

Knowledge-Sharing Solutions for a CGIAR Without Boundaries

***From the Knowledge Sharing (KS) Project
of the CGIAR's Information and Communications
Technology and Knowledge Management (ICT-KM) Program***

Preface

The face of tropical agriculture is being radically and rapidly transformed by economic globalization, by the spread of new information and communication technologies (ICTs), and by environmental pressures, such as climate change and land degradation.

The CGIAR has responded to these challenges in several ways. First, it has expanded its research agenda to put more emphasis on poverty reduction and natural resource conservation. And second, the international centers have decentralized to make their work more relevant to a diverse clientele. Challenge Programs, which tackle issues of global significance through broad partnerships, are one recent reflection of the CGIAR's responsiveness to a changing global environment.

To respond more effectively to the changing needs of clients and partners, the CGIAR centers need to do a better job of managing and sharing the vast amount of scientific and other knowledge that they generate each year through collaborative research. This precious resource resides not only in databases, gene banks, and publications but also in the minds of center scientists.

The CGIAR took an important step toward improved knowledge management by creating the ICT-KM Program. Its strategic plan envisions "a CGIAR without boundaries, an internationally distributed, unified, and open knowledge organization." As part of its effort to realize that vision, the program embarked on a project designed to foment a knowledge sharing (KS) culture within the CGIAR. Coordinated by CIAT, the project has implemented an exciting program of pilot initiatives in four centers, together with complementary studies and capacity building activities.

This report documents the four pilot initiatives carried out by the KS Project from around mid-2004 to late 2005. It is designed to spark the interest of all those in the CGIAR centers and their partner organizations who seek to make better use of the scientific and related knowledge available within the global agricultural research community.

We wish to thank all the CGIAR center staff and others who participated in KS Project activities, with special mention of the coordination teams of the four pilot initiatives. The success of the pilots was due in large measure to their persistent efforts and creativity, coupled with the goodwill of all center staff who contributed. We believe we're off to a fresh, promising new start in how we share knowledge within the CGIAR.

Introduction: Entry Points for Knowledge Sharing

The Web site of a popular Internet service provider recently listed top time-wasting behaviors in the office. Not surprisingly, experts cited attendance at meetings as a major culprit. Nonetheless, face-to-face meetings remain an essential part of modern institutional life. When conducted effectively, they help us plan our work, reach consensus, and avoid mistakes. They can also be a fertile venue for getting to know one another and sharing knowledge. That knowledge includes the personal experience and insights of staff members – the so-called “tacit” knowledge that somehow manages to elude capture and codification by more formal media like project reports.

The work of the CGIAR’s research centers and partner organizations covers a huge swath of scientific and geographic territory: agriculture, forestry, fisheries, and related policy and environmental issues on four continents. In going about their work, centers and partners must orchestrate research for development across many disciplines and through partnerships with each other and with myriad other organizations – small and large, public and private.

Major meetings of scientists and other professionals are an essential tool by which CGIAR centers plan, monitor, evaluate, and fine-tune research projects and programs. Yet, as centers have decentralized their operations, staging such meetings has become more costly, in terms of both time and money. Outposted staff typically fly in to headquarters from all over the world. The two-way travel time may be as much as 5 days. It is invariably a period of low productivity, despite the best intentions of laptop-toting scientists.

Extracting the greatest benefit from such large investments in international travel and staff time is understandably a perennial concern of managers in all CGIAR centers. What personal and institutional benefits should center staff and managers expect from major meetings? And what can be done to ensure these meetings help the CGIAR achieve the broader goals of sustainable rural development and the alleviation of hunger and poverty?

One route to enhancing the value of major meetings in the CGIAR may lie in using these events as occasions for sharing knowledge more effectively. The idea is to move beyond mere exchanges of information, typified by one-way, show-and-tell sessions punctuated by the phrase “Next slide please.” As key events for planning and evaluation, major staff gatherings are an opportunity for large numbers of scientists to interact face to face and build the personal relationships of trust and understanding that are so vital for effective teamwork.

Interactions between centers’ headquarters and regional staff are especially important. But the principle also applies to relationships within headquarters. Geographic dispersion is not the only barrier to good working relationships. In most organizations it’s easy to find ingrained behaviors and aspects of institutional culture that act as barriers to communication.

Even with meticulously planned agendas, large-scale meetings, such as annual work reviews and meetings of boards of trustees, sometimes go awry. Dissatisfied participants may resent the outcome, seeing the event as an inefficient use of resources or, worse, a total waste of their time. To ensure that the resources invested in such big-ticket meetings benefit both individual

participants and the institution as a whole, it is essential to get the objectives, agenda, format, and facilitation right. And that's where an effective knowledge sharing (KS) approach can help.

To demonstrate exactly how key events can serve as entry points for KS, the KS Project of the CGIAR's ICT-KM Program planned and supported four pilot initiatives in as many centers during 2004-2005, in close collaboration with center staff. The first pilot activity, called "CIAT's Knowledge Sharing Week: Dynamic Communication for Change," took place from 29 November to 4 December 2004. The other three pilot initiatives have been developed at CIMMYT in Mexico (30 March to 2 April 2005), CIFOR in Indonesia, and the Water and Food Challenge Program hosted by IWMI in Sri Lanka.

In the sections that follow, we provide first-hand accounts of the pilots, describing how they were planned and implemented and with what results, from the multiple viewpoints of center management and staff.

CIAT: A Willing Guinea Pig

Like most other CGIAR centers, CIAT has a long tradition of annual meetings of professional staff. The format has typically centered on plenary sessions, in which researchers deliver formal PowerPoint presentations, followed by questions and discussion. In addition, time is usually allotted for project teams and other groups to review on-going activities and plan future work.

Here, as elsewhere, however, many feel the time spent in annual staff meetings isn't used as well as it could be (see box). Too many hours, they say, are gobbled up by formal presentations, with little in-depth discussion of "burning issues." There are few opportunities for people to get to know each other and establish the collegial relationships that are essential for creative scientific collaboration. Moreover, meeting results have seldom been documented, and follow-up action has been limited.

In an effort to address those concerns, the KS Project proposed to CIAT management a major overhaul of its annual staff meeting. The idea was to try an alternative formula that would help staff share knowledge, broaden communication, stimulate dialog, and strengthen personal relationships. The KS Project also wanted to contribute to the wider goal of improving KS across the entire CGIAR.

Box: Concerns about CIAT's annual meeting

Research Director Douglas Pachico recalls the recent history of the CIAT annual meeting and some of the staff dissatisfaction surrounding it: "From 1998 to 2001, the meeting organized by management was called Planning Week. But then a number of people were unhappy with the fact that the sessions didn't result in the concrete work plans they had hoped for." As a stopgap measure for 2002 and 2003, he explains, "We changed the name to Meeting Week. But I can't think of a more unsatisfactory name than that!"

During the 2002 meeting, Pachico recalls, a number of people also articulated concerns about "the atomization of our research process" and the need for better cross-project collaboration and regional

integration. “I believe some of those concerns are addressed by the agenda of the 2004 Knowledge Sharing Week.”

Forming a Coordination Team and Setting Objectives

A five-member team, with strong skills in information management, communications, and monitoring and evaluation was established to work with CIAT management in planning and carrying out the 2004 meeting (see box).

Box: Coordinating CIAT’s KS Week

The coordination team for CIAT’s 2004 Knowledge Sharing Week, led by the Center’s research director and supported by a consultant from Bellanet, consisted of a mix of CIAT information, communications, and KS specialists.

- Douglas Pachico, Director of Research
- Edith Hesse, Head, Information and Capacity Strengthening Unit
- Nathan Russell, Head, Communications Unit, and Manager, Information and Communications for Rural Communities Project
- Douglas Horton, Coordinator, CGIAR Knowledge Management and Sharing Project
- Simone Staiger, Web Publishing Coordinator
- Allison Hewlitt, knowledge-sharing specialist, meeting facilitator, and Program Officer, Bellanet International Secretariat, Ottawa, Canada. (Bellanet promotes and facilitates collaboration within the international community through its expertise in information and communications technologies, organizational learning, and knowledge sharing.)

