


**THE MCKNIGHT FOUNDATION**

**Collaborative Crop Research Program**

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## CCRP Quarterly Newsletter

**To:** CCRP Grantees

**From:** Office of the CCRP Program Director

**Reporting period:** October-December 2003

### News

- Many thanks to the project teams for progress reports received this quarter: [quinoa](#) (Bolivia), [sweetpotato](#) (Kenya), [potato](#) (Brazil/Chile), [finger millet \(India\)](#), [chickpea \(India\)](#), and [maize/sorghum](#) (Brazil/Kenya) projects. A renewal proposal for the [sweetpotato](#) (Uganda) project was received in early December.
- A [consultation workshop](#), entitled “*Improving Food Security in the Andes: Lessons Learned and Ways Forward*,” was held in Bolivia in October to inform the design of a call for proposals aimed at enhancing food security for resource-poor farmers in the Andes. Participants included representatives of scientific organizations; governmental and non-governmental development organizations; and farmer and community groups. The workshop, which was graciously hosted by PROINPA, took place at a time of political upheaval in the country.
- A request for proposals for the Andes was drafted, based on the input obtained at the Bolivia workshop, and with input from the oversight committee. This has been posted on the [CCRP](#) and McKnight Web sites, and is being distributed by email to a network of contacts in the region.
- A [second consultation workshop](#), entitled “*Millet- and Sorghum-Based Systems in West Africa*” will take place in Niamey, Niger from January 27-30. The workshop is being co-hosted by ICRISAT (the International Crops Research Institute for the Semi-Arid Tropics) and INRAN (Niger’s national agricultural research institute).
- We solicited nominations of possible topics of discussion from the Oversight Committee and PIs for the 2004 grantee conference. Their feedback can be found [here](#).
- In October, Xialong Yan and Jonathan Lynch of the [soybean](#) (China) project visited Rebecca Nelson and Leon Kochian at Cornell University in lieu of a site visit cancelled due to concerns about SARS.
- In November, Roz Naylor and consultant Brigitte Courtois (plant breeder) visited the [finger millet \(India\)](#) and [chickpea \(India\)](#) projects. The site visitors provided valuable feedback.

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

*January 2004*

27-30 Consultation Workshop: Millet- and Sorghum-Based Systems in West Africa. For more information about this workshop, click [here](#).

*March 2004*

African legumes informal site visit, Cape Town, South Africa. Richard Jones will visit the project of Dakora et al.

*April 2004*

Tef (Ethiopia) midterm evaluation, Debre Zeit, Ethiopia  
Charity Kabutha and Richard Jones will visit the [tef](#) (Ethiopia) project.

*May 2004*

Soybean and wheat (China) site visits, Guangzhou and Nanjing, China  
Daowen Wang and Mac Binger will visit the [soybean](#) and [wheat](#) (China) projects (tentative).

*June 2004*

4-6 OC meets in Amsterdam to select pre-proposals for the Andes RFP.

Chickpea and finger millet (India) site visits, Bangalore and Pune, India  
Mac Binger will visit the [chickpea](#) and [finger millet](#) (India) projects (tentative).

*July*

Legumes (South Africa) midterm evaluation, Cape Town, South Africa  
Two OC members will visit the [legumes \(South Africa\)](#) project.

*November*

6-10 2004 Grantee conference, The Netherlands

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

**CCRP Web**

The current version of the CCRP Web has seen a few changes over the past few months. New pages were added, and other pages were revamped.

