FIT-22: TECHNICAL REPORT

By Técnicos, for Farmers

Helping PITAs to offer technologies

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COVER: Técnicos read their fact sheets at the end of the Mojotorillo course. David Cáceres proudly displays his top right.

Summary

FIT-22 looks at the supply and demand of technology. Atica learned about the demand, and the Global Plant Clinic gave new ideas to people who take new technology to farmers.

We (Boa and Bentley) taught four courses, each five days long (October-November 2005) at four sites in Bolivia, one in the valleys (Toralapa, Cochabamba), in the humid tropics(Montero, Santa Cruz), the high plains (Mojotorillo, Potosí) and the Chaco (Yacuiba, Tarija). Each site was at a different altitude, from 300 meters above sea level to nearly 4,000 meters, which helps explain the wide range of tropical, temperate and high altitude crops we worked with. The course (*Helping PITAs to offer technologies*) helped extension agents in PITAs (applied technology innovation projects) to organize and present new ideas to smallholders. During the course, each extension agent wrote a fact sheet, for farmers, on a specific technology.

This report describes how we taught técnicos to outline an extension message, in a simple, robust method we call the 'snowman' (Chapter 1). It discusses tips for good writing, photography and layout and how we taught these to the extensionists (Chapters 2, 3 and 4).

The only way to know if the audience appreciates and understands written material is to watch them read it, and to ask them to tell you about it. We call this type of validation 'farmer peer review' and farmers reviewed all of the técnicos' fact sheets (Chapter 5).

We wrote four narratives describing some of our experiences: encouraging técnicos to 'Go Public' in a crowded market (Annex 5); how to solve a mystery for farmers while telling them about a problem they do not even know they have (Annex 6); asking a sugar-cane grower to 'peer review' our work (Annex 7); and about writing a fact sheet in Quechua (Annex 8), which some of the técnicos did not even think was possible.

The fact sheets (*hojas volantes*) are being collected in a separate book, to be published by FIT-22. We hope to put PDF versions on our websites (www.globalplantclinic.org, www.jefferybentley.com, and we welcome others, e.g. SICTAF, to host some or all of the *hojas volantes*.

Anyone interested in seeing the presentations and other course material is encouraged to write to either of the authors.

In 2006 we will visit some of the PITAs again but in the field, to see how they have used the new ideas on extension, and how they are adapting technology to fit Bolivian farms. We will use this as background for a paper outlining a strategy and an analytical framework for SIBTA II.

Results

1. The técnicos who took the course '*Helping PITAs to offer technology*' wrote 48 fact sheets, explicitly for farmers.
2. Boa and Bentley taught 47 técnicos to organize their thoughts, and to write a message for the farming public, not for other technical people.
3. The técnicos learned how to validate fact sheets using a 'farmer peer review' with members of their target audience.
4. FIT-22 provided technical information to PITAs in all four of the Bolivian agricultural technology development foundations (Valles, Trópico Húmedo, Altiplano, Chaco).
5. The Global Plant Clinic delivered messages on alternative extension methods, and practical research with farmers.
6. Everyone learned something on our course, and everyone realized that farmers want to read about new farming techniques, as long as we write it just for them.
7. The people who took our course received a CD with all the presentations, fact sheets and other course material.
8. Course participants established contact with an international centre (Global Plant Clinic).

ABBREVIATIONS

ATICA	Agua, Tierra Campesina
DFID	Department for International Development
FDTA	Fundación de Desarrollo Tecnológico Agropecuario y Forestal
FIT	Fomentando Innovación Tecnológica
PITA	Proyecto de Innovación Tecnológica Aplicada
GPC	Global Plant Clinic
HV	Hoja volante ('flyer', fact sheet)
MACA	Ministerio de Asuntos Campesinos y Agropecuarios
MIP	Manejo integrado de plagas (IPM—integrated pest management)
SIBTA	Sistema Boliviano de Tecnología Agropecuaria
SICTAF	Sistema de Información Conocimiento Tecnológico Agropecuario y Forestal
PIEN	Proyectos de Innovación Estratégica Nacional

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Este informe está disponible en español también.

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Introduction

New farm technology in Bolivia is now being provided by small projects called PITAs, which are supported by the four foundations in the SIBTA system. Each PITA works on one commodity (e.g. maize) and extends technology to organized groups of farmers.

FIT-22 will improve the 'market' for technology supply and demand, in two parts, with Atica gauging demand and the Global Plant Clinic helping technology suppliers.

FIT-22 will last two years, one of at least six 'FIT projects' (to promote technical innovation), funded by DFID-UK, in the Bolivian Ministry of Campesino Affairs and Agriculture.

1. Snowman: how to outline an extension message

Just like a snowman, an extension message has three parts: head, middle and the big ball or fat part.

THE 'HEAD' IS THE DIAGNOSIS or the problem identification. "How do I know I need technology X?" With common problems it may be enough to give the name; the audience understands. In the Altiplano, for example, everyone knows they have problems with 'frost and hails' and just by saying the phrase they know what problem one is talking about.

In other cases it is useful to mention synonyms. For example, chocolate spot is also called 'yawar onqoy' (blood disease, in Quechua—HV21). With some problems it is not enough to mention the name because people confuse some of them. For example, in peach many people confuse the leaf

HEAD

The phytoplasma (**left**) produces brightly coloured tubers at ground level and disrupts growth. Rhizoctonia blights the plant (**right**) and sometimes produces small, green, aerial tubers. See HV32.

curl caused by the fungus *Taphrina deformans* with aphid damages. The head of the message must explain the differences in their symptoms (the fungus causes a red, fleshy swelling and the leaves damaged by aphids still have the insects on the underside of the leaf—HV37).