One of the coordination team’s first tasks was to help management define the meeting’s objectives. The team then met with a range of other CIAT staff – in face-to-face meetings at headquarters and via telephone with outposted staff – to check the relevance of the proposed objectives and get reactions to alternative meeting designs. Over several days, the meeting’s objectives, agenda, and logistics were sharpened, with the following results:

1. Develop a shared understanding of the three CIAT Development Challenges and contribute to their effective operationalization.

In February 2003, CIAT began a process of reflection to identify a small number of “development challenges,” that is, major issues on which the Center might concentrate its scientific competencies. The aim was to create a more coherent research program under the strategic plan for 2001-2010 and reach consensus on priorities for fund raising. In the end three challenges were selected: enhancing and sharing the benefits of agrobiodiversity; enhancing rural innovation; and overcoming agroecosystem degradation. KS Week 2004 was seen as an opportunity to ensure CIAT staff had a common understanding of these development challenges and to explore options for incorporating this new axis in the Center’s research efforts, the other two organizational axes being CIAT’s project structure and regional operations (see box).

2. Enhance the integration of headquarters and regional staff and activities.

In 2004 about 38 percent of CIAT's 117 internationally recruited staff were located outside of Colombia, which hosts CIAT headquarters. In total outposted staff are located in 20 countries. Issues of integration are bound to arise with such a geographically dispersed staff, especially given the fact that most of the 15 research projects comprising CIAT's program of work cut across regional boundaries.

3. **Promote effective work planning on the part of project teams and collaborators.**

This is a variation on what has traditionally been a key objective of CIAT annual staff meetings, namely planning. In the case of KS Week, emphasis was placed on improving the planning process itself rather than producing actual work plans.

4. **Demonstrate how KS techniques can help us.**

CIAT and the KS Project wished to ensure that staff reflected not only on the CIAT-specific content and outcomes of the 2004 staff meeting but also on the effectiveness and relevance of the redesigned format and process. These observations should prove useful in the planning of future meetings at CIAT and other centers.

Box: Working together in 3D

Rod Lefroy is an upland farming systems specialist and CIAT's regional coordinator for Asia, based in Vientiane, Lao PDR. He commented just before the start of KS Week:

"CIAT has a three-dimensional structure, organized around projects, regions, and thematic challenges. The addition of this extra new layer – the development challenges – creates both complexity and opportunity. It's hard right now to see how everything will fit together. While we won't come up with *the* solution at this year's staff meeting, I do hope we can all explore various ways of working together. Since some projects are driven largely from headquarters, and others within the regions, these working relationships will need to vary according to the nature of the project."

A Knowledge-Sharing Approach

Meeting formats and communications techniques used in past years at CIAT have been rather conventional. For example, PowerPoint presentations were given during plenary sessions in the main auditorium or, for breakout or individual project sessions, in smaller meeting rooms. While these approaches weren't abandoned during the 2004 KS Week, the coordination team elected to make use of four alternative techniques for about half of the total meeting time.

Open space (see box) is the most complex of the alternative knowledge-sharing strategies used during KS Week. It is a highly democratic method of group agenda setting, followed by small-group discussion, reporting, and preparation of action plans. It is predicated on the idea that follow-up action is more likely when individuals become engaged due to strong interest in the issue.

Peer assist is a method of collective problem solving between colleagues. Like the open-space technique, it is democratic in the sense that participants may offer advice or analysis as they see fit, on the basis of personal interest in the problem or prior experience with it. But those brave enough to present problems for analysis also benefit from collective wisdom, since problems are “rotated” from discussion group to discussion group.

A *knowledge fair* was organized in the form of a 5-hour-long exhibition of support services available within CIAT and of the activities of other scientific organizations that share the Center’s campus. It was a bottom-up exercise: support staff designed the displays and were present to answer visitors’ questions and provide services on the spot.

The *barometer team* monitored KS Week activities as they unfolded, and recommended ways to make future meetings more effective. As such, its job was to conduct *after-action reviews*. The team consisted of five headquarters staff, four outposted staff, meeting facilitator Allison Hewlitt, and one other communications consultant.

In addition to these tools and methods, the coordination team set up a special section of the CIAT Web site dedicated to KS Week news. It also introduced an electronic system for scheduling and reporting on project and special-interest meetings, most of which took place the last 2 days of KS Week, the Friday and Saturday.

The sections that follow explain how some of the various tools and methods mentioned above were used during KS Week, what the outcomes were, and how CIAT staff reacted to them.

Box: Open space – Off the beaten path

A document prepared for the Canadian International Development Agency (CIDA) defines open space as a “way of holding meetings that develops leadership and opens up communication.” It encourages “openness, initiative, choice, responsibility, and pleasure to work together. It is a process that takes us away from the beaten path.” Its action-oriented logistics boil down to six components:

- All topics participants wish to discuss get discussed.
- Key discussion points are collected in a report distributed to all participants.
- Topics are prioritized.
- Other related topics are linked to the priorities.
- An action plan is formulated.
- Participants take responsibility for follow-up.

Allison Hewlitt was the principal facilitator for CIAT’s 2004 KS Week. She used the open-space technique to help participants address the first objective of the meeting, namely to reach a common understanding of CIAT’s three development challenges and find ways to operationalize them.

“This way of conducting meetings is different than what most people are used to,” says Hewlitt. “It brings people together to create their own agenda, a set of topics or issues of special interest to them, rather than having management or conference organizers decide in advance what’s most important to everybody. An underlying principle is that those who care about a certain topic or issue are more likely to move it forward than those who are forced into doing something that may or may not be of interest or value to

them. So, we're really trying to tap into people's passions and interests."

Hewlitt lists four simple rules or principles that govern the open space methodology. Perhaps "anti-rules" is a more apt term, since they are really tongue-in-cheek adages with an intentionally deterministic ring.

1. **When it starts, it starts.** You, the participant, can start a conversation or join a group whenever it suits you. It is up to you to participate when you feel most comfortable. The responsibility of ownership of the discussion is placed squarely on your and your fellow participants' shoulders.
2. **When it ends, it ends.** When you and other participants are no longer contributing or getting something out of the discussion, the session is over. There is no need to prolong it. If the discussion has produced useful results, fine. If not, that is your responsibility.
3. **Whoever comes are the right people.** You show up at a discussion group because of your individual interest in the selected topic. The rules of open space legitimize your personal choice. You are not obliged to attend a specific session – for example, one organized by your supervisor – for the sake of political correctness.
4. **Whatever happens is the only thing that could have.** With the open space methodology, there are no pre-ordained or expected outcomes of the discussions. What matters is that those who end up discussing a specific topic, and possibly deciding on some followup action, are those who are actually interested in and motivated by that topic.

The freedom of expression and movement promoted by these four principles leads participants to behave in one of two fashions. "Some act like bumblebees," says Hewlitt. "They move from space to space, discussion to discussion, cross-pollinating their ideas, contributing where they can. Others act like butterflies, that is, social butterflies. They are sometimes perceived as unproductive, because they spend considerable time near the water cooler or coffee machine, chatting with others. But the open-space technique values butterfly behavior, acknowledging that it can be an effective means of sharing knowledge."

The Gathering of the Clan: An Open-Space Session of New R&D Initiatives

On Monday morning, shortly after 8 a.m., staff gather in CIAT's largest formal meeting room, the Kellogg Auditorium, named after US philanthropist and champion of breakfast cereals, Will Keith Kellogg. Two presentations by senior managers set the scene for KS Week and, in particular, for the 2 days of open space sessions that are to begin in an hour or so. The director of research gives an overview of the week's work, including the four objectives to be addressed by what he calls the "gathering of the clan." After introductions of new staff, the director general explains the origin, rationale, and current state of implementation of CIAT's three development challenges. Each of the two speakers uses a conventional format for his presentation: an overhead projector in one case, a computer-slide projector in the other.

After the break the entire group moves to an expansive open-air setting: the covered patio that forms the northern side of the CIAT campus quadrangle. Flanked by the tall white-washed arches (*los arcos* in Spanish) that are the hallmark of the Center's hacienda-style architecture, this open space has been designated the principal meeting area for the rest of the week – a place to share ideas in plenary, compose reports on laptop computers, and chat with colleagues over

coffee.