- [Improving food security in the Andes workshop page](#). This page now contains documents and photos from the 2003 workshop held in Cochabamba, Bolivia.
- [Millet- and sorghum-based systems in West Africa workshop page](#). Information about the workshop that will take place in Niamey, Niger at the end of January.
- [Projects home page](#). The map has been updated to have an “interactive” feature. Highlight the countries in yellow. This feature is currently a prototype and will be improved in the future.
- [Reports and due dates](#). The Reports and Due Dates pages were merged to become one page. CCRP quarterly newsletters and project progress reports can be accessed here

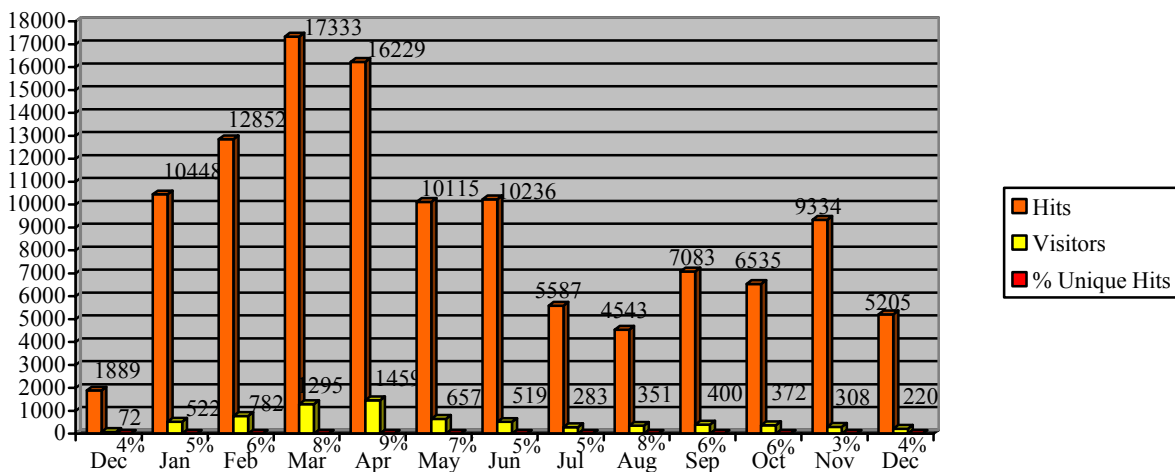
- [Information for applicants](#). This page now features the three topics for the next RFP.

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

### CCRP Web Statistics Summary

Webalizer is a free log file analysis program that can instantly generate a web site usage report in HTML format that is readily viewable from a standard browser window. 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](#).

### CCRP Literature Service

The past three months have shown a slower trend in literature service usage, with only seven articles sent since last report. We recently requested from the PI’s names of interested students, researchers and others associated with the projects that might benefit from the literature service, and have received a few responses. We hope to augment their research with literature relevant to their areas of study. We encourage program affiliates to experiment with it so that we can determine its strengths and weaknesses, as well as letting us know if we need to refine or add keywords for better results.

Please submit any keywords or topics of interest to [Kelly Lindsay](#).

## Updates from the CCRP Projects

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

### Andean tubers (Peru):

- For the first time for science, we report the identification of two parasitic nematodes of Andean weevil in Peru. The first one is *Heterorhabditis* sp. This can kill larva of the Andean potato weevil *Premnotrypes suturicallus* in 48 hours by realizing, in a symbiosis manner, a bacteria within the larva's body. Preliminary results have also shown that the parasitic nematodes can kill larva of oca weevil. Additional studies are being done to optimize the utilization of the parasitic nematode in integrated management of the pest in Andean tuber crops.
- *Steinernema* sp. is another parasitic nematode found in oca fields. Studies are being done to know the economic potential of the nematode in integrated management programs.
- We are very pleased that the 2003 Fausto Cisneros Vera Prize was awarded to Ir. Luis Lizarraga, a very active project participant, and distinguished lecturer at Cusco University. The award took place the first week of December 2003 on the occasion of the XLV Peruvian Convention of Entomology. Ir. Lizarraga's contribution to Peruvian agriculture was the utilization of four native species of repellent plants combined with the parasitic fungus *Beauveria brongniartii* for integrated management of oca weevil. The merit of his work also takes into account the multiplication of the parasitic fungus in cow, and sheep manure to make things more accessible to farmers. Oca growers are using Lizarraga's findings to protect their fields in the villages where the project takes place.
- Ir. Jesus Alcazar, a project participant, was trained in Entomology and Nematology at the University of California at Davis in October 2003. His close collaboration with Scientists of Davis resulted in the findings of the parasitic nematodes mentioned above. Additional work is being done also in close collaboration with Davis to identify the binomial name of the nematodes, the ulluco, and mashua weevil.