Another example of the 'head' (identifying a problem): many people confuse rhizoctonia of potato with another disease caused by phytoplasma, but they are different. The potato phytoplasma causes red and bright black tubers at the surface of the ground, but Rhizoctonia does not. It may cause tubers on the stalk, but they are small and green. Sometimes the audience does not recognized problems they have: some onion growers have never noticed the small insects called Thrips that live at the base of the leaves, and people have to be told that the insects exist (HV8, see Annex 6). The head of the message sets the scene in the public's mind, for example that achachairú (fruit of the native tree *Garcinia* sp.) sells better, and opens a market for itself, if it is sorted and nicely presented (HV 36).

Background information: maize grows faster than the armyworm can eat (HV48)

THE MIDDLE IS BASIC INFORMATION (biology and ecology, for example). Almost all new technologies are counter-intuitive for the public. If this were not so, the technologies would be obvious and people would already be using them. The middle explains information that helps understand the reason behind a technology. It is not the *Discovery Channel*. For example it is not necessary to explain that the armyworm lives 9 to 12 days as a pupa, or that its scientific name is *Spodoptera frugiperda*, or that the adult has spots like eyes on its wings. This information is irrelevant for its control. But one must

know that the armyworm drowns when it rains, that the ants kill it, and that maize grows faster than the armyworm can eat. This helps to understand the technology (in this case that normally if one does not spray insecticides, the rain, ants and wasps will kill the armyworm—HV48). Write the middle part bearing the technology in mind, although the technology comes last.

THE FAT PART EXPLAINS HOW TO USE THE TECHNOLOGY and is more or less half of the message. It is like a recipe: how to use a metal silo to store grain (HV41), how to look for support to plant forest trees (HV15), how to use a potato digger (HV31), how to make an organic fungicide for grape diseases (HV38).

ALL MESSAGES HAVE THREE PARTS. For example: broad beans are low yielding (problem, head), because they have seed-borne diseases (basic information, middle) and the diseases can be killed with boiling water (the fat part): HV26.

Old coffee produces less (head). Pruning with a machete damages the plant; replanting with plantlets yields more and the coffee is healthier (middle). Cut half the rows of old trees (every other one) and plant plantlets in their shade; the following year, change the other half (the fat part): HV13.

A third example: farmers harvest grapes when they are yellow. The bunches are uneven and they sell for a low price (head). The grapes turn yellow because of the sun, not because they are ripe. One must use a refractometer to know if they are ripe (middle). How to use the refractometer is the fat part.

Several extensionists asked us how they could get their audience to pay attention to their message. Besides having a technology that works and speaking with that mix of self-confidence and kindness, organize a message in the most logical way. You can use a snowman to outline an extension message in any format: radio, talk, demonstration or Going Public (Annexes 5 and 6) for example.

Head
START WITH THE PROBLEM
(naming the ones they recognize and explaining the ones they do not)

Middle part
GIVE BACKGROUND INFORMATION
(the reason behind the technology)

Fat part
HOW TO USE THE TECHNOLOGY
(like a recipe).

The fat part: how to use the technology, like this grain silo (HV41)

2. Writing for farmers

We write with short, concrete words. We tried to explain to the people on our course that good authors write for their readers, not for themselves. Write in words that people know. 'Phytophthora' is a fine word for plant pathologists. But if we write for Bolivian farmers, they understand words like *t'ojtu*, *pasmo* or *tizón*. They call grape mildew 'ceniza' (ash) and that is the name we use (HV38).

People speak instinctively, but writing is an artifice. Many people are afraid of their audience, so they write with affected words, trying to impress. It is better to imagine that one is writing to someone sympathetic: one's mother, or brother, or a friendly farmer. Keeping a real person in mind, and writing to her helps one to write better. Simple words are the clearest. 'Symptoms are presented on the foliage' does not say what the symptoms are, but 'black spots on the leaves' does, and in fewer words.

A FEW SHORT WORDS

We told the people on the course to use the shortest word that expresses what they want to say, avoiding junk words like 'process, factor, aspects', that mean nothing. Avoid words that are true by definition. Do not write 'a yellow-coloured stripe'. Yellow is a colour, by definition. Write 'a yellow stripe'.

STEPS TO WRITING

The people who took our courses were mostly agronomists with years of experience. Each person gave a talk on their demand for and supply of technologies. The rest of the group then wrote cards with constructive criticisms, and a comment on what they liked about the technology. The person who had given the talk read the cards out loud, without reacting, just taking them on board. Later we helped them pick an interesting topic, which they outlined on a big sheet of paper and presented to the group. After the group critiqued the technologies, sometimes ruthlessly, competition turned to collaboration as people sat down in ad hoc groups of two or three and helped each other sharpen their ideas. Each person wrote their first draft of the fact sheet in pencil, and showed it to their compañeros for comments.

An easy read is a hard write. Javier Rollando drafting HV21 on chocolate spot

Then they typed their draft, sometimes by themselves, sometimes with help. Bentley edited the fact sheets for clarity, and sometimes for content, and returned them. Each writer had an individual session with Bentley to go over their prose, and make other changes. A few of them put sentences back in, but none of them argued with the change in prose style. A talk on writing does not change the habits of a lifetime, but phrases like 'symptoms are presented' and 'the colour yellow' were scarce even in their first drafts (see also Annexes 3 & 4).