With the 85-odd participants sitting side by side in a large ellipse, facilitator Hewlitt invites the group to set the agenda for the next 2 days of discussion on the development challenges. All those with an issue, idea, or question they feel should be aired are asked to write down their topics on cards and then advance, one by one, to the center of the “circle” to introduce the topic. The one condition imposed by the facilitator is that each person suggesting a topic be prepared to lead a small discussion group and arrange for the preparation of a short report.

The agenda-setting exercise captures 20 topics for discussion (see table). These range from operational issues, such as impact assessment, to human resources needs, such as integrating national staff into development challenge work and building the necessary base of skills.

Once the contributors have posted their cards on display boards, the group at large is invited to select those topics that most interest them. The scheduling allows for each person to attend up to two of the 19 resulting breakout sessions, each of which will last 90 minutes. Although several topics overlap, participants are *not* encouraged to combine them. The rationale for allowing duplication is that having two brainstorming groups discuss a similar or identical topic may actually enrich the final set of ideas or proposals on that topic. By the end of the day, 19 written reports have been compiled for review by all participants on day 2.

To end the first day’s proceedings – or, in the lingo of open space practitioners, “to close the circle” – each person shares with the group a word or phrase that captures her or his impression of the day’s work. Here is a sampling of results from passing the microphone from person to person: “provocative ... multifaceted ... confusing ... interesting ... unbounded ... challenging ... frank ... social ... fresh ... energetic ... hard work ... diversity ... listening ... learning ... opportunity ... intriguing.”

On day 2 of the open space session, participants begin their work by reading the discussion reports prepared the previous day and prioritizing them through ballot voting. Eight of the 19 topics/reports are selected for further discussion and conversion into seven action plans. Two similar topics, related to management of the development challenges, are combined to form the number 1 priority.

Voting again, this time with their feet, participants speed off to find the nooks and crannies where their 2-hour action plan meetings are to take place. Each discussion leader is armed with an action-plan guideline sheet to ensure a measure of consistency across the seven discussions and reports. Among the guiding questions: What do you want to do now to move forward? What are the actions to get there? Who else do we need to enroll? When does the work start and when does it end? What resources (people and money) are needed?

After the meetings, a rapporteur from each group records the action plan on a computer set up in *los arcos* and, in the afternoon, presents the plan in plenary. The plans vary in their level of detail. Some specify time frames and the resources needed; others are more general.

During the closing plenary, participants comment on the extent to which the 2 days of open space meetings have contributed or not to operationalizing the three development challenges. While comments are mixed, there is a recurring message: Despite the progress made in the form of action plans on seven themes, there is still considerable confusion on how CIAT's R&D can and should be integrated under the three development challenges. Here is a selection of reflections – some paraphrased, some verbatim (or nearly so) – on the open space discussions:

- The sessions were efficient in the sense that the intended action plans were all ready by the end of the second day as planned.
- It was a “nice surprise” to discover other like-minded staff members who may be potential partners in working on the development challenges.
- Participants discussed what they “could do” or may want to do. But, with the open space method, they didn't discuss what they “should do” to operationalize the development challenges.
- “I'm happy we've made advances in integrating the development challenges with the CIAT projects.”
- The diversity within the CIAT staff is a source of strength, not conflict.
- Although the important issue of HIV/AIDS was mentioned, it was not discussed in any detail.
- Holding the plenaries outdoors under the arches was a very positive change.
- Change requires participation. The open space sessions provided for a good experience in that regard.
- To fully translate a wish list into concrete action plans, more time is needed.
- While the meeting format was effective in bringing people together, the discussion did not fully focus on the theme of operationalizing the development challenges. “I think we missed the target over the past couple of days.”
- “I appreciated the experimental, novel approach.”
- “I had wanted to put meat on the development challenges, but we haven't done that.”
- “I don't see how the action plans will help to move implementation of the development challenges forward.”
- “It is impressive that priorities were reached so quickly. We now need to put our money where our mouth is.”
- The time allocated for setting priorities was very short and the method ad hoc. The real strength of the overall process was the CIAT scientists themselves.
- There needs to be much greater participation by nationally recruited staff. This would enrich the process.
- “This meeting so far has been much more productive than last year's.”

During the closing, the director general acknowledges that further organizational work is needed to operationalize the development challenges. “If this is just a talk shop, then we're wasting resources by having this meeting,” says Joachim Voss. “But I see real value in using the development challenges for collective action. We are committed to following up.”

In its discussion at the end of day 2, the barometer team recognizes that many CIAT staff still do

not grasp the development challenges in sufficient detail to be able to design action plans for operationalization. “We should have done a better job of determining whether people understood the topic well enough to discuss it,” comments one member. This meshes with what one participant later writes on the evaluation questionnaire: “KS week did not provide sufficient background knowledge on the development challenges, hence precluded effective work planning.”

That view seems consistent with the fact that, among the stated objectives of KS Week, the one related to moving the development challenges forward received the lowest rating as regards the degree to which objectives had been achieved. It scored 2.80 on a scale of 0 to 5, compared with the average score of 3.44 for the objectives taken together and 3.7 for KS Week as a whole. And of 11 KS Week components, the day 1 and 2 sessions on the development challenges were ranked second last and dead last, respectively, by questionnaire respondents.

In addition to suggesting improvements to the open space process, the barometer team recommends that CIAT management involve more outposted staff in premeeting consultations, to gauge how well they understand the theme. It also recommends that management ensure greater consistency in its messages to staff since even the names of the development challenges, as used during the day 1 presentation, deviated from earlier usage.

Box: The people must be entertained

Llama Lluvia, a Colombian musical group, entertained staff in the cafeteria on the evening of day 1 of KS Week. Their performance included a musical *tour-du-monde* with songs and instrumentals from 18 countries. Other social events included dinner at an Italian restaurant in Cali and, on the final evening of KS Week, a party and buffet dinner, complete with live music and dancing, hosted by the director general at his home.

The Knowledge Fair on Research-Support Services

It is now day 3, Wednesday, and CIAT’s support units have moved into the limelight. The Research Support Fair and Expo Agronatura showcase the work and services of numerous groups within CIAT: Finances, Human Resources, the Library, the Communications Unit, Information Systems, the Project Office, the Donor Relations Office, and the Gender and Diversity Program. Partner organizations with offices on the CIAT campus also set up information stands.

As people move from booth to booth along the outdoor walkways of the CIAT quadrangle, they are greeted by a wandering white-faced mime – a local performer well known for his antics on the sidewalks of Cali. The job of this Charlie Chaplin look-alike is clear: to put a smile on the faces of passers-by, and pique their curiosity about the fair – all without a spoken word in Spanish, English or any other language. His firm, welcoming handshake says it all.

One senior staff member from Asia reports having an enormously productive tour of the stands. At the Information Systems stand staff help him solve a computer problem; at the Human Resources stand a contract is finalized; at the Finances stand, a financial difficulty is successfully

resolved; and the Library group provides him with requested information. At the end of the week, participants rank the fair fourth out of 11 events for its usefulness to CIAT. It is tied with self-organized meetings and a session to inform staff about “reengineering” of business processes such as project management and research proposal development.

Another person comments: “Management should have had a booth too!”

But there is a glitch. A parallel event, running all day, monopolizes the time of more than 20 staff members who might otherwise have been available to visit the Research Support Fair. A consultant has flown in to introduce the group to a KS technique known as “appreciative inquiry” and to help researchers apply it to one of the development challenges, the enhancement of rural innovation. The idea is to build a shared vision of what this development challenge means and to investigate ways to meet it based on best practices and other assets already available within the organization.

The topic and format of the all-day meeting dovetail nicely with the goals of KS Week. And several participants later report that the workshop has been quite valuable. However, since the event has been organized outside the purview of the KS Week coordination team, it ends up competing with the Research Support Fair, as well as with the Question Time with the DG session later that afternoon.

The next day, the issue of scheduling conflicts preoccupies the barometer team. Besides firmly supporting the idea that the fair be repeated next year – and expanded to include a display by each of CIAT’s 14 research projects – the team recommends that participation be maximized by avoiding the scheduling of major events concurrently. While the timing of the appreciative inquiry workshop has caused problems, the team nevertheless recognizes its value. Based on preliminary positive feedback from participants, it recommends the method be used again in future to “help clarify the vision of the other development challenges.”

