the Latinamerican Potato Association (ALAP), in Valdivia, Chile, in March 2004. This meeting was organized along with the II Iberoamerican Congress of Potato Research and Development, V Latin American Potato Seminar: Use and Commerce and the X Meeting of the Chilean Potato Association. Proceedings are available at: <http://www.uach.cl/alap2004>; (2) XII International Congress of Entomology, in Brisbane, Queensland, Australia, in August 2004; (3) 88th Meeting of the Potato Association of America, in Scottsbluff, USA, in August 2004. Proceedings of these meeting are available at: <http://www.panhandle.unl.edu/paa>.

Rice (Thailand)

- Four papers from the project have been accepted for publication in the International Rice Research Notes (IRRN), in the special volume (Vol 29) for the International Year of Rice (2004)
 - i. 'Bioavailable iron in hand pounded rice from a highland village in Northern Thailand' by C. *Prom-u-thai* and B. *Rerkasem*. Published IRRN 29(1), 47-48.
Accepted for publication in IRRN 29(2), due out in December 2004
 - ii. 'Nitrogen fertilizer increases protein and reduces breakage of rice cultivar Chainat' by M. *Leesawatwong*, S. *Jamjod*, B. *Rerkasem*, J. *Kuo* and B. *Dell*.
 - iii. 'Invasive wild rice in Thailand: problem and management' by Chanya *Maneechote*; *Sansanee Jamjod* and *Benjavan Rerkasem*.
 - iv. 'Varietal turnover and seed exchange: implications for conservation of rice genetic diversity on-farm' by A. *Sirabanchongkran*, W. *Boonma*, N. *Yimyam*, K. *Rerkasem*, K. *Coffey*, M. *Pinedo-Vasquez* & C. *Padoch*. This 4th paper, by Sirabanchongkran et al, has won best article award in the Genetic Resources category from the IRRN to commemorate the International Year of Rice 2004. (See attached slide)

For more detail see <http://www.irri.org/publications/today/index.asp>

- Six researchers and graduate students attended the First International Conference on Rice for the Future, Bangkok, from August 31 to September 3, 2004. Five papers were presented
 - v. Differential Response to Soil Acidity in Two Rice Varieties by *Nattinee Phattarakul, Sansanee Jamjod and Benjavan Rerkasem*
 - vi. Relationship Between Grain Nitrogen, Milling Breakage and Price in KDML105 and RD 6 by *Manop Leesawatwong, Sansanee Jamjod and Benjavan Rerkasem*
 - vii. Genetic diversity within and between farmers' seed lots of 4 local rice varieties from Northern Thailand by *Pojjane Supamongkol, Saikaew Meesin, Therdsak Anakat, Narit Yimyam, Sansanee Jamjod, Kanok Rerkasem, Benjavan Rerkasem.*
 - viii. Variation of rice grain iron between and within seed lots of a upland rice variety from northern of Thailand by *Saicum Pintasen, Chanakan Prom-u-thai, Sansanee Jamjod, Benjavan Rerkasem.*
 - ix. Population Structure of a Local Thai Rice (*Oryza sativa* L.) Germplasm using microsatellite markers germplasm using microsatellite markers, by *Tonapha Pusadee, Yu-Chung Chiang, Barbara A Schaal, Benjavan Rerkasem and Sansanee Jamjod.*
- Six researchers and graduate students attended the 4th International Crop Science Congress in Brisbane, Australia from September 26 to October 1, 2004. Project results were presented in 1 oral paper and 4 posters.
 - x. Variation in grain iron between seed lots of some upland rice varieties by *Chanakan Prom-u-thai, Saicome Pintasen, Sansanee Jamjod, Benjavan Rerkasem.*
 - xi. Controlling invasive wild rice with ACCase-inhibiting herbicides by *Chanya Maneechote, Sansanee Jamjod and Benjavan Rerkasem.*
 - xii. Nitrogen fertilizer alters milling quality and protein distribution in head rice by *Manop Leesawatwong, Sansanee Jamjod, John Kuo, Bernie Dell and Benjavan Rerkasem.*
 - xiii. Response of rice cultivars to aerobic condition by *Nednapa Insalud, Richard W. Bell and Benjavan Rerkasem.*
- Graduate students from project completed their studies:

Student	Degree	Thesis
Miss Chanakan Prom-u-thai	PhD (Agronomy)	Iron (Fe) in Rice Grain
Miss Somchit Youpensuk	PhD (Biotechnology)	Diversity of Arbuscular Mycorrhizal Fungi in <i>Macaranga denticulata</i> and their Effects on the Host Plant
Miss Rattaya Yanapan	MSc (Agronomy)	Physiological and Molecular Basis for Iron Efficiency in Thai Rice Genotypes
Miss Saikaew Meesin	MSc (Agronomy)	The Structure of Genetic Diversity in a Local Thai Rice Germplasm
Miss Ariya Phaokrueng	M Economics	Estimation of Farmers' Profit Loss from Weedy Rice Invasion in Kanchanaburi Province
Mr Therdsak Anakat	MSc (Agronomy)	Genetic Diversity in Wild Ricer Populations

Mr Theerasak Sintukhiew	MSc (Agronomy)	Interspecific Hybridization between Wild Rice (<i>Oryza rufipogon</i> Griff.) and Cultivated Rice (<i>O. sativa</i> L.)
Mr Ronnachit Jindaluang	MSc (Agronomy)	Genetic Diversity within Farmer's Seedlots of Supanburi 1 Rice

- Graduate students and postdocs currently in training/research overseas
 - i. Dr Chanakan Prom-u-thai at Queensland University (August 1 – November 30, 2004) working on how to identify compounds in rice grain that inhibit bioavailability of iron.
 - ii. Mr Narit Yimyam is being trained in regeneration ecology at Murdoch University (August 2004 – January 2005)
 - iii. Miss Nednapha Insalud is being trained in studies of rice roots in alternating aerobic/anaerobic condition at Murdoch University (April - December 2004)

Soybean (China)

- Three graduate students working with the CCRP-funded projects got their graduate degrees from the South China Agricultural University in July 2004 after they successfully defended their theses. These students are: Ms Jing Zhao (Ph.D.), Ms. Ruibin Kuang (M.S.) and Mr. Lide Wang (M.S.). Congratulations!
- Dr. Xiaolong Yan attended the 6th International Symposium on Plant-Soil Interactions at Low pH (PSILPH) held in Sendai, Japan from August 1 to 5, 2004, where he presented parts of his results from the CCRP research. He was also elected to host the next PSILPH symposium in Guangzhou, China in 2008.
- Four trainees were sent to Penn State University in September for collaborative trainings. The trainees and their host labs are: Mr. Yingxiang Wang (Ph.D. student in molecular biology to Dr. Hong Ma's lab for 6 months), Ms. Huixia Cui (staff member in agroecconomics to Dr. Robert Weaver's lab for 2 months), Dr. Tonglin Zhu (staff member in computer modeling to Dr. Jonathan Lynch's lab for 6 months) and Dr. Chuxiong Zhuang (staff member to Dr. Hong Ma's lab for 36 months).

Publications:

- Zhao J., Fu J., Liao H., He Y., Nian H., Hu Y., Qiu L., Dong Y. & Yan X. 2004. Characterization of root architecture in an applied core collection for phosphorus efficiency of soybean germplasm. Chinese Science Bulletin, 49(15): 1611-1620.

Sweetpotato (Uganda)

- On September 12, 2004 three former Director Generals (DG) visited Namulonge Agricultural and Animal Production Research Institute (NAARI) as part of their mission to rationalize the Consultative Group of International Agricultural Research (CG) Centers in terms of program alignment. There has been an increase in the cadre of competent research scientists in national programs in developing countries, and this may prompt a change in operation by CG centers due to

various options that require strategic alignment of programs—the DGs explained. The former DGs that visited NAARI were Prof. Joseph Mukiibi (National Agricultural Research Organization (NARO-Uganda), Dr. Eugene Terry (West Africa Rice Development Association (WARDA-Liberia), and Dr. Lukas Brader (International Institute of Tropical Agriculture (IITA-Nigeria). After consulting with the scientists at NAARI, the former DGs visited one cassava farmer (Mrs. Dorothy Kabuye in Zirowwe) and one sweetpotato farmer. The DGs were greatly impressed by the sweetpotato farmer (Mr. Rajab Setyabula in Zirowwe) who briefed them on the progress he has made since he started growing sweetpotato in 1999, unlike Mrs. Kabuye who presented numerous problems. Mr. Setyabula and his wife demonstrated orange-fleshed sweetpotato products they had started selling recently in the local market, and sweetpotato fresh root storage structures they were using to store harvested roots for 2-5 months. He was very happy to show them his achievements from sale of sweetpotato roots and vines: a permanent house (5 rooms), plot (50 ft x 100 ft) in Zirowwe trading center, a local cow, 2 sheep that had multiplied to total 10, a mobile phone, and seven children supported in schools by money from sweetpotato sales. Mr. Setyabula's development is one of the outstanding success stories due to support by the McKnight Foundation to sweetpotato research through NARO. He has engaged actively in participatory breeding, on-farm trials, and orange-fleshed sweetpotato research activities of NARO.