### Finger millet (India):

- Participatory evaluation of 30 elite lines of finger millet in 8 farmers field locations.
- Collection and isolation of 150 samples of blast samples for phenotypic and molecular characterization.
- Phenotypic evaluation of the recombinant inbred lines for leaf, finger and neck blast disease.
- Inclusion of two elite lines of finger millet in the national testing program.
- Parental polymorphism testing of mapping population using cDNA AFLP, SSR markers, RAPD markers, Candidate genes and rice heterologous markers
- Identified leaf, neck and finger blast genotypes for further testing and back crossing.
- Root phenotyping 30 elite lines for root morphological characters under stress and non-stress situations.

### Potato (Brazil/Chile):

- A book edited by Mrs. Patricia Larrain member of the Chile-Brazil-USA project on potatoes came out of print at the end of December 2003. The book is titled: Plagas de la Papa y su Manejo (Potato pests and their management). The new book was financed in part by the McKnight Foundation through the project funded to INIA-Chile and several chapters contain information gathered through the research conducted by the project in Chile. Members of the project that contribute to the book

are Patricia Larrain, Carlos Quiroz, Roberto Carrillo and Julio Kalazich. Interested people may contact Mrs. Patricia Larrain (plarrain@intihuasi.inia.cl). A picture of the cover is included.

- Researchers Patricia Larrain, Fernando Graña, and Claudia Vasquez from INIA Intihuasi (North Chile), attended the XXV Chilean Congress of Entomology held in the city of Talca, VII Region between 26-28 November 2003. The poster presented was: 'Efecto de la feromona sexual de *Phthorimaea operculella* (ZELLER) (LEPIDOPTERA :GELECHIIDAE), como tecnica de trampeo masivo, en la reduccion del daño tuberculos de papa' (Effect of the sexual pheromone from *Phthorimaea operculella* (ZELLER) (LEPIDOPTERA:GELECHIIDAE), as massive trap technique on potato tuber damage reduction). The results presented are part of the work done under McKnight project in Chile.
- 1000 people visited INIA Remehue Research Station in Osorno, Chile during an open house week from 24-28 November 2003. Hundreds of students from Elementary and High schools, extension agents, farmers and authorities visited various research activities during the week among which they could know about the results of the McKnight project being developed at this research station.

#### Quinoa (Bolivia):

- On October 12 to 15, scientists and farmers from Ecuador, Peru and Bolivia have participated in a workshop held in Cochabamba, Bolivia. In the workshop were discussed food security issues in the Andes.
- On November 22 and 23, scientists from Brigham Young University and PROINPA Foundation participated in a workshop held in La Paz, Bolivia. Progress report of year 2 and the workplan for year 3 were the tasks addressed in the workshop.
- In Bolivian altiplano we were faced to hard and long drought conditions which derived in delaying quinoa planting dates or canceling planting quinoa, but this situation became an opportunity to test early maturing quinoa lines which were selected in our breeding program.

#### Soybean (China):

- An annual report meeting was held at the Root Biology Center of the South China Agricultural University (SCAU) on December 30, 2003. More than 20 project participants at SCAU (including both staff members and students) attended the meeting, during which the PIs of each research module (i.e., conventional breeding, physiology, molecular biology, agro-ecology, and agro-economics) reported research progress in the past year and proposed plan for the next year.
- Ms Ruibin Kuang, a graduate student supervised by Dr. Xiaolong Yan at SCAU, has completed her 6-month training in Dr. Jonathan Lynch's lab at the Pennsylvania State University (PSU). During her stay at PSU, Ms Kuang conducted physiological studies on phosphorus and nitrogen interactions in soybean with significant progress made.
- The South China Daily, an official provincial newspaper based on Guangzhou, has recently published an article about the significant contribution of the returned over-sea Chinese scholars to scientific and agricultural development in South China, citing the cases of Drs Yaoguang Liu and Xiaolong Yan, the PIs of the CCRP project.