Peer Assists on Regional and Headquarters Integration

The peer assist sessions on day 4 turn out to be very popular among participants. However, although attendance is down roughly 40 percent from day 1, to about 50 people with outposted staff outnumbering their headquarters colleagues 2 to 1. Seven staff members, including the director of research, present practical problems to the overall group and then have the benefit of discussion and advice from a smaller group. Rotation of the peer-assist presentations from group to group expands the base of shared experience and knowledge.

Unlike the open-space process, which generates the meeting agenda on the spot, the peer assist sessions are organized in advance and focused on working relations between headquarters and the regions.

“I am going away satisfied on the issue I raised,” Nathan Russell tells the plenary on Thursday morning. Russell is head of CIAT’s Information and Communications (InforCom) Project, which seeks to strengthen information networks in the rural sector. “My question was how to build

partnerships in the regions for those project areas in which CIAT has little experience.”

In his summary, Russell highlights three key pieces of advice offered to him during the peer assist. First, major effort must go into analyzing opportunities with partners; CIAT must avoid the temptation to pursue every new project in which it is invited to participate. Second, regional staff, knowing their home turf, can offer practical advice on setting up local partnerships and making sure other organizations have a clear idea of what CIAT has to offer. Third, transparency with partners prevents false or unrealistic expectations from being raised.

Here are the other six peer assist topics:

- The scaling up of technology diffusion to end users and intermediary partner organizations
- Filling gaps in skills needed to complete research when midproject personnel changes occur
- Handling complaints from staff who feel they have been excluded from the design of research proposals that fall within their area of expertise
- Reconciling differing institutional requirements and expectations when a researcher has a joint appointment between two CGIAR centers
- Finding a balance between collaborating efficiently on new projects with colleagues and carrying out an existing workload in a regional office, where logistical support is limited
- Balancing staffing within CIAT projects with donor preferences in order to maintain or expand regional activities

In the wrap-up discussion, plant breeder Steve Beebe, who has served as a facilitator for one of the peer assists, observes that these discussions, while addressing problems raised by individual staff members, also have institutional implications. “I found the process very useful.” In a similar vein, a member of the barometer team later remarks: “Some of the recommendations were often measures that the individual can’t implement alone. But at least they are now in the public domain. Three months down the line people can ask the director of research, ‘How’s it going on your issue related to the exclusion of key staff in proposal development?’”

In the participant evaluations at the end of the week, the peer assist exercise is ranked number 2 (among 11 KS events) for its usefulness for CIAT, tied with a meeting of the Professional Staff Association. (The number 1 event for questionnaire respondents is “question time with the DG”.) One respondent comments that the peer assist session “addressed real issues and provided a concrete way forward on themes.” Another suggested that holding peer assists at the beginning of the week would be a good way to get people talking.

Barometer Team Behind the Scenes

Three times during KS Week, the 11-member barometer team met for 45 minutes to an hour in a quiet room after the day’s proceedings. Their job aim was to reflect on “what went right, what went wrong, and what might be improved.” Team members were specifically instructed by Hewlitt, who led the sessions, to focus on practical suggestions and to avoid wasting time either

praising or blaming.

The 48 recommendations of the barometer team, some of which have already been mentioned, are closely tied to KS Week strengths and weaknesses directly observed by team members or reported to them by other participants. Here is a sampling of suggestions for the future:

- **Open space:** Allow more time to develop action plans. Use the open space methodology to discuss research topics of interest to staff or how projects fit within the Development Challenges. Use outdoor space when possible, but ensure that the speaker system works well. Identify ways to increase national staff participation during the week.
- **Knowledge fair:** Provide guidelines on booths to be sure they are “client-oriented”. Include ways to track fair participants (national or international, headquarters or regional).
- **Peer assist:** Advertise and market the session to increase participation. Keep the groups small (5 or 6 people) to improve participation. Ensure people understand that the suggestions or solutions help the peer assistee solve his or her problem; they should not be directed to someone else, such as a manager.
- **Barometer team:** Use a mix of people – national and international staff, some from the regions, some from headquarters – to meet three times during the week. (“Three times was enough – not too much and not too little.”)
- **Other events:** The barometer team reflected on all aspects of KS Week, not just the new KS methods that had never been used before. Other events and topics included the question-and-answer session with the director general, the presentations on work in three regions, the meeting of the professional staff association, the “business process reengineering” plenary, and issues such as the level of staff participation and conflicts in event schedules.
- **General recommendations:** The option of holding some annual staff meetings in the regions rather than at headquarters every year was raised several times during the week. The barometer team recommended that CIAT management further investigate this possibility. It also suggested that staff be given the opportunity to improve their presentation skills and that CIAT again use an external facilitator for next year’s staff meeting. Echoing the comments of many KS Week participants, a barometer team member noted that Hewlett’s “external and neutral facilitation worked quite well.”

Thank God It’s Saturday! The Wrap-up Session

After a day of “self-organized” meetings (Friday) for project-related work, it is now day 6, the last day of KS Week. After an early morning meeting to review CIAT’s on-going “business process reengineering,” two key tasks remain for the overall group: to reflect on the week’s proceedings and to complete the evaluation questionnaire prepared by the coordination team.

The wrap-up session in *los arcos* is attended by about 50 people – about 60 percent of the total number of participants present at the outset, on day 1. The smaller number is partly due to a scheduling conflict: A group of 20 people, mostly outposted staff, has gone off on a bus tour of CIAT research sites, an event organized without the coordination team having been consulted. This second case of unintended competition among activities reinforces the barometer team’s resolve to strongly recommend that hurdles to participation in future staff meetings be removed.

The ensuing discussion by participants, like a large-scale version of a barometer team meeting, covers many topics. Here is a selection of comments and suggestions (mostly paraphrasing). Bringing the group full circle in its deliberations, the topic that elicits the most discussion is that related to operationalizing the development challenges.

- We had the “heavy-duty” reflection on the three development challenges right at the beginning, on Monday and Tuesday. Maybe it would have been better to have a get-to-know-the-staff session first, to allow people to warm up to the bigger events.
- We came to the meeting thinking everyone was up to speed on the development challenges. This wasn’t correct. If we had to do it again, it would be good to ensure everyone is at the same level of understanding.
- The process of KS Week was excellent. But we now need to accelerate work on the development challenges so that everyone knows where they’re going.
- KS Week was a good opportunity for support staff to learn more about the development challenges. But support staff should have greater involvement in future.
- Because of conflicting events, some people couldn’t attend the question-and-answer session with the director general and the research support fair. The organizers should ensure there isn’t competition between events. However, if there are to be useful events, like the appreciative inquiry workshop, they should be open to other staff.
- The question-and-answer event with the DG could be repeated at a lower administrative level. There could be sessions in which national staff in individual projects or units get to question their managers.
- It was a fantastic week, but I was nostalgic for the presentations on CIAT projects that were made in previous years.
- Ensuring the involvement of hundreds of national staff in future poses some logistical difficulties. We need to figure out how to handle this participation. The issue of the language of presentations, which relates to the need for greater participation of nationally recruited staff, must be resolved as well.
- Even during the annual staff meetings, headquarters staff have certain tasks to perform. This distracts them from the main event. CIAT should consider holding the staff meetings outside of CIAT to ensure that headquarters staff aren’t continuously running off to their offices to do other things.
- The most important outcome of the week has been improved relationships among staff.
- The highly interactive nature of KS Week should be maintained in future.
- While I was a bit skeptical about the process – the “touchy feely stuff” – the result turned out to be “smart interaction.” What we will take away from this meeting are subtle things related to our interactions with one another.

- We've all been speaking openly even with a member of the Board of Trustees present. Two, three, or even four trustees should be invited to future staff meetings.

In response to this last comment, Board of Trustees member Yves Savidan, of France, says he has learned a lot about “how CIAT lives and progresses.... I will pass on the message that a couple of trustees should participate in future staff meetings.”

In his closing remarks, director general Joachim Voss alludes to the many practical lessons learned during KS Week. “This has been an experiment. Like any experiment, some things worked well and some not so well. Now we can take the best of what we've learned this week and apply it in the future.”

The Last Word: Evaluations by Participants

At the end of the Saturday wrap-up session, participants are asked to fill out a survey form to evaluate the event and provide suggestions for future annual meetings and for improving KS generally at CIAT. This is the key evaluation tool used by the coordination team, a complement to the monitoring work of the barometer team.