After Boa helped them with the layout, most people edited their draft fact sheet again. It suddenly looked like a publication, and they began taking it more seriously. By the end of the course everyone saw how important it was to use words that everyone knew. During the farmer peer review (Chapter 5), the técnicos saw farmers reading their sheets, and they talked about them

together. This removed most remaining doubts about the importance of writing short, clear messages.

An easy read is a hard write and the fact sheets in this paper went through at least eight stages:

1. Outline technologies in the PITA, and get written comments
2. Outline one of the technologies, and get verbal comments
3. Write a pencil draft and ask colleagues to read and comment on it
4. Type it
5. Have it edited
6. Discuss changes with the editor
7. Lay out and format fact sheet
8. Edit it again
9. Invite farmers to review the sheet, then edit again.

3. More than a click: *the power of photos*

The art of photography is vital to the science of technology. A good photo shows how to do something, or illustrates an unfamiliar object in a way that words alone cannot. Técnicos and farmers know a good photo when they see it. Their interest is caught and they instinctively get a message. These are the photos we tried to use in fact sheets. Fact sheets need photos. We explained how to take better photos and how to select the best ones.

Is it sharp?

Quality is the easiest message to get across. Photos that are blurred, too dark or light or out of focus are for the rubbish bin. Rejecting photos is not as easy as it sounds. 'But I can still see what the person is doing' or 'it's not that bad' are the enemies of good choice. We tried to teach by example, showing good photos in our own talks.

Composition and content are more difficult to learn. Capturing that 'decisive moment' needs practice and patience. The first photo is rarely the best one. Digital cameras are freely available. On each course we had at least three or four, plus our own. People were confident in using them and the groups were able to download and edit photographs on computers. The desire to see one's photos motivates people to learn computer techniques.

A technique for disinfecting broad bean seeds (HV26). The man in the photo (Marco Antonio Escalante) looks at his watch to emphasize keeping track of time so as not to over-heat (and ruin) the seed.

Improving skills

We used the same approach for learning about photography as we used for writing. Participants produced something first then we worked with them to improve skills. We gave them a list of topics to shoot, then compared the results. Each group reviewed their photos on monitors before displaying the best one for each topic on the big screen. Photos of trees and symptoms were more successful than insects and birds. The least successful were those of people. Taking good photos requires patience and time. Buying the camera is the easy part.

The photo exercise got people out of the classroom. Most were from other places and some were shy about asking strangers if they could take their photograph. The exercise kept people happily occupied for at least two hours and allowed us to give individual attention to participants on other tasks.

The three Cs

The groups worked well in taking and selecting photographs (though some more successfully than others). Each wanted a better photo than the others. As photos taken during a field exercise were displayed on computer screens, anyone passing could comment – and frequently did. These are the three Cs that helped groups work better and improved individual skills: collaboration, competition and criticism. The best photos of each group (for twelve topics) were displayed on the 'big screen' and a neutral observer commented on quality and content.

We later saw major improvements in choosing the best photo for a fact sheet. This was often a compromise since crops were either not grown close to the course or it was the wrong season. We (Boa and Bentley) used pictures from our photo libraries for some of the fact sheets. Some participants brought photos with them but quality was variable.

Excellent composition of trees. It was more difficult for participants to get the farmer to 'pose'.
Photos by students, Mojotorillo

Finding the right photo

The Internet and the CABI Crop Protection Compendium, were less useful than we expected for finding photos. Photographs that look good on a website usually have a small file size. Anything less than 50 kb is not good enough for a fact sheet.

The fact sheets have at least one photo each, often two. We used 82 photos in 48 sheets. At Mojotorillo and Yacuiba people took photos for their fact sheets and started to use their own imagination and quality control. By the end of the courses the photos were definitely improving.

Técnicos realised that modern technology was not enough and that the person pressing the button on the camera had to think a little harder and use personal judgement. Taking good photos is more than just a click.

4. One plus one is three: *making the most of photos and text*

The power of the fact sheets lies in the wise use of photos and words. This chapter describes how we (Boa and Bentley) helped the 47 authors bring all the parts together. First a few technical details: all the sheets were written in Microsoft Word. There are better programmes for layout and design but in Word it is easy to edit text and combine photos. Every computer has it. The font used (Tahoma) is also available on every machine.

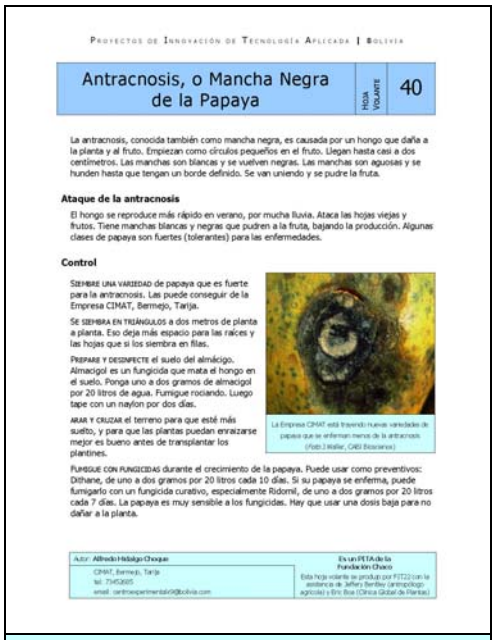
Layout and formatting require discipline. Participants were shown how to use tables to contain photos and captions in different cells. This adds stability to design and reduces the risk of items moving around the page. Boa created a fact sheet template which worked well in all four courses.

