THE McKNIGHT FOUNDATION

Collaborative Crop Research Program

Rebecca Nelson Cornell University Tel: (607) 254-7475, 255-9693, 254-6499
Program Director 321 Plant Science Building Fax: (607) 255-4471
Kelly Lindsay 322 Plant Science Building Email: rjn7@cornell.edu
Program Assistant Ithaca, NY 14853 Email: kal44@cornell.edu
Robert Goodman University of Wisconsin, Madison Email: rgoodman@wisc.edu
Chair, Oversight Committee http://mcknight.ccrp.cornell.edu

CCRP Newsletter

From: Office of the Program Director
To: CCRP grantees
Reporting period: April-June 2003

***Important note**: In order to follow many of the external links, you will need to be logged into the CCRP site. Please take this opportunity log in using your assigned user name and password. Once you have our web page open, do not close it; otherwise, you will have to log in again and re-click the links. If you receive an error message, simply try clicking the link on this report again.*

News

- Site visits to Peru, Bolivia, and Thailand were conducted in April and May. Following each site visit, the respective researchers received feedback based on the trip reports. The site visits to China were delayed due to the SARS epidemic.
- The next grantee conference will take place November 6-10, 2004 at the Dolce Kasteel Vaalsbroek in Maastrict, The Netherlands. Bob Goodman visited the site, and reported that it will be a lovely venue for our conference.
- Several improvements have been made to the CCRP Web. See below for details.
- Narrowing the Rift, a workshop proceedings volume compiled by members of the Tef project, was recently published. This book is the most comprehensive source of information available about tef. For more information, click here.
- Planning for the next funding cycles, including consultation workshops to be held in Bolivia and West Africa, is currently underway. See below for more information.
- [actually occurred in the 3rd quarter of this year] The CCRP, through the efforts of Bob Goodman and Rip Rapson, has participated in an initiative to promote sharing of public-sector intellectual property (IP) related to agriculture. In a recent break-though, a group of universities and foundations announced their intention to package and share their IP for the benefit of "orphan crops" and developing countries. Information on this development was shared with grantees through the CCRP Literature Service.

Project Reports, Updates, and Issues

- Annual reports have been received from projects in Uganda (Indigenous vegetables), India (chickpea), and Kenya (sweetpotato).

- Three consultation processes are being developed to inform our next funding cycles. Here is a brief summary of what is in progress:
    - A consultation workshop entitled "*Improving Food Security in the Andes: Lessons Learned and Ways Forward*" will be held at PROINPA's headquarters in Cochabamba, Bolivia, in October of this year.
        - Announcements in English and Spanish can be found on the Andes workshop page.
        - Participants are from the research, NGO and farmer sectors of Ecuador, Peru and Bolivia.
        - Alvaro Paz and Jeff Bentley are conducting an "inventory" study as a backgrounder for the workshop. They are investigating what is currently being done in crop research related to food security in the Andes. The results of this study will be presented during the workshop, and (hopefully) published as a research paper.
        - OC members, the EC, PROINPA staff, and several others have contributed to developing the workshop. The organizing committee includes: Antonio Gandarillas (general manager of PROINPA), Steve Sherwood (World Neighbors-Ecuador), Julio Kalazich, Kathy Rysted and Rebecca Nelson.
        - At PROINPA, Alvaro Paz, Ana Maria Cortez and Antonio Gandarillas have provided support as hosts of the event.
        - At Cornell, graduate students Rachel Bezner Kerr and Cristina Santa Cruz have worked closely with Rebecca Nelson in planning the details of the workshop. Rachel is a Ph.D. candidate in Development Sociology, and Cristina is finishing her M.Sc. in Education. Steve Vanek, who serves as regional coordinator for the Northeast Organic Network, will serve as facilitator for the Andes workshop.

    - A consultation workshop, entitled "*Millet and Sorghum-Based Systems in West Africa: Current Knowledge and Enhancing Linkages to Improve Food Security*" will be held at the ICRISAT station in Niamey, Niger, in January of next year.
        - A workshop planning committee is actively laying the groundwork for the workshop. The committee consists of Bruno Gerard (ICRISAT-Niamey, our host), Rachel Bezner Kerr, Kathy Rysted, Rebecca Nelson, and Mohamed Ag Ayoya (a Malian M.D. now pursuing a Ph.D. in nutrition at Cornell).
        - The workshop will focus on three themes: 1) enhancing productivity on P-deficient soils; 2) Striga management and 3) participatory deployment of cereal and legume genotypes.

    - Rebecca Nelson and Rachel Bezner Kerr will travel to Kenya and Uganda in July/August, to explore existing initiatives related to edible legumes in E. and C. Africa.