Forty participants complete the evaluation forms on the spot. The low response is in part due to the fact that 20 staff members have gone on the field trip. In the week afterwards, another seven other participants complete and submit their evaluation forms, bringing the total number of respondents to 47. The analysis of the results by the coordination team comprises a written report, respondents' answers to open-ended questions, and a series of graphs depicting how various aspects and events during KS Week were rated by participants.

The questionnaire asks respondents to rate various aspects of KS Week using a 5-point scale. And at the end of each section of the survey form, they are invited to provide comments or suggestions.

Most participants are quite positive about KS Week and feel the meeting has improved communication and relationships and demonstrated the value of KS techniques. They feel that less progress has been made in operationalizing the development challenges, due in part to the complexity of the task and the varying degree of staff involvement in formulating the development challenges. While it is difficult to assess the usefulness of specific KS tools, apart from the usefulness of the sessions in which they were used, most participants indicate that they have found the peer assist, the knowledge fair, and the open-space approaches useful. They also express interest in using them in the future. They express less interest in the on-line event planner and the meeting Web site.

Here are key suggestions offered by participants for improving future annual meetings at CIAT:

- Balance the old and the new formulas (i.e., combine the exchange of scientific information with KS techniques)
- Sharpen meeting objectives

- Focus work on fewer topics
- Prepare better for certain exercises prior to the meeting
- Organize more comprehensive knowledge fairs that include research projects and regional programs.

Participants feel that KS approaches should be incorporated into CIAT's projects. And as noted below, they believe special attention should be paid to involving nationally recruited staff members more effectively in CIAT's KS activities.

In their responses, participants identify four main positive features of KS Week:

- The openness, transparency and positive environment that prevailed throughout the week, which allowed people to get to know one another and encouraged them to speak openly
- The quality of personal interactions, which helped build good working relations
- The fruitful exchange of ideas and interesting new ones that were generated
- The organization, management, and documentation of KS Week

Limitations of KS Week are also recorded by the respondents:

- Variable knowledge of the development challenges prior to the meeting
- Lack of closure and concrete outcomes, particularly on how to move forward with the development challenges
- Insufficient time and opportunity for in-depth discussion of scientific and programmatic issues
- Limited participation of nationally recruited staff members
- Too many parallel sessions that didn't allow participants to attend all the sessions they would have liked to (in particular the Research Support Fair).

When asked what aspects of KS Week they found more useful than previous meeting weeks, participants respond that the communication and interaction were more effective than in previous years. They also appreciated not being confined to closed, dark rooms and PowerPoint presentations.

The main element of previous meetings that is considered more useful than KS Week is the exchange of scientific and technical information on work on progress, results, and impacts. It is suggested that some mechanism be found to facilitate the exchange of this type of information, but without returning to the previous format of nonstop presentations with limited discussion.

Box: From sedentary to interactive

Eliaineny Minja, a CIAT entomologist based in Arusha, Tanzania, conducts farmer-participatory research on integrated pest management for beans.

“I attended the staff meetings 2 years ago. I think it was a rather sedentary approach then – listening to presentations, where the opportunity to contribute was very little. It wasn't as interactive as what I'm

observing this week, where everyone is having a chance to think about issues and contribute openly. I think that's the way forward because we have to link with different partners and work with them openly. This is an opportunity for us scientists to learn how to interact better with different people, by starting among ourselves."

Box: Backstopping African institutions

Robin Buruchara, a CIAT plant pathologist based at Kawanda Agricultural Research Institute in Kampala, Uganda, coordinates the Pan-Africa Bean Research Alliance (PABRA).

"At past staff meetings, we have normally taken a week or so to exchange information on our research activities. We explain what we do on various projects and what we have to offer, as well as what our own needs are. This year the meeting is organized more around issues. For those of us in the regions, that will be a chance to harmonize the way we work together with headquarters. For example, on behalf of the African bean research network, we can look at how CIAT as a whole can improve its backstopping of national institutions in Africa."

Dialogue on Wheat: Sharing Knowledge at CIMMYT

A surefire way to get excellent attendance at a scientific meeting about wheat is to stage it in Ciudad Obregón. This small city of northwestern Mexico, just inland from the Gulf of California, is holy ground for wheat scientists worldwide because of the seminal work carried out here by Norman Borlaug, beginning in the 1940s. His successes with dwarf wheat, which continued following the creation of CIMMYT in 1966, were building blocks of the Green Revolution. For his achievements Borlaug was awarded the Nobel Peace Prize in 1970, when he was head of CIMMYT's international wheat program.

The tradition of world class wheat science continues at CIMMYT to this day – gently nudged on perhaps by the occasional visits of Borlaug who, at age 91, continues to promote the vital global role of agricultural research. The most recent embodiment of this scientific legacy is the Wheat Improvement Group (WIG), a research team of some 30 members spread out across seven countries. From 30 March – 2 April 2005, the Obregón research station provided a fitting setting – one of both historical and modern scientific relevance – for the first annual meeting of this newly reconstituted wheat group.

But the chief organizer of the WIG gathering and the group's leader, wheat breeder Richard Trethowan, candidly recognizes that a number of problems have plagued past collaboration among wheat scientists. First, sharing knowledge among staff who work on a common theme like wheat but who are scattered across the globe has posed a number of logistical challenges, not the least of which is staging regular meetings. In fact, the process of knowledge sharing has been mostly ad hoc, between individual scientists. Second, budgets and other administrative matters – during a long period of tight funding during the 1990s – have tended to dominate meeting agendas, pushing key scientific issues to the back burner. Finally, conventional meeting formats have not been conducive to creative participation and effective knowledge sharing. "We've had wheat-related meetings in the past where there have been an awful lot of presentations," recalls Trethowan. "Many people have come out of those meetings feeling very frustrated that they simply didn't get a chance to say what they thought. Now, what I am hoping

for with this meeting, having spoken beforehand to the facilitators, is that we can use this newer approach to get more discussion. We want to be able to do science better and we want to have better teams.”

CIMMYT has a new strategic plan and recently reorganized itself into six multidisciplinary programs to implement the plan. Knowledge management, or KM, is highlighted in the center’s mission statement and is part of the mandate of one of the programs. In addition, a KM working group was set up at CIMMYT in 2004. Complementing the programs are several thematic groups, including WIG, whose job it is to ensure scientific rigor in CIMMYT’s research, promote best practices, and foster innovation.

The WIG meeting had three objectives directly related to this key scientific role in the new CIMMYT structure:

1. **Program linkages:** Clarify how WIG can contribute to the priority areas of work of the Center’s Programs.
2. **Team building:** Contribute to the formation of a well-integrated team of scientists who share knowledge and information and work towards common goals.
3. **Action planning:** Use the collective wisdom of the group to develop plans to solve some of the key science issues confronting wheat improvement.

There was also a fourth objective specifically related to improved knowledge sharing: to record lessons and good practices in knowledge sharing that can, in turn, be shared within CIMMYT and the CGIAR (see box).

Box: Breaking the mold

At this first meeting of CIMMYT’s Wheat Improvement Group (WIG), participant Dave Hodson wears two hats. On the one hand, his work as head of CIMMYT’s GIS Unit links directly to research in the biological and socioeconomic aspects of wheat improvement. Spatial targeting of improved germplasm is of special significance for him. So, his presence here is strongly motivated by the scientific components. On the other hand, Hodson also chairs CIMMYT’s KM working group.

“Apart from my GIS work, I’m also here to observe the process of knowledge sharing to see if and how it works with the Wheat Improvement Group. The overall idea is that we can, hopefully, learn from this process – take the positive aspects and apply them to other disciplinary groups within CIMMYT and to the programs. A big plus so far is that we’ve broken the mold – we’ve changed the way in which meetings have been traditionally run within CIMMYT. That’s a huge leap forward.

“In the end, the real test of the meeting’s success, certainly from the participants’ point of view, will be how CIMMYT management react to it – whether they take on board the things that have been flagged as priority issues, whether the Program directors really champion these messages. So there will be a fair amount of pressure on the directors in the weeks to come. The way they react will strongly influence people’s willingness to go through this kind of process in the future. If staff see positive signs and management support, they will be very happy. If they don’t, there will be discontent.”