Organising the stages of writing a fact sheet requires discipline, from first handwritten draft to final version. Our earlier experience in writing fact sheets in Nicaragua showed that a limit of 350 words per technology allowed authors to include key information about their technologies. No author asked for more space. They saw that fewer words, carefully chosen, conveyed a more powerful message.

One-page fact sheets have other advantages. They can be printed and photocopied more easily and the reader's attention is focused on a single page.

We prepared the fact sheets in careful stages. First the text, then the editing, next the formatting and last adding the photos. We gave talks on writing and photography and gave the authors written guidelines.

We negotiated which photos to use, stressing the need to crop out 'dead space', parts of the photo with no useful detail. From draft to final version requires careful management in a course with up to 16 people. We organised parallel sessions so that the whole group was kept occupied with 'floating exercises' while individuals discussed content or layout with us.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Antracnosis, o Mancha Negra de la Papaya

HOJA VOLANTE 40

La antracnosis, conocida también como mancha negra, es causada por un hongo que daña a la planta y al fruto. Empiezan como círculos pequeños en el fruto. Llegan hasta casi a dos centímetros. Las manchas son blancas y se vuelven negras. Las manchas son agusas y se hunden hasta que tengan un borde definido. Se van uniendo y se pudre la fruta.

Ataque de la antracnosis

El hongo se reproduce más rápido en verano, por mucha lluvia. Ataca las hojas viejas y frutos. Tiene manchas blancas y negras que pudren a la fruta, bajando la producción. Algunas clases de papaya son fuertes (tolerantes) para las enfermedades.

Control

SIEMBRE UNA VARIEDAD de papaya que es fuerte para la antracnosis. Las puede conseguir de la Empresa CIMAT, Bermejo, Tarija.

SE SIEMBRA EN TRIÁNGULOS a dos metros de planta a planta. Eso deja más espacio para las raíces y las hojas que si los siembra en filas.

PREPARE Y DESINFECTE el suelo del almácigo. Almacigol es un fungicida que mata el hongo en el suelo. Ponga uno a dos gramos de almacigol por 20 litros de agua. Fumigue rociando. Luego tape con un naylon por dos días.

ARAR Y CRUZAR el terreno para que esté más suelto, y para que las plantas puedan enraizarse mejor es bueno antes de transplantar los plantines.

FUMIGUE CON FUNGICIDAS durante el crecimiento de la papaya. Puede usar como preventivos: Dithane, de uno a dos gramos por 20 litros cada 10 días. Si su papaya se enferma, puede fumigarlo con un fungicida curativo, especialmente Ridomil, de uno a dos gramos por 20 litros cada 7 días. La papaya es muy sensible a los fungicidas. Hay que usar una dosis baja para no dañar a la planta.

The photo is larger than usual. The text was relatively short, and it is important to show the symptoms of this diease so the audience will recognize it.

The sections of the fact sheets follow the three 'snowman' stages of a technology. Each section has a heading, to guide the reader and separate topics, although the heading of the first section may be deleted. Most headings are simple explanations of that section, for example 'control'. A few attempted to say something extra. In HV15 'The best inheritance' is an attempt to interest the reader in planting trees. Within each section the use of bullets and SMALL CAPITALS helps to highlight important text. Underlining is unnecessary and only section headings are in bold.

The section text was reduced to 10pt if it was long but we always tried to cut words first. Line spacing was adjusted so that shorter fact sheets had less 'white space'. The authors learned about balance in text and began asking for photos to be reorganized so that the technology was presented more clearly.