Workshops, Conferences, Meetings, and Site Visits

April

22-23 Andean tubers project site visit, Cusco, Peru
Almiro Blumenschein and consultant Sieglinde Snapp visited the Andean tubers project.

24-25 Quinoa project site visit, La Paz, Bolivia
Almiro Blumenschein and consultant Sieglinde Snapp visited the quinoa project.

May

7-8 Meeting with Legumes project members
Rebecca Nelson traveled to Ghana to visit Dr. Felix Dakora and the legumes project team.

22-23 Rice project site visit, Chiang Mai, Thailand
Agnes Rola and Ronnie Coffman visited the rice project.

Upcoming Events

2003

August

26-27 Maize/sorghum project site visit, Sete Lagoas, Brazil
Almiro Blumenschein and Rebecca Nelson will visit the maize/sorghum project.

October

12-15 Workshop: Improving Food Security in the Andes: Lessons Learned and Ways Forward, Cochabamba, Bolivia. As mentioned above, this workshop will serve as a broad-based consultation with scientists, government, NGOs and community groups for the design of a focused call for proposals relating to achieving food security for resource-poor farmers in the Andes. For more information, click here.

November

11-12 Finger millet project site visit, Bangalore, India
Roz Naylor and consultant Brigitte Courtois (plant breeder) will visit the finger millet project.

13-14 Chickpea project site visit, Pune, India
Roz Naylor and consultant Brigitte Courtois will visit the chickpea project.

2004

January

27-30 Workshop: Millet and Sorghum-Based Systems in West Africa: Current Knowledge and Enhancing Linkages to Improve Food Security, Niamey, Niger. As mentioned above, the workshop will serve as a broad-based consultation with scientists, government, NGOs and community groups, to serve as the basis for the design of a focused call for proposals. The workshop will focus on three themes: 1) enhancing productivity on P-deficient soils; 2) Striga management and 3) participatory deployment of cereal and legume genotypes.

April

Tef project site visit, Debre Zeit, Ethiopia
Charity Kabutha and another person will visit the tef project.

July Legumes project site visit
Theresa Sengooba and Usha Vijayraghavan will visit the legumes project.

November

6-10 2004 Grantee conference, The Netherlands
The biennial grantee conference will be held at the Dolce Kasteel Vaalsbroek in Maastrict, 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.

CCRP Web

The CCRP Web has continued its steady growth with the incorporation new and improved features:

- *Due dates*. This page allows us to keep track of when annual progress reports are due, which have been received, and which are overdue. To view the current status of your annual progress report, click here.
- *Workshop planning pages*. We have implemented a useful aspect of the security system to create pages specifically for workshop organizers. These pages allow them to develop, display and coordinate information regarding participants, budgets, and other aspects of the workshop.
- *Series of refinements to structure and style*. The CCRP Web has been edited for consistency in both structure and style. With the possibility of improvement in the menu structure of the site, another round of revisions may be necessary in the near future.