Before the meeting, the organizers encouraged all participants to reflect on the following question: “What are the issues, ideas, and possibilities that I want to explore in delivering the best wheat improvement science to meet the objectives of the programs?” The agenda-cum-invitation to the meeting also contained a friendly warning – “Be ready to be surprised!”

Gearing Up

It is Tuesday, eve of the WIG meeting. Time has been reserved for final planning by the organizers. It is a productive day. The two facilitators – Doug Horton, who coordinates the CGIAR’s KS project, and Allison Hewlitt, a program officer and professional meeting organizer with Bellanet International Secretariat in Ottawa – meet with Trethowan to review preparations and work out last-minute logistics. But more than that, the premeeting discussion gives them a chance to get reacquainted and ensure everyone is on the same wavelength regarding the meeting’s aims and expected outcomes.

“People have to realize that this is not just a talk festival,” says the WIG leader. “This is something with a future. What is decided here will be acted on. We’ve also got an opportunity here to send a message back to staff that the executive is listening.” His views reflect the earlier agreement of CIMMYT’s director general, Masa Iwanaga, to pay close attention to the results of the WIG deliberations. In the formal wording of the meeting agenda: “Senior management at CIMMYT have given a commitment to consider and implement the findings and work plans developed during this meeting.”

As for the tone and direction of the meeting, Trethowan says he wants to avoid a situation where discussions degenerate into “defence of sacred cows,” namely CIMMYT’s longstanding approaches to organizing and conducting wheat research. “We see this event as a collective examination of what we are doing. This is about doing the science we need to do. The technical action plans are the key things we will get out of this meeting. I’d like to put together those plans in a readable format.” The theme of collective examination – or critical stock-taking and analysis – of how CIMMYT conducts research is repeatedly mentioned over the next 3 days of meetings (see box).

A self-confessed agent provocateur

Rodomiro Ortíz is director of CIMMYT’s new Intensive Agroecosystems Program. The plant geneticist also considers it his job to be an agent provocateur, a catalyst for objective review and analysis of how the Center conducts research. It is a task he took on with great gusto before and during the Wheat Improvement Group meeting. He explains why:

“My expectation for this meeting was that people would be encouraged to be critical of the work done in CIMMYT, including their own work. It was time to look at where we can improve and to learn from a critical assessment. To do that, you need to have open-minded people. I don’t think we will be able to say we achieved this week all that was expected. But at least we’ve started the process.”

While clarifying meeting objectives is crucial at this point, more mundane aspects have to be

considered as well. The initial choice of a conventional, formal conference room, complete with a projection screen and tables and chairs arranged neatly into a large rectangle, is rejected. It would be too cramped for animated discussion by nearly 40 people, thereby undermining the spirit of the “open space” method to be used on the first 2 days of the meeting.

Instead, the organizers opt to convert a *bodega* – a warehouse currently serving as a site for sorting and packing wheat seed samples – into a temporary meeting room. This choice turns out to be excellent. The acoustics are adequate and the lack of air conditioning will not be a problem since Obregón’s infamous scorching summer has not yet arrived. The bodega is also large enough to accommodate the full group of participants in a circle of chairs, with room left over for a computer corner (for typing up reports), a coffee and snacks table, and an information-posting area (the so-called marketplace). The bodega is also just a few steps away from a smaller meeting room with wireless Internet access for checking e-mail on laptop computers.

The organizers reckon that a large, covered work area just outside the bodega will provide a convenient venue for small-group discussions. What they fail to realize, though, is that the loud hum of a refrigeration unit, combined with poor acoustics due to the metal roof, will make group discussion difficult. To make matters worse, dozens of sparrows in the metal rafters end up producing a constant din of chirping, as if wanting to join the discussion. And even before the meeting starts, several leave deposits on chairs. (In the end, a good proportion of small-group discussions are held indoors.)

Open Space: Setting the Agenda

With 39 people sitting in a large circle in the bodega on the Wednesday morning, Trethowan formally opens the first annual meeting of the WIG. He stresses that it’s meant fundamentally as a discussion of wheat science, about how to conduct high-quality research for CIMMYT’s programs. Moving beyond earlier preoccupations with budget issues, he says, WIG members have an opportunity to “hold up our ideas and beliefs and approaches to the light of day, to see if they stand up to scrutiny.” He also tells participants of Center management’s commitment to heed and follow up on the meeting results.

Hewlitt, one of two facilitators, then explains the open-space approach to knowledge sharing that is to be used over the next 2 days. In a nutshell, it is a democratic way to set the meeting agenda and produce action plans. Any participant may put a topic on the agenda for discussion; and all participants, by vote, participate in the decision as to which issues will be pursued through action plans. The process is predicated on the principle that good ideas and their implementation are more likely to occur when individuals are allowed to discuss and act on those topics or issues that strongly interest them rather than ones predetermined by managers or meeting organizers. (For further details on the open-space approach see the box on page 00.)

During the facilitator’s introductory explanation of open space, a scientist strongly objects to this method of identifying and prioritizing topics. He is particularly concerned about the large amount of time allocated to the exercise – especially in light of the brevity of the overall meeting, namely 3 1/2 days, including a field trip. He prefers to have a more formal structure

imposed on the meeting at the outset and have the priorities for discussion established more rapidly to allow proper time for discussion and planning.

The objection stops the flow of the meeting dead in its tracks. There is an uncomfortable edge to the opening session, and it appears for a while that the momentum of Trethowan's introductory remarks and Hewlitt's explanation of open space have been lost. The facilitators offer further explanation of the process and ask the group for a measure of trust. The participant evaluation at the end of the meeting will show that the lone objector's concerns are also shared by others at the meeting. Among the suggestions to emerge later: Set an agenda in advance and focus the agenda on a few targeted items, both of which are contrary to the open-space concept.

The session then continues as planned. Participants with topics to propose write them down on cards. They then come forward, one by one, to summarize, in a sentence or two, for the group. All the cards are posted on a wall – the marketplace – with times and locations of discussion groups. The exercise nets 12 topics for discussion, including one put forward by the participant who objected to the open space process.

The facilitators are surprised by the small number of discussion topics proposed, just one for every three participants. Later, one participant explains that he has refrained from suggesting a topic because he did not want his own personal concerns to undermine other topics of interest to the whole group. (Before the meeting, a list of 18 potential topics of discussion had been circulated by e-mail to all participants.)

The topics identified by participants cover a lot of scientific territory: breeding strategies under two separate topics; research and training support for national research systems; information technology; biotechnology applications, especially marker-assisted selection; and the comparative advantages of WIG in the world of wheat R&D. The small-group discussions are generally animated, concrete, focused, and at times provocative. It is now clear that if the outside facilitators had any reservations about whether members of this geographically dispersed group of scientists would be able to quickly break the ice and communicate openly with each other, they were totally unfounded. In effect, there was no ice to break in the first place. The group already had strong wheat-related interests and goals in common, and nearly everyone knew each other, if not personally, then at least by e-mail. As one scientist working in Turkey puts it: "Allison was concerned at the beginning about how all this was going to work out. But she soon saw how much we all interact with each other and how passionate we are about our work. So, as soon as we formed the groups and got chatting, it was quite obvious that there was no issue about having discussion. The issue was how to stop the discussion!"

While the breakout sessions are lively, participation is uneven. In some groups, particularly the larger ones, one or two individuals, usually senior people, dominate discussion. Heavily. Later, this observation is the basis of several recommendations on how to improve participation, made by an ad hoc team asked to reflect on the day's work. Specifically, the team suggests creating smaller groups; choosing moderators who are concerned about the goals of the process; and asking moderators to be more proactive in stimulating participation by soliciting the views of individuals and doing *tours de table*.

After each of the morning and afternoon clusters of small-group discussions, a rapporteur from each group presents a report in plenary, in the bodega discussion circle.

At the end of the day, participants are asked to express their impression of the day in a phrase or sentence. Here's a sampling of those reflections: "Where's the low morale?... I take my hat off to you all.... How can we now put words into action?.... Hope we can now move to some conclusions.... True discussion.... Energy in the room.... Cross-fertilization of ideas between El Batán [headquarters] and the regions.... Chance to get acquainted with newcomers.... I can now put faces to names... Looking forward to tomorrow.... Great day – useful and informative.... Glad not to have regular presentations.... Hope we can get into the science tomorrow.... Good [breakout] groups but a little too big.... It's now up to the four directors not to kill the enthusiasm seen here.... The puzzle is far from solved."