#### Sweetpotato (Kenya):

- Three annual planning meetings were held by the project. A planning meeting for all Kenyan collaborators was held in Nairobi Kenya on 16<sup>th</sup> and 17<sup>th</sup> October, 2003. Participants were drawn from 7 KARI centers, CIP and the Kenya Plant Health Inspectorate Service (KEPHIS). Mrs. Charity Kabutha of the CCRP oversight committee attended the meeting as an observer. A second planning

meeting for all Tanzania collaborators was held in Arusha, Tanzania on 5<sup>th</sup> to 6<sup>th</sup> December, 2003. Five research centers of the Ministry of Research and Food Security were represented. The projects PI, Dr. Simon Gichuki also attended the meeting. In both the Kenyan and the Tanzania meeting participants reviewed the project's progress, developed indicators to monitor future progress and processed workplans & budgets for the second year of implementation. The third planning meeting involved all the projects five partner institutions and was held on 8<sup>th</sup> and 9<sup>th</sup> November 2003 at KARI headquarters in Nairobi. Participants included 4 KARI scientists, 4 Tanzanian scientists, Mr Sammy Agili of CIP, Drs. Don La Bonte and Arthur Villordon of Louisiana State University and Dr. Kornel Burg of the Austrian Research Centres, Seibersdorf. The meeting reviewed the progress made by the partners during the first year of implementation and laid out strategies for achieving the objectives for the second year workplans. A brief follow up meeting was held during the 13<sup>th</sup> triennial symposium of the International Society of Tropical Root Crops (ISTRC) from 10<sup>th</sup> to 15<sup>th</sup> November, 2003 in Arusha, Tanzania which was attended by several of the projects collaborators participating in the symposium.

- A training workshop on Geographical Information System (GIS) and related technologies was held in Nairobi, Kenya between 5<sup>th</sup> and 7<sup>th</sup> November, 2003. In addition to a general introduction to (GIS) and Global Positioning System (GPS) participants were introduced to DIVA-GIS a royalty-free, web-based GIS software developed by the International Potato Center. After the training participants are now able to use GPS equipment to collect passport data of germplasm collected and analyze it with DIVA – GIS. A total of 16 collaborating scientists from Kenya and 5 from Tanzania participated in the training. Kenyan participants were drawn from KARI, CIP and the genebank of Kenya while the five Tanzanian participants were drawn from 3 research centers, Hort-tengeru, ARI-Kibaha and ARI-Ukiriguru. The training was conducted by Dr. Arthur Villordon of Louisiana State University.
- A participatory Monitoring and Evaluation Training Workshop was held in Arusha, Tanzania between 1<sup>st</sup> and 3<sup>rd</sup> December 2003. A total of 16 collaborating scientists from the Kenya Agricultural Research Institute (KARI) and the Ministry of Agriculture and Food security of Tanzania were trained. Three KARI Research Centres were represented (Kakamega- 4 participants; National Agricultural Research Laboratories – 2 participants; Katumani – 1 participant). Tanzanian Agricultural Research Institutes represented were (Ukiriguru – 5 participants; Kibaha – 3 participants; Uyole – 1 participant; Maruku – 1 participant and Hort-Tengeru – 1 participant). The main objective of the workshop was to familiarize the participants with the concept of M&E, development of community action plans (CAP) as a tool for participatory M&E and use of the logical framework approach in project management. Resource persons came from the Monitoring and Evaluation department of the Kenyan Ministry of Agriculture assisted by the project's Principal Investigator.