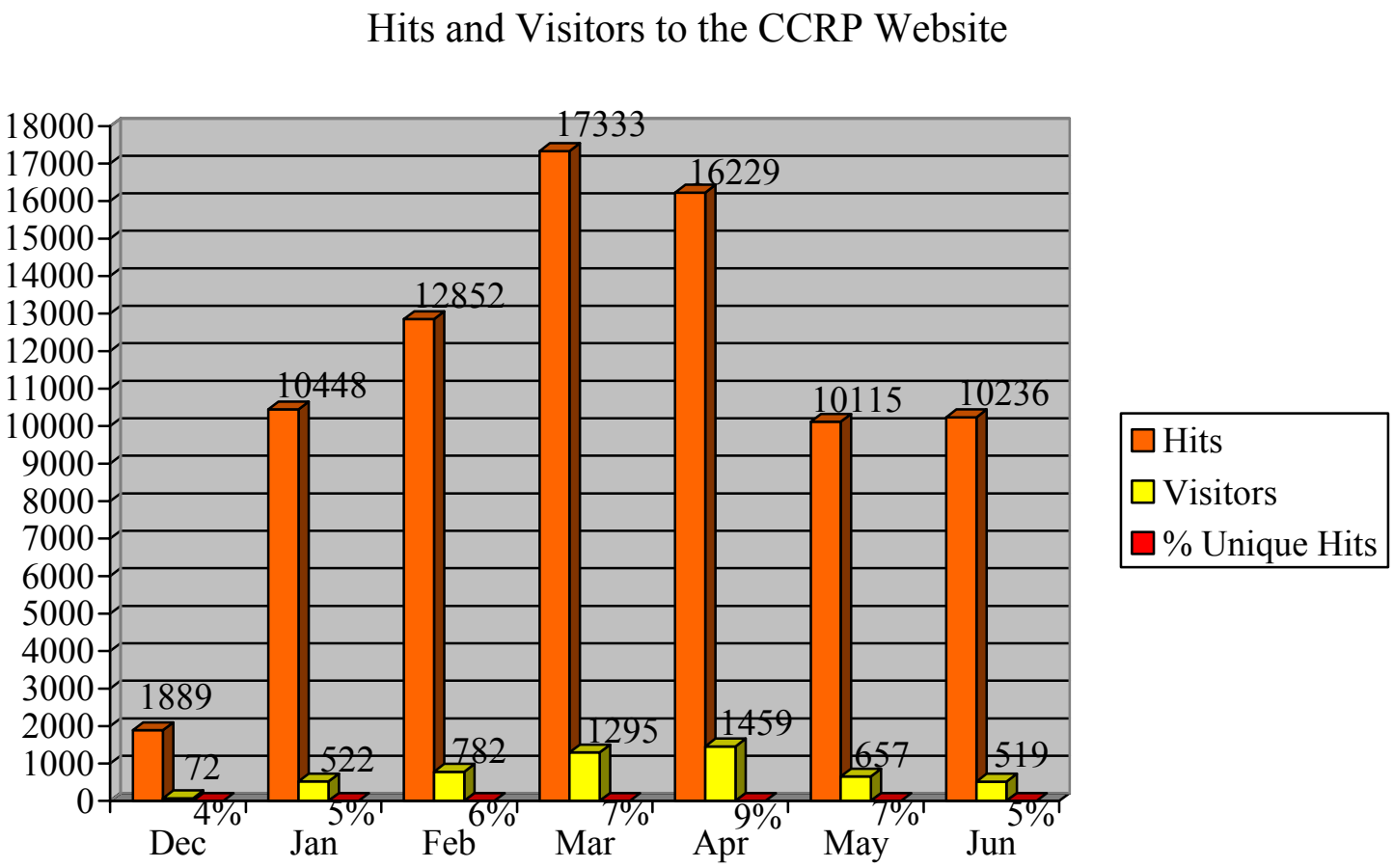
Our next round of site developments include:

- *Improved menu.* We are considering improving the menu layout of the site to facilitate finding desired information much more quickly. A template will be drawn up over the next few weeks, and a decision will then be made.
- *Literature lists.* We will update the literature database with another round of new and relevant references obtained through BIOSIS literature searches. These "elite" lists will be generated and made available in both text document and HTML, linked from the appropriate topic and project pages.

- *Keyword hierarchy.* Continued efforts are in place to assemble and refine the existing keyword hierarchy. The hierarchy will allow users to search the CCRP Web for information and literature appropriate to their topic of interest.

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. Our log files date back to December 18, 2002, the day the site was publicly announced and place on the permanent server. As this is the first Quarterly Update that will include a CCRP Web statistics summary, a period from December 2002-June 2003 will be covered.



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. Please do not miss out on this opportunity! The literature database is still in its developing stages, awaiting the refinement of the keyword hierarchy to enhance its functionality. 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. 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.

We would like to give thanks to all of the projects that used our literature service last quarter, especially Benjavan Rerkasem, Julio Kalazich and Hailu Tefera, who ordered several articles since the last report.

CCRP Literature Service Patronage

- Requests since last report: 13
- Requested articles since last report: 20
- Requests to date: 123
- Articles sent to date: 233
- References in database: 6487

Number of articles requested by individuals*:

- Kalazich: 5 (5)
- Rerkasem: 5 (15)
- Tefera: 5 (22)
- Gupta: 3 (13)
- Hittalmani: 1 (22)
- Mwanga: 1 (83)

Total: 60

*Number in parenthesis indicates YTD (year-to-date) amount.

Number of requests by project*:

- Potato: 5 (5)
- Rice: 5 (12)
- Tef: 5 (20)
- Chickpea: 3 (12)
- Finger millet: 1 (15)
- Sweetpotato-Uganda: 1 (8)

*Number in parenthesis indicates YTD (year-to-date) amount

Period of activity by month (articles/invoices):

April: 5/4
May: 11/7
June: 4/12

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

Andean tubers (Peru)

- An agreement to built up communal locale in the villages of Qqueccayoc and Sayllafaya was signed last 4 June by the Municipalities of Taray and Lamay, and CRIBA (Regional Research Center on Andean Biodiversity) of Universidad Nacional de San Antonio Abad del Cusco. This agreement considers that farmers of each village will make the adobes (sun-dried bricks) and locale walls, the Municipalities of Taray and Lamay will provide materials such us woods, and material transportation and, CRIBA Andean tuber project will provide calamine for the roofs.