Ranking Topics and Action Planning

Attendance on Thursday is again perfect: 36 plus facilitators and the observer. Most of the day is devoted to selecting priority topics for further discussion and drafting action plans for those priorities. It is institutional democracy in action, beginning not with loquacious lobbying for one topic or another before the casting of ballots, but with a 20-minute period of reading, reflection and, in some cases, quiet discussion. The reading material – 15 pages of mostly point-form text – consists of the nine brief reports that have come out of the previous day's 12 discussions. Reports of a few overlapping topics have been amalgamated.

Before the priority setting begins, Hewlitt asks all voting participants to be guided by their answer to the following personal question: "What topics do you as an individual have energy for, to take the topics forward?" Three participants volunteer to count ballots and decide on the final number of priority topics for action planning based on the distribution of votes.

With votes in and counted, Trethowan announces the five priority topics for further discussion and action planning, with numbers 2 and 3 tied for second place. The results: (1) shuttle breeding (see box); (2) the global comparative advantage of WIG; (3) centralized versus regional breeding; (4) biotechnology applications to wheat improvement; (5) support to national agricultural research systems (NARS) through wheat improvement and training.

The Obregón-Toluca shuttle: A classic breeding strategy

Shuttle breeding is an accelerated method of improving wheat. Two generations of the crop are grown in the same year, each at a different location. The technique was first introduced in Mexico by Norman Borlaug in the 1960s as a way to speed up the battle against the devastation of stem rust. It got its name in the early 1970s, after the "shuttle diplomacy" in the Middle East by then US Secretary of State Henry Kissinger.

Wheat is grown from November to May in Obregón and selections are made. The progeny are then immediately grown farther south at CIMMYT's Toluca research site near Mexico City, from May to November. One beneficial effect of shuttle breeding is that the resulting wheat genotypes tend to be have

broad adaptation. In other words, they yield well across a range of climates, day lengths, and plant-disease environments.

In the spirit of self-reflection, a major issue discussed at the WIG meeting was the advantages and disadvantages of this historically successful approach to breeding. The topic was so important for WIG members that they voted it the number 1 priority for action planning. The researchers discussed the extent to which the shuttle remains a valid strategy – given the current global food situation, new scientific methods (especially in molecular genetics), and demands placed on national and international wheat improvement institutions. Several concrete issues underpinned their discussion and work plan: How has shuttle breeding of wheat helped alleviate poverty and improve human livelihoods? Has it had a negative impact on the genetic diversity of the crop over the years? How can the system be improved? What types of information are needed to better understand the impact of shuttle breeding? How does it link with the work of NARS?

Before the action planning begins, a number of participants voice strong reservations about the priority setting and action planning process. First, because no one can participate in all five sessions, vital input from key people may be missed. Second, not enough time has so far been made available for discussion of certain topics. Third, the process has not captured a number of important issues for discussion. “I think we are paying the price here,” says a breeder, citing lack of discussion of CIMMYT’s role in seed production systems as an example. Another scientist comments that the open space approach is “not fitting the necessities of this group.” A third participant counters that it would be best if the group were to respect the established process for the meeting.

Having too many burning issues and not enough time to address them is a perennial problem with such meetings, admits Rodomiro Ortíz, during a one-on-one discussion. He is one of the four program directors attending the meeting. “There was strong interest in this group to discuss science. But because time was short, the issues were flagged, but not all of them were followed up on. That’s always a challenge. When you have low periods in organizations that are not able to do this kind of backward-looking exercise to help them move forward, then you will have this great need to express views. But there will always be more issues than time available to accommodate them. Adding a second week to the meeting isn’t feasible, especially for outreach staff who have a long way to travel. Some people will complain that they are being pulled away from their jobs for too long.”

The key, says Ortíz, is to be consistent in having a face-to-face meeting at least every other year. In that case, you don’t need a lot of time for the actual group event. In the interim Internet-based discussion – through the “Dgroups” set up for WIG via Bellanet’s services, for example – can be used to keep the global scientific network running, to ensure continued knowledge exchange and other vital communication.

Dave Hodson, chair of the KM working group, is similarly concerned about the time problem. “While my general feeling about the meeting is very positive so far, there are some practical issues on the negative side. Some people say we’re trying to cram too much into too short a period and that maybe a 5-day meeting would have been better, to give everyone the opportunity to discuss all of the issues.” Comments on the participant evaluation questionnaire later show this is exactly the thinking of many WIG members. “Allocate more time to the meeting” is a key

recommendation.

Discussion group size is also on people's minds, say Hodson. "You have too many parallel sessions, and so too few people are present at some sessions to have a meaningful discussion. People then give up and move to a larger group. The flip side is that the very popular sessions have a huge number of participants. I don't know what the solution is, but in some way we need to optimize group sizes."

Hewlitt briefly runs through some of the necessities of a good action plan – concrete elements such as goals, who will execute the plan, in what time frame, and with what resources. With those guidelines made clear, the participants break into subgroups. Once again, the discussions are lively, detailed and fruitful, resulting in five plans. These are presented orally in plenary, and later typed up by group moderators so that copies can be handed out to all participants the next day.

With day 2 of open space complete, what do the participants think of the process and results so far? Brief comments during the "closing of the circle" just before adjournment offer a few hints: "impressed ... provocative ... interactive ... even better ... hardworking ... anxious ... mesmerized ... don't know what to believe ... family ... seed systems and technology exchange... hungry ... tequila!"

The alleviation of participant hunger, as well as their thirst for cactus spirits, will have to wait an hour or so until the CIMMYT bus ferries everyone back to the hotels and prime-beef restaurants for which Obregón is famous. Satisfaction comes sooner, though, for the persistent scientist who has several times stressed the importance of staging a thorough discussion of seed systems. Before adjournment, it is agreed in plenary that this topic will be among those covered in special-interest discussions scheduled for Saturday morning (optional sessions, not formally part of the WIG meeting). Other topics will be information systems and decision support tools, and knowledge sharing techniques.

Peer Assists: Colleagues Helping Colleagues

On Friday, 30 people including the KS team congregate in the bodega for the 8:30 a.m. start of the peer assists. With attendance down by about a quarter, the WIG meeting is showing its first signs of "low harvest index." Never mind. The meeting organizers, the five peer assistees, and the five facilitators are ready to go.

Brief descriptions of the practical obstacles to R&D to be addressed in this 2-hour session have been magic-markered in block letters on flip charts by the peer assistees. Chairs have been set up, six or seven per cluster. And participants begin making the rounds from flip chart to flip chart to see which of the five stated problems interest them and which may be subjects on which they have concrete advice to offer.

Peer assist isn't about swallowing professional pride due to scientific error or administrative fiasco. Nor is it about institutional crime and punishment. It is about sharing knowledge with

friends and colleagues to solve the practical problems that arise in the course of one's day-to-day work. Here are four "how to" problems the peer assistees have elected to share with their peers:

- How to cope with the logistical and security problems of running a CIMMYT office in a challenging location: Afghanistan?
- How to optimize regional strengths in research on soil-borne pathogens?
- How to balance the need for product development with scientists' need to publish?
- How to fairly and effectively allocate funds for wheat improvement?

After the first round of discussions, lasting about half an hour, peer assistees and their facilitators (who take notes and help keep discussion focused) move on to the next group, bringing their flip charts with them. Thus, each assistee benefits from the wisdom of the whole WIG group, not just the initial subgroup of interested parties.

Assistees, facilitators, and participants at large have a variety of observations on how the sessions have gone. Here is a sampling:

- "I liked the sympathy and appreciated the ideas."
- There is no miracle solution to the problem of balancing time between publishing and product development. "It boils down to time management."
- A diversity of contributors favors a successful outcome.
- Clear specification of the problem is essential; doing this is half the work of identifying potentially useful solutions.
- For peer assist to work, the people giving advice or analyzing the problem should have some experience in the problem area. This is difficult to achieve in a very small group. In one session, there were only five people, and most lacked concrete experience in the subject matter.
- Good solutions and ideas that emerge from such peer assists may unfortunately be lost because of the need to send them through a managerial hierarchy before implementation.
- "I thought it a luxury to get these great ideas."
- "I might use it [the peer assist method] again in technical meetings."