Sweetpotato (Uganda):

- Eleven of 26 permanent secretaries (PS's) from various ministries in Uganda visited Namulonge Agricultural and Animal Production Research Institute (NAARI) on December 5, 2003 to assess progress the National Agricultural Research Organization (NARO) is making. The Director General (DG) of NARO plus a few other officials from NARO headquarters were present. The Director of NAARI presented an overview of the research and outstanding achievements programs at NAARI had achieved to date. The programs highlighted were livestock (rational crop residue utilization,

fodder bank technologies, early warning system for monitoring impending feed and water resource crisis in the rangelands developed), cassava (12 released varieties and processing technologies developed), beans (11 varieties and processing technologies released), cereals (maize 7 varieties and rice 4 upland varieties released), sweetpotato (12 varieties released and processing technologies developed), the biocontrol unit (effective control achieved of cassava mealy bug and cassava green mite, and water hyacinth on Lake Victoria and Lake Kyoga). After speeches by the Director of the Public Service Commission and the DG of NARO, the PS's from the relevant ministries answered queries raised by NAARI scientists and other staff on the restructuring of NARO and agricultural research and concerns on low salaries and job insecurity. Scientists gave explanations of their work in the laboratories and fields. Highlights of the sweetpotato program on tissue culture work, crossing block, station and farmer participatory on-farm trials and sweetpotato processing were given and emphasis was laid on the contribution of orange-fleshed sweetpotato to human healthy. Dr. Robert Mwangi showed from the WHO recommendation for vit. A intake that each adult or child over six years needs \$120.00 per year, while a pregnant or lactating woman requires US\$ 60.00 per year to meet vitamin A requirement. The majority of families in Uganda do not have that kind of money, so vitamin A deficiency (VAD) is widespread but could be alleviated by consuming orange-fleshed sweetpotato (OFSP). OFSP has high beta-carotene (precursor of vit. A). At the end of the visit, all the PS's took planting materials of OFSP because they were deeply touched by the appalling VAD situation in the country. PS's are among the important decision makers that influence policy of government machinery.

- The 13<sup>th</sup> Symposium of the International Society for Tropical Roots (ISTRC) was held in Arusha, Tanzania, November 10 – 14, 2003. Its theme was “Tropical root and tuber crops: opportunities for poverty alleviation and sustainable livelihoods in the developing world”. Approximately 260 participants from around the world attended the symposium. Thirteen papers on sweetpotato research and technology dissemination in Uganda were presented. Six of the presented papers were presented in the Vitamin A for Africa (VITAA) mini-symposium. The partners on the two sweetpotato McKnight projects in East Africa that attended the meeting had discussions on progress of the projects and harmonization of research activities on sweetpotato viruses in the region for synergy.
- Eighteen farmers in Vumba Village, Kalagala sub-county, Luwero district and 25 farmers in Kituntu Village, Nkozi sub-county, Mpigi District screened their sweetpotato seedlings for storage root yield potential and resistance to sweetpotato virus disease and *Alternaria* blight resistance. This was the first time the groups dealt with true sweetpotato seeds. They were excited by the great diversity of the progeny, especially the color of the storage roots. They retained all the orange-fleshed clones, discarded all those susceptible to diseases. They were enthusiastic to continue with the evaluation and some of them started describing themselves as experts. The McKnight Foundation supports work on participatory sweetpotato breeding and development of orange-fleshed sweetpotato to alleviate vitamin A deficiency in Uganda.

#### Tef (Ethiopia):

- Visits by farmers and researchers were carried out between Oct. 19 and Nov. Dec 30 at the two districts, Ada and Akaki, on farmers' fields participating in Participatory Variety Evaluation (PVE). Three farmers' fields from each district, upon the decisions of the farmers were visited. The objectives for the PVE work were to share the experiences among farmer, to discuss their