- Farmer's schools to transfer our results on integrated management of oca, olluco, mashua and Andean potatoes particularly oca weevil in the communities of Picol, Matinga and Qqueccayoc was initiated last June through close collaboration with FAO.

- In-situ evaluation of the Andean tuber project by Drs. S. Snapp and A.Blumenschein took place last 22-23 April. Site visitors interacted with farmers of Matinga and Poques as well as project participants of Cusco. At the end, they made important comments and suggestions to improve our work.

- Project participants of Peru and Davis had a meeting in Cusco, Perú last 26-30 May to evaluate the outputs of the first year, and to make important adjustments for second year activities.

Chickpea (India):

- Mahatma Phule Krishi Vidyapeeth (Agricultural University) (MPKV), Rahuri, and National Chemical Laboratory (NCL), Pune, India. **Farmers Participatory Program:** The trials on farmers field of chickpea promising lines developed under this program were successful and lines performed very well compared to the existing chickpea varieties. Farmers also gave feedback towards preferred traits for enhancement production and market value.

- NCL, Assam Agricultural University (AAU), Jorhat India and University of Durham, UK. **Efforts for the development of tools for insect resistant chickpea:** A Ph. D. Scholar Ajay Srinivasan from NCL is visiting Dr. Gatehouse's laboratory (UD, UK) for isolating gene(s), which can be used to develop insect resistance in chickpea (May-Oct 2003). NCL has also provided a proteinase inhibitor gene construct to AAU investigators to initiate transformation work with Indian chickpea variety.

- NCL, MPKV and Washington State University, Pullman, USA. **Tagging the pathogen resistance in chickpea**: Two putative DNA markers have been identified for Fusarium wilt-resistance genes and their validation on set of recombinant inbred lines is underway.

Quinoa (Bolivia):

- Selection of outstanding lines and individual plants from population derived by artificial hybridization were performed. Selection criteria at the plant maturity stage were seed color and size (more than 2.2 mm diameter). Large and white quinoa grain is preferred in the market, but in the

recent years, brown colored types are going into the market with higher price than white quinoa, therefore, we selected more white colored types and a few brown cored ones.

- Harvesting, threshing and seed cleaning were the main activities in the germplasm collection which has more than 2,800 accessions. Because of the large number of the germplasm, more attention was paid to register the entry code and seed characteristics for each of the 2,800 accessions.

- The Ministry of Agriculture and indigenous affairs organized an EXPO QUINOA 2003, the event was held in La Paz, June 20 to 22. In this event, PROINPA Foundation released a new quinoa variety which was handed in to farmers by the Bolivian president Gonzalo Sanches de Lozada.

Sweetpotato (Kenya):

- Dr. Don LaBonte, Sweetpotato breeder, Louisiana State University (LSU), made a site visit to Kenya from 5th May 2003 to 11th May 2003. The objective of the visit was to rationalize the collaborative research agenda between LSU and the Kenya Agricultural Research Institute (KARI) in particularly for the KARI PhD. candidate. He held discussions with managers and scientists from the KARI, University of Nairobi and the International Potato Centre – Africa region. He also made field visits to project activities in Western and South Western Kenya.

    - *Rebecca received this note from Don:* I had an opportunity to visit Simon Gichuki and others in Kenya in early May. We toured extensively in Western Kenya and visited with various farm groups, extension specialists, and researchers. I did get a better appreciation for the difficulties and opportunities we have in our project. One of the opportunities I see is getting clean (virus-tested), timely supplies of sweetpotato plants to farmers. Often, farmers do not have adequate stocks to take advantage of the prime planting season. This would need some networking among NGOs; this component of our research has potential in directly serving grower needs. An important objective for me was to fully develop the dissertation research of a new Kenyan student (Douglas Miano) who will begin training at LSU this August in a "sandwich" program. Year one will be at LSU and the second year will be at KARI conducting research. Our first candidate decided not to pursue a Ph.D. hence our late start. He is motivated and very interested in the research. He is collecting initial data this summer in Kenya for analyses this fall. Our group is planning to get together at the International Society for Tropical Root Crops meeting in Tanzania this November.

- Two sweetpotato Farmer Field Schools (FFS), Nyaparo village and Rangenya village were launched in South west Kenya. The objective of the schools will be to develop, adapt and validate sweetpotato production and utilization technologies with a goal of increasing production and commercialization of sweetpotato by farmers in that region. Each region will have between 25 to 30 students and will run for one season, usually about 6 months. The schools have elected their officials and are currently liaising with research and extension staff to develop the schools curriculum/syllabus. More schools are planned in other regions in Kenya and Tanzania.