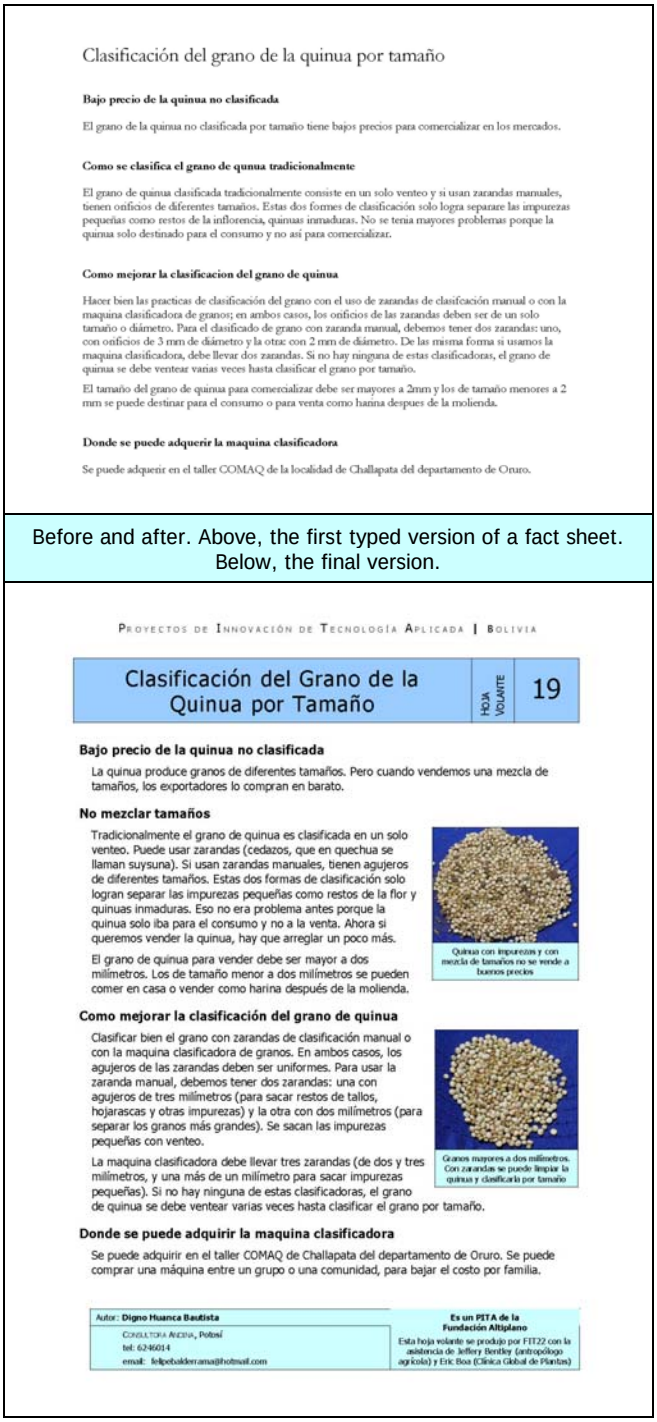
Adjusting photo size and position requires more time and practice than is available in a short course. We used the video projector to show editing 'live' and participants found this useful.

Photos need to add value and new information. They should not be 'decorations', though this was inevitable in a few cases given our short schedule and the limited seasonal availability of crops. But everything does not have to be illustrated. There is no need to show an armyworm (HV48) if farmers already know what it looks like. Photos of fungal spores or tiny insects do not help the reader adopt a technology, so they should be avoided.

Either show something new or include a photo which catches the reader's eye. Captions should also add value and avoid stating what the reader can already see. 'Remove diseased leaves as soon as they appear' is better rather than 'diseased leaves have necrotic spots or irregular shape'.

Photos were usually flushed right with text flowing around them, with the caption below the text. In a few cases (e.g. HV28 and HV31) two photos were placed in a row, with the caption between them. Photos must be big enough to show important details. But if they are too big the photo dominates the page.

We want técnicos to write their own extension literature in future. To be successful they need to know about writing, layout and photographs. It is good to show early drafts to colleagues and ask communication specialists for advice but técnicos must not surrender responsibility for the final product. They know their audience best and must be involved in creating extension material.



Clasificación del grano de la quinua por tamaño

Bajo precio de la quinua no clasificada

El grano de la quinua no clasificada por tamaño tiene bajos precios para comercializar en los mercados.

Como se clasifica el grano de qunua tradicionalmente

El grano de quinua clasificada tradicionalmente consiste en un solo venteo y si usan zarandas manuales, tienen onficios de diferentes tamaños. Estas dos formes de clasificación solo logra separare las impurezas pequeñas como restos de la inflorencia, quinuas inmaduras. No se tenia mayores problemas porque la quinua solo destinado para el consumo y no así para comercializar.

Como mejorar la clasificacion del grano de quinua

Hacer bien las practicas de clasificación del grano con el uso de zarandas de clasifcación manual o con la maquina clasificadora de granos; en ambos casos, los orificios de las zarandas deben ser de un solo tamaño o diámetro. Para el clasificado de grano con zaranda manual, debemos tener dos zarandas: uno, con onficios de 3 mm de diámetro y la otra: con 2 mm de diámetro. De las misma forma si usamos la maquina clasificadora, debe llevar dos zarandas. Si no hay ninguna de estas clasificadoras, el grano de quinua se debe ventear varias veces hasta clasificar el grano por tamaño.

El tamaño del grano de quinua para comercializar debe ser mayores a 2mm y los de tamaño menores a 2 mm se puede destinar para el consumo o para venta como harina despues de la molienda.

Donde se puede adquerir la maquina clasificadora

Se puede adquerir en el taller COMAQ de la localidad de Challapata del departamento de Oruro.

Before and after. Above, the first typed version of a fact sheet. Below, the final version.

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Clasificación del Grano de la Quinua por Tamaño — HOJA VOLANTE 19

Bajo precio de la quinua no clasificada

La quinua produce granos de diferentes tamaños. Pero cuando vendemos una mezcla de tamaños, los exportadores lo compran en barato.

No mezclar tamaños

Tradicionalmente el grano de quinua es clasificada en un solo venteo. Puede usar zarandas (cedazos, que en quechua se llaman suysuna). Si usan zarandas manuales, tienen agujeros de diferentes tamaños. Estas dos formas de clasificación solo logran separar las impurezas pequeñas como restos de la flor y quinuas inmaduras. Eso no era problema antes porque la quinua solo iba para el consumo y no a la venta. Ahora si queremos vender la quinua, hay que arreglar un poco más.

El grano de quinua para vender debe ser mayor a dos milímetros. Los de tamaño menor a dos milímetros se pueden comer en casa o vender como harina después de la molienda.