impressions on their choice varieties, and to decide on subsequent works. The important lessons learned are summarized as follows: 1) All farmers acknowledged that the most widely selected variety, DZ-01-196, agronomically performs better than their "Magna". However, because of its low purity, farmers in Ada will not continue planting it, while those at Akaki will continue to do so as long as they find it unfit for planting (2-3 years). 2) Those who selected the red-grained variety DZ-01-99 also acknowledged that it performs better than their local red-kernelled tef. Therefore, they will continue planting it instead of their local cultivar. Most of the participating farmers have been approached by neighboring farmers to get seeds. 3) For the rest of the varieties, in Ada, farmers expressed that they will continue with at least one of their choices, which they will decide after harvest. At Akaki, farmers were undecided to continue with any of their choice varieties until they see the final yield. Some farmers said that they might repeat the comparison with their local cultivar. In general it appears that seed contamination is a very serious problem in tef, and therefore, some form of solution has to be devised in the future. Researchers and farmers have agreed that a questionnaire format should be prepared to track down, at least once, the fate of the seeds harvested. This will be done before the next planting season in July.

- In the participatory tef breeding work, farmers made selections from tef genotypes assembled in the National (NVT) and pre-national (PNVT) variety tests. Farmers were asked to decide in groups, which lines (a maximum of five) they would like to have for planting and the reasons of selection. Market value (white-seed color) was the major criteria, followed by panicle length and tolerance to desiccating wind. At Akaki and Ada, a total of seven and nine genotypes were selected, respectively. Three of them were common to both locations and those attracted most farmers were derivatives from the two crosses that were targeted to improve the seed quality of otherwise good-yielding varieties. The donor parent of seed quality was the most popularly selected variety, DZ-01-196.

#### Wheat (China):

- Preliminary research of DON contents of different wheat varieties. Wheat scab was heavy epidemic in the Middle and Lower Reaches of the Yangtze River area of China in year 2003. In order to evaluate new germ plasms with low DON content and to investigate the relationship between DON content and Type I or Type II resistance. Sixty-four Chinese landraces were inoculated with high-yield mycotoxin isolates of *Fusarium graminearum* spp. B4-1 introduced from USA. Based on the preliminary results, 35 landraces were selected for DON content investigation of the infected grains. The results indicated that DON contents of the tested lines varied from 0.60mg/kg to 86.86mg/kg. Among them, DON contents of 3 landraces were lower than that of Wangshuibai (1.52mg/kg), DON content of 4 landraces varied from Wangshuibai and Sumai#3 (2.94mg/kg). No significant relationship between disease response parameters and DON content was found.
- Scab resistance evaluation in Kansas State University. Lines developed by Nanjing Agricultural University were planted along with four additional check cultivars in three different greenhouse experiments over spring and autumn 2003. Of the lines developed in this research to date, 9 showed almost no disease spread from the inoculated spikelet over three inoculation experiments and were considered highly resistant to scab. Based on an analysis by genotyping with microsatellite DNA markers that are associated with resistance in Sumai 3, at least five of the most resistant lines have a source of resistance different than the 3BS locus. These materials represent new and much needed sources of resistance to this devastating disease.

Wolbachia (China):

- A partnership meeting was held in University of Queensland, Brisbane, Australia in November 21 and 22. The meeting, hosted by Dr. Scott O'Neill, was joint by Drs. Jiang Zhong, Haiying Gu and Chongguang Pan from China, and Dr. Roger Hull from United Kingdom. Recent progresses on the project were reported in the meeting. It is agreed by all participants that the team is make progress in all components, and is very close to the final goal. However, there are still a few difficulties to be overcome.
- On the issue of Wolbachia transformation, the team was encouraged by a recent advance from a group in Japan on bacteriophage infecting Wolbachia. Collaboration will be sought to establish a reliable transformation method for Wolbachia.
- As determined during the partnership meeting, Roger Hull contacted Rebecca Nelson for the possibility of a six month extension of the project with no-cost to the McKnight Foundation. The purpose of the extension is to carry out the field experiments for another rice season, in order to compensate for the extreme hot weather during the summer of 2003, as well as to undertake further laboratory work. The requested was approved by the foundation on early December.