- The first set of field trials have now been planted in Kenya and Tanzania. Preliminary Yield Trials (PYTs) have between 40 to 60 varieties selected from then germplasm collection exercise and identified by farmers as having certain superior characteristics. Advanced Yield Trials (AYTs) are

local or imported varieties that have demonstrated high yield potential in at least one Agro-ecology. Researchers, extension personnel and Farmers are participating in evaluation of these trials.

Sweetpotato (Uganda):

- The International Food Policy Research Institute (IFPRI) and the International Center for Tropical Agriculture (CIAT) organized a planning meeting for the Biofortification Challenge Program (BCP) at the CIAT headquarters in Parmira, Colombia, South America, from 2 to 6 June, 2003. More than 75 participants from many different disciplines, types of institutions, and perspectives in terms of upstream research and downstream extension and impact attended the meeting. The BCP funded Robert Mwanga's expenses for participating in the meeting. The goal of the BCP is to improve the health of poor people by breeding staple food crops that are rich in micronutrients [iron, zinc, carotenoids (vitamin A)], a process referred to in this news item as "biofortification". The BCP seeks to bring the full potential of agricultural and nutrition science to bear on the persistent problem of micronutrient malnutrition in two phases totaling 10 years, commencing 2004. Phase 1 (year 1-5) crops of the program are rice, wheat, maize, cassava, common bean and sweetpotato. Phase 2 (year 6-10) crops will include barley, banana, cowpea, groundnuts, lentils, millet, pigeon peas, plantain, potato, sorghum, and yams. It is hoped that the BCP efforts will complement the on-going McKnight funded sweetpotato project in Uganda that has incorporating beta-carotene in popular sweetpotato cultivars and breeding new cultivars high in beta carotene as one of the major objectives.

- James Arwata Foundation (JAF), an NGO in northern Uganda, reported to the regional potato and sweetpotato network (PRAPACE) sales of vines of the orange-fleshed sweetpotato cultivar, SPK004, worth about $10,000 (credit) and $2,500 (cash) to farmers, community based organizations or NGOs in Soroti, Lira, Apac, and Gulu districts by the end of March 2003. Applications were also filed to JAF about the same time to supply vines of SPK004 for March – April planting in Kumi, Mbale and Pallisa districts in eastern Uganda. In the absence of good records to track down informal variety spread, this report on SPK004 is an indication that, it is being disseminated rapidly. SPK004 has not been officially released.

- One of the stages in getting a plant variety being officially release by the National Variety Release Committee (NVRC) is for an appointed member or a group of members of the committee to verify the distinctiveness, uniformity and other characteristics of the candidate variety in the field. An official of the NVRC inspected two candidate orange-fleshed sweetpotato varieties (SPK004, and Ejumula) in the field at NAARI at the end of April. He was satisfied with the descriptions of the candidate varieties, and he recommended filing applications for their official release to be done later this year.

Tef (Ethiopia)

- Seeds of farmers' selected 12 tef varieties were multiplied and delivered to 45 farmers in two *woredas* (districts) for the current planting season (July-December). The number of varieties chosen by each member of the Farmers Research Group ranged between one and four. Each farmer was given 7.5 kg of seeds (sufficient to cover 3000 m^2 of land) for each variety. Farmers return the same amount of seed after harvest. This is part of the farmers' Participatory Variety Evaluation work in tef.

- The following two articles were accepted for publication in the Journal of Genetics & Breeding journal; 1) Inheritance of morphological and agronomic traits in tef (*Eragosotis tef*). 2) Evaluation of interspecific recombinant inbred lines of *Eragrostis tef* x *E. pilosa*. The main conclusions from the first paper is that selection in early generations of tef hybrid populations do not give the desired result, and therefore, a high degree of homozyogusity has to be attained before selection is practiced. Demonstrated in the second paper, which is the first one to report on the breeding values of tef interspecific crosses, were the following; 1) the meritorious breeding traits exhibited by the wild *E. pilosa* over the cultivated tef specie are earliness and short stature, but not lodging resistance. 2) The patterns of trait associations with grain yield are similar to those previously known in homozygous tef germplasm lines and intraspecific-cross derivatives, indicating that traits that can be used as indirect selection criteria for tef breeding are not dependent on the germplasm type.

Wheat (China):

Figure 1. 2003 was a heavy epidemic year of wheat scab in China.

Figure 2. Field performance of a released variety with scab resistance developed by CINAU.

Figure 3. A new scab resistant germplasm (right) recently developed by CINAU.