Quinua con impurezas y con mezcla de tamaños no se vende a buenos precios

Como mejorar la clasificación del grano de quinua

Clasificar bien el grano con zarandas de clasificación manual o con la maquina clasificadora de granos. En ambos casos, los agujeros de las zarandas deben ser uniformes. Para usar la zaranda manual, debemos tener dos zarandas: una con agujeros de tres milímetros (para sacar restos de tallos, hojarascas y otras impurezas) y la otra con dos milímetros (para separar los granos más grandes). Se sacan las impurezas pequeñas con venteo.

La maquina clasificadora debe llevar tres zarandas (de dos y tres milímetros, y una más de un milímetro para sacar impurezas pequeñas). Si no hay ninguna de estas clasificadoras, el grano de quinua se debe ventear varias veces hasta clasificar el grano por tamaño.

Granos mayores a dos milímetros. Con zarandas se puede limpiar la quinua y clasificarla por tamaño

Donde se puede adquirir la maquina clasificadora

Se puede adquirir en el taller COMAQ de Challapata del departamento de Oruro. Se puede comprar una máquina entre un grupo o una comunidad, para bajar el costo por familia.

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Es un PITA de la Fundación Altiplano

Esta hoja volante se produjo por FIT22 con la asistencia de Jeffery Bentley (antropólogo agrícola) y Eric Boa (Clínica Global de Plantas)

5. 'This is for me!' *Farmer peer review*

HOW TO VALIDATE WRITTEN MATERIAL

When one publishes in a journal, the editor sends the draft to experts who read the article and critique it. If the author takes their comments on board, he or she usually improves the paper. Written material for farmers should be reviewed by farmers.

In our courses we did this with an exercise called 'validation'. The steps were:

1. Find a person (or two or three) from the target group (for example, farmers).
2. Ask them to read your fact sheet.
3. Be patient while they read (it may take a few minutes). They can read out loud or in silence, as they wish.
4. The main thing is not to explain the fact sheet to them. They should read it.
5. Then ask the following questions:

   What does the paper say? What should one do?

   Why?

   Would you have any problems doing what the sheet recommends?

   Do you have any questions about what you read?

   Was there anything you did not understand?

6. Take notes.
7. The more people you interview, the better. Try to ask four people to read the sheet.

Farmer peer review is quality control. Reading HV48 in Huayrenda, the Chaco.

All the técnicos validated their fact sheet in the field. Except for five or six, after validation, they all changed their fact sheet. Some changed just one word or two when they realized that the farmers did not understand that word. Changing a single word can make the difference between understanding and misperception. Two or three técnicos even changed words in the title of their sheet, when they saw that people did not understand them. For example, Omar Tames saw that people did not understand the word '(onion) bulbo' and he changed it to 'head' (HV2).

After three days of hard work writing the fact sheets, the extensionists were happy to see people not just read their fact sheets, but enjoy them. Servando Lazarte said that people liked his sheet on the potato digger (HV31) so much that they almost took it away from him. Many others had similar experiences.

When a broad bean grower read about growing his own seed (HV28), he told Antonio Zamora "no one has ever explained this, so clearly. One can grow one's own seed and it does not cost money. I am going to do it and you can come back to see that I have".

When José Luis Pozo changed his text, he said "the message is shorter, but now they understand it".

After the validation, several people added new information, suggested by the farmers, just the way a scientist does after a peer review. For example when Evans Alba validated his sheet on broad beans (HV34), the farmers recommended tying the tips of the stooks (bundles) so that rain would not get in. they said that instead of cutting broad beans 10 cms from the ground, five was better, "because that way we can take more fodder to our animals." One beekeeper, Rosmery Quezada, told Yurvin Moruno that another way to keep ants out of bee hives was by tying a ring of wool around the support posts (HV46).

Macario Escobar returned from the validation and re-wrote his sheet (HV44) (which was already pretty good). His sheet had had two sub-themes, but he removed one (groundnut planting densities) and concentrated on just one theme: weed control. He said that when one writes for the public "you have to be as straightforward and specific as possible." Quite so.

Claudio Salinas asks Rosmery Quezada to read his fact sheet on fruit fly (HV39)

The sheets were so attractive that people started looking for them to read. In the Chaco we went to the village of Huayrenda to validate the sheets. While we waited for the bus that would take us back, a farmer came up and asked "Who has the sheet on grapes?" Someone had told him about it and he wanted to read it before we left.

While we were packing to leave Mojotorillo, in Potosí, the porter don Cresencio, came up and said that he would have liked to have been in the course more, but that he had been busy installing water pipes. He asked if we still had any of the materials, and we managed to fine three of the fact sheets. He sat down and read them, absorbed. It was the highest compliment we received.