In the final evaluation, participants give roughly the same score to the peer assist sessions as they do to the day 1 open-space exercise devoted to identifying and discussing topics. Of the five major sessions scored by participants, these two events are tied for third place. Apparently, the best is yet to come.

Academy Performance

Concern over the future of CIMMYT's Mexican shuttle breeding has been an undercurrent throughout the WIG meeting. It is a major reason why participants earlier assigned high priority to shuttle breeding as a topic for discussion and action planning.

After the peer assists, Hans Braun, who heads CIMMYT's Rainfed Wheat Systems Program, based in Turkey, enters the bodega and interrupts announcements by Trethowan. He says he has

important news. Out of breath and looking simultaneously distraught and excited, he tells the group he has just learned CIMMYT management has sold the Center's properties at Toluca for US\$12 million – to a beer company. This means the station there will be closed, thus ending the decades-old shuttle breeding program.

There are gasps of disbelief and muffled comments from around the circle. A few expletives erupt from one side of the room and two scientists, unable to contain their outrage, storm out of the bodega. Apparently, they have not heard the final, softly spoken two words of Braun's announcement: "April Fools." It takes a good 30 seconds for the prank to sink in ... and for pockets of laughter to emerge from the group circle. Braun has gotten the better of the whole room, delivering what one WIG member later refers to as an Academy performance.

After-Action Review of Dgroups: A Popular Session

For this hour-long review, only four people are absent. The increased attendance perhaps reflects the fact that the topic directly affects how all WIG members do their work and interact with each other, particularly regional staff. The purpose of the session is to evaluate the Dgroups, the two Internet-based electronic forums set up for WIG several months earlier by Hewlitt.

The after-action review of this knowledge-sharing forum consists of plenary discussion to answer several simple questions: What is the purpose of the Dgroups? What has actually happened so far regarding their use? What works well and what does not? What should be done differently?

It is reported that Dgroup traffic was rather slow at first, but that the electronic forums are now well used. One director says he has been exploiting this channel to stimulate discussion of scientific issues. Other uses by Dgroup members include sharing scientific reports and articles and circulating future tables of contents of journals.

Many aspects of e-forum operation are discussed, with participants particularly interested in Dgroup etiquette and procedures that promote efficiency:

- Brevity and other reader-friendly behaviors should be encouraged in the Dgroups. When asked specific questions, discussants should always reply, even if only briefly.
- The initiator of a thread should suggest the names of others who might make a useful contribution. And the corollary: Those with expertise on a given topic should feel obligated to participate in a discussion of that topic.
- The subject line of a new discussion thread should be chosen carefully and retained throughout the thread.
- In responding to a Dgroup posting, it is best to copy all previous correspondence on that topic. In that way, once the thread ends, participants need save only one large message for a complete record. All previous postings can be deleted.
- The existence of parallel Dgroups often results in duplication of information. This problem needs to be solved.
- The use of the daily digest option is one way to cope with the problem of e-mail

overload.

- Guidelines are needed on how to manage file attachments. This is particularly important for traveling staff who often have Internet access for only short periods and with low bandwidth.
- Accessing the Dgroups via an e-mail based system rather than through designated Web sites is a big advantage in places where Internet connectivity is a frequent problem.

A clear message emerging from the discussion is that the Dgroups are extremely useful but that users need guidance and practical advice on how to make the most of this information service. In response facilitators Hewlitt and Horton agree to run a tutorial session on Dgroup operation as part of the optional Saturday morning discussion of knowledge sharing techniques.

WIG in the CIMMYT Matrix

It's Friday noon and the WIG meeting is beginning to wind down. One last topic remains on the agenda, for at least a brief discussion. What are the implications for the Wheat Improvement Group of CIMMYT's new organizational matrix? That structure, introduced in 2004, consists of six programs and five so-called "disciplinary groups," including WIG, giving a total of 30 potential operational "cells." While each scientist is homed in one disciplinary group, his or her work may cut across two or more programs.

The matrix itself is conceptually simple. However, its implementation – who does what with whom under which program with which resources? – is not. There is consensus that details of how the matrix will actually operate are not yet clear. One possibility is that compartmentalization into programs could alienate disciplinary colleagues from each other. But one scientist notes that this may be a false problem. If you put all the biotechnologists in separate programs, he asks rhetorically, do you cut them off from each other? No. Most of them already work under the same roof and will continue to share knowledge, ideas, and tasks.

The general feeling is that the new structure, still in its infancy, should operate loosely if it is to be effective. As one director puts it: "To make the matrix work, you need to keep it simple and manage it flexibly. It should be an open guide rather than a strict regulation."

Closing the Circle and Participant Evaluations

Before everyone heads off for a box lunch followed by a tour of CIMMYT's local field research, accompanied by a group of visiting US wheat scientists, there is one final duty to perform. Participants are asked to reflect on the 21/2 days of meetings and the KS techniques it has employed. The task takes two forms: the final closing of the circle and filling out a four-page questionnaire.

In the final few minutes of plenary, one participant says that the ultimate litmus test of this meeting will be concrete follow-up of the action plans. This has been a recurring message over the past 3 days. Others mention that while discussion has been excellent, it might have been better to give the meeting a narrower focus. Two nonmembers of WIG say that, as outsiders,

they truly appreciate having had the opportunity to contribute ideas to the dialog.

Later, group leader Richard Trethowan comments that WIG will move forward over the next few months on the Obregón meeting proposals. “We’ve developed plans to solve some of the key science issues confronting wheat improvement today.”

The written evaluations, by 32 of the 36 CIMMYT staff in attendance, show that their overall reaction to the design and implementation of the WIG meeting has been positive. On a scale of 1 to 5, where 1 signifies poor and 5 excellent, participants deem the meeting “good” with an average rating of 3.9.

On the whole most participants feel the meetings’ objectives have been accomplished, the average score for all three wheat-related objectives being 3.7 on the 5-point scale. Achievement of the team-building objective gets the highest-score: 4.0. This is fully consistent with participants’ comments, which, over and over, point to the importance of face-to-face meetings, improved communication and discussion, and enhanced team spirit and cohesiveness. The lowest score goes to the meeting objective “Clarify how WIG will contribute to CIMMYT program priority areas” (related to the action planning).

Three other aspects of the meeting are also repeatedly mentioned as positive: the informality of the event, representation of all disciplines (and the presence of program directors), and the fact that key topics were discussed and action-related conclusions reached.

On the down side, the questionnaire results make it clear that many participants feel the time available to deal with the agenda has not been adequate. Other recurring comments are that there have been no clear recommendations formulated; a small number of individuals often dominated the discussions; breakout groups were often too big; and few agronomists, biotechnologists, and economists were present at the meeting.

In the questionnaire participants are also asked about the usefulness of the various knowledge-sharing techniques used – to CIMMYT and to themselves personally. The after-action review of the Dgroups proves to be the most popular. The other events are ranked for usefulness as follows: discussion of WIG in the CIMMYT matrix, open space exercise (choosing and discussing topics on day 1), peer assists, and last by a significant margin, the prioritizing and action planning session on day 2.

Among participants’ suggestions for improving future WIG meetings, the most common, not surprisingly, is to increase the duration of the meeting to allow for full discussion of issues. Other recommendations are to prepare a focused agenda in advance, to ensure greater clarity on the event’s objectives, and to rotate meetings among different regions.

Box: All ears on regional needs

Petr Kosina is wheat training coordinator and joined CIMMYT in November 2004.

“So far I know only those scientists based at the El Batán headquarters. Now I’ve had a chance to hear the opinions [about training needs] of those who come from the regions. In this particular aspect, my expectation is absolutely fulfilled because they were interested in the discussion and they expressed their ideas. So that’s perfect. The problem for me is that their ideas were totally different from what I expected! I now need more time for one-on-one discussions on specific topics because several of the staff raised issues from their regions which have to be addressed.”

Box: Beyond defensiveness

Ravi Singh is a bread wheat breeder and pathologist.

“In most of the sessions I attended, people were defending our philosophy to the administration. But our approach to wheat research is something which has been working well for all these years. Why do we have to come back and keep saying that it will work again and again? I don’t see it’s a very progressive thing for us to do; but it’s something that is necessary for survival. Maybe it’s time we also start to be more forward looking.”