- Dr. Philip Stevenson of the University of Greenwich, Natural Resources Research Institute, UK, and Dr. Craig Yencho of North Carolina State University (NCSU), Raleigh, USA, visited Uganda, August 15-20, 2004. Dr. Stevenson and his NRI team bring their expertise in sweetpotato chemistry to develop resistance to sweetpotato weevil commencing with renewal of the Uganda- NCSU-NRI (2004-2008) grant; the NRI group will replaced the Clemson group in the partnership. They had a busy schedule: visit to labs and sweetpotato field trials at NAARI, discussions with the research scientists at NAARI, meetings with the International Potato Center (CIP) and PRAPCE staff in Kampala, discussions with partners in the Coalition Project (12 partners with different roles from production, research, processing to export of sweetpotato), conducting interviews for postgraduate candidates to work on the McKnight sweetpotato project in Uganda, presentation of seminar at Makerere University on collaborative sweetpotato breeding efforts between NCSU and NARO (by Dr. Yencho), and visit farmers in Luwero District. The Uganda- NCSU-NRI research team spent time on their workplans, budgets, and workplans for the PhD student to work on developing sweetpotato weevil resistance based on biochemical strategy.
- The Rockefeller Foundation in September 2004 approved a grant to support research to identify Bt insecticidal proteins that are effective against the sweetpotato weevil (SPW). The Rockefeller grant (USD 340,630) will cover two years. The participating institutions are NARO/NAARI in Uganda (to conduct bioassay of Bt proteins on African SPW—MS student), Auburn University, USA (to purify active Bt proteins), and CIP, Lima, Peru (to work genetic transformation—second phase). This work will build on the research currently being supported by the McKnight foundation to develop an artificial diet for the African SPW.

Tef (Ethiopia)

- We have proceeded with our tef participatory breeding and 11 farmers are participating in a Mother-Baby-Trial. Each M-B-T field includes three farmer-selected genotypes from our yield trials and a fourth one included by each farmer from his/her own. Nine different genotypes are being tested, each genotype being grown on 1-10 farmers' fields. Our preliminary results from the analyses of yield trials (formal breeding) indicate that farmer-selected tef genotypes are not necessarily the highest yielder, but interesting overlaps do occur.
- In August 17, 2004, Mr. Solomon Chanyalew, a PhD student in the project has returned from Cornell University after a one-year work on his thesis at Professor Sorrells laboratory. The lab work was focused on constructing the tef-linkage map using different kinds of molecular markers (AFLP, EST-SSR, SSR and ISSR) on RIL population of the interspecific cross between tef and the wild *Eragrostis pilosa* (DZ-01-2785 x *E. pilosa*) developed by Dr. Hailu Tefera (PI) at Debre Zeit Agricultural Research Center. A total of 166 markers, covering 2112.3 cM, were mapped. The map contains 149 markers ordered in 20 linkage groups; 17 markers were unlinked. A manuscript is being prepared for publication. On the other hand, two members of our team from Debre Zeit Agricultural Research Center, Mr. Gizaw Metaferia and Mr. Daniel Jarra, left in August 15, 2004, for Wageningen University, Netherlands, for a two-years MSc training in fields related to biotechnology /molecular biology. Their training is part of the capacity building effort to equip the tef biotechnology program at Debre Zeit with the required human resources.
- A saturated molecular linkage map of tef was constructed at Cornell using 94, F9 recombinant inbred lines (RIL) derived from an interspecific cross, *E. tef* cv. Kaye Murri x *E. pilosa* (L.) P. Beauv. (accession 30-5) based on restriction fragment length polymorphisms (RFLP), simple sequence repeats derived from expressed sequence tags (EST-SSR), single nucleotide polymorphism / insertion and deletion (SNP/INDEL), intron fragment length polymorphism (IFLP) and inter-simple sequence repeat amplification (ISSR). A total of 212 loci from 159 markers were grouped into 20 linkage groups. The map covered 2,070 cM with a mean density of 11.5 cM per locus and about 20 % of the loci deviated from expected Mendelian segregation. Moreover, Dr. Ju-Kyung Yu from Cornell attended the 5th International Crop Science Congress, Brisbane, Australia, September 26 - October 1, 2004. She presented a poster about “Analysis and functional annotation of expressed sequence tags for tef [*Eragrostis tef* (Zucc) Trotter]”.