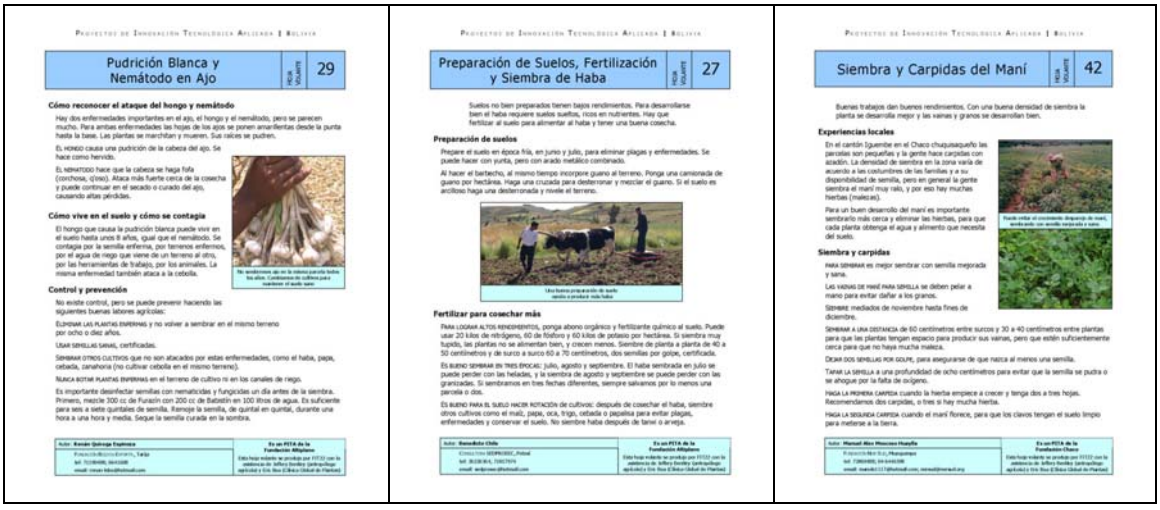
The fact sheets are well written, on themes of popular interest, and they hold people's attention to the end. (For more examples of peer reviews, see Annexes 7 and 8).

6. 48 Technologies by técnicos, for farmers

The agronomists wrote on all stages of agriculture, from seed to post harvest. The editors accepted papers ranging from self-consciously organic to frankly chemical, and quite a few somewhere in the middle. The following table shows that diseases and insect pests were the most common topics, but there was a good balance with other themes.

Topics of the fact sheets

TOPIC	NUMBER	HOJA VOLANTE
Diseases	12	HV2, HV8, HV16, HV21, HV29, HV30, HV32, HV35, HV38, HV39, HV40, HV47
Insects	9	HV1, HV13, HV14, HV17, HV18, HV22, HV37, HV46, HV48
Seed	6	HV4, HV6, HV19, HV23, HV26, HV28
Soil management	5	HV7, HV11, HV12, HV25, HV27
Post-harvest	5	HV5, HV20, HV33, HV36, HV41
Harvest	4	HV3, HV31, HV34, HV45
New varieties	3	HV9, HV10, HV43
Weeds	2	HV42, HV44
Forestry	1	HV15
Irrigation	1	HV24



CROPS

The técnicos wrote on the crops of most interest to their PITA. The fact sheets were on 20 different commercial crops, with one paper on bees. The courses on the Altiplano and in the Chaco were well attended (see Annexes 1 & 2), and so there were many fact sheets on their crops (broad beans, peanuts, quinoa etc.).

HIGH HOPES

Many people on the courses expected that the instructors would help improve their technologies. We were more interested in having them write up what they themselves had tried and proven useful. But in some cases we did help them with new technical information, especially with insects and diseases. Twenty one crops is too many for most people to know much about, but we were able to provide at least some technical advice on most crops, except for peanuts, soy beans, garlic, flowers or achachairú. In all cases, the authors (not the editors) take final responsibility for the technical information in the papers.

But the farmers have the last word. They will accept many of these ideas, and spread them around themselves, adapting them as they go. Farmers will test some technologies, and drop them when they do not work. Farmers treat what agronomists say as hypotheses, not as facts.

CROP	NUMBER	HOJA VOLANTE
Broad beans	8	HV21, HV22, HV23, HV24, HV26, HV27, HV28, HV34
Groundnuts	4	HV6, HV42, HV44, HV45
Quinoa	4	HV19, HV20, HV25, HV30
Rice	3	HV9, HV10, HV12
Onions	3	HV2, HV3, HV8
Maize	3	HV41, HV43, HV48
Potato	3	HV31, HV32, HV33
Soy beans	3	HV14, HV18, HV35
Coffee	2	HV1, HV13
Sugar cane	2	HV11, HV17
Citrus	2	HV39, HV47
Grape	2	HV5, HV38
Bees	1	HV46
Achachairú	1	HV36
Garlic	1	HV29
Forest trees	1	HV15
Peach	1	HV37
Flowers	1	HV7
Locoto (chilli)	1	HV4
Papaya	1	HV40
Banana	1	HV16

Annex 1

FIT-22: Participants in four training courses

Curso 1: Toralapa, 24-28 octubre del 2005

NOMBRE LUGAR DE TRABAJO	TRABAJO Y EDUCACIÓN	PITA
Daniel Fernández QUILLACOLLO, COCHABAMBA	FLORABULBO Ing. Agr. Especialista en Ingeniería Ambiental	**Flores y bulbos**
Víctor Dionicio Huarachi MAIRANA	ANAPO Ing. Agr.	**Maní**
Omar Tames Herrera ORURO	ECO.VIDA Ing. Agr., UMSS, Cochabamba	**Cebolla**
María del Pilar Orozco Orosco TARIJA	AGRO XXI Lic. en Economía, Univ. Autónoma Juan Misael Saracho, Tarija	**Uva de mesa**
José Edgar Tangara LA PAZ	FODUR Técnico Superior en Agropecuaria, Univ. Mayor de San Andrés	**Café**
Gonzalo Sandoval Camacho COCHABAMBA	CEDES Ing. Agr., UMSS.	**Cebolla**
Johan Antezana Morato TARIJA	CEDES Ing. Agr., UMSS, Cochabamba	**Cebolla**
Modesto Felipe Totora MUN. COLOMI	PROINPA Ing. Agr., UMSS, Cochabamba	**Locoto**
Benigno López Calle MUNICIPIO ARBIETO, VALLE ALTO, COCHABAMBA	IICA Ing. Agr., UMSS, Cochabamba **(no terminó el curso)**	**Duraznero**

Curso 2: Montero, 31 octubre al 4 de noviembre del 2005

NOMBRE LUGAR DE TRABAJO	TRABAJO Y EDUCACIÓN	PITA
Amalia Flores Guzmán TRÓPICO DE COCHABAMBA	SHADAÍ CONSULTORA Y COMERCIALIZADORA AGRÍCOLA Ing. Agr.	**Arroz**
Amílcar Justiniano Barba MUNICIPIO SAN JAVIER, EL BENI	I&D SRL Ing. Agr.	**Arroz**
Armando Espinoza H. SANTA CRUZ	CITTCA Ing. Agr.	**Caña de azúcar** .
Celso Alexander Lora Apuri MUNICIPIO SAN JAVIER, EL BENI	I&D SRL Ing. Agr.	**Arroz**
Edgar Alanoca Murga CARANAVI, LA PAZ	Proyecto de Desarrollo, Ríos-Chijchipani Filial Visión Mundial en Bolivia. Ing. Agr., Univ. Mayor de San Andrés	**Café**
Ervin Abelardo Enríquez P. SANTA CRUZ	CITTCA Lic. en Agropecuaria	**Caña de azúcar**
Erwin Aguilera Vidal SANTA CRUZ	CIAT-ANAPO Ing. Agr., Univ. Autónoma Gabriel René Moreno, Santa Cruz	**Soya**
Marcelo Meave H. CHIMORÉ	FUNDACIÓN CETEFOR Ing. Agr., UMSS, Cochabamba.	**Plantaciones Forestal**
Richard Arteaga Rivero SAN RAMÓN, EL BENI	CIDDEBENI Ing. Agr., Univ. Autónoma del Beni	**Plátano**
Rosmery Zeballos SANTA CRUZ	ANAPO Ing. Agr.	**Soya**
Juan Antonio Alvarez Giácoman CHIQUITANIA NORTE Y SUR	AGROFORTALEZA SRL **(no terminó el curso)** Ing. Agr.	**Ganadería**

CITTCA = Centro de investigación y transferencia de tecnología de la caña de azúcar; CIDDEBENI = Centro para el desarrollo y documentación del Beni; I&D = Investigación para el Desarrollo

Curso 3: Mojotorillo, 7-11 noviembre 2005

NOMBRE: LUGAR DE TRABAJO	TRABAJO Y EDUCACIÓN	PITA
Digno Huanca Bautista POTOSÍ	CONSULTORA ANDINA Ing. Agr., Univ. Autónoma Tomás Frías	**Quinua**
José Luis Pozo Jiménez CARACOLLO, ORURO	EMPRESA DE SERVICIOS INTEGRALES WIÑAY Ing. Agr., Univ. Juan Misael Saracho	**Quinua**
Javier Rollano Murillo PUNA, POTOSÍ	ASOCIACIÓN DE PRODUCTORES DE HABA Ing. Agr., Univ. Autónoma Tomas Frías	**Haba**
Wilson Ramírez Magne SOROCACHI, ORURO	BRM – BUENA VIDA Ing. Agr., Univ. Mayor y Pontificia de San Francisco	**Haba**
María del Rosario Cohela TIQUINA, LA PAZ	ASOCIACIÓN SUMA ACHU Ing. Agr., UMSA	**Haba**
H. David Cáceres Mamani ORURO	EQUIPO DESARROLLO AGROPECUARIO SOCIAL Ing. Agr., Univ. Técnica de Oruro	**Haba**
Julio César Flores Ruiz CARACOLLO, ORURO	CENTRO DE ECOLOGÍA Y DESARROLLO RURAL AGROPEC. Ing. Agr., Univ. Técnica de Oruro	**Quinua**
Marco Antonio Escalante POTOSÍ	SEDPROSEC Ing. Agr., Colegio Nacional de Pichincha	**Haba**
Benedicto Chile Antonio POTOSÍ	SEDPROSEC Ing. Agr., Universidad Potosí	**Haba**
Antonio Zamora TARIJA	CONSULTORÍA PARA EL DESARROLLO SOSTENIBLE SRL Ing. Agr., Univ. Autónoma Juan Misael Caracho	**Haba**
Renán Quiroga Espinoza ISCAYACHI, TARIJA	ASOC. DE PRODUCTORES AGROPEC. ISCAYACHI Ing. Agr., Univ. Autónoma Juan Misael Saracho	**Ajo**
José Luis Marconi LA PAZ	FUNDACIÓN PROINPA Ing. Agr., UMSA	**Quinua**
Servando Lazarte Valverde COCHABAMBA	INSTITUCIÓN SUMAJ KAWSAY Ing. Agr., UMSS	**Papa**
Vicente González Aramayo CHIRACORO, POTOSÍ	EXTENDER Ing. Agr., UMSS, Cochabamba	**Papa**
César Cruz Betanzos TRAPICHE	CIDES SRL Técnico Agropecuario, Inst. Politéc. Tomás Katari	**Papa**
Luis **Evans Alba Barrientos** SUCRE	CONSULTORA DE SERVICIOS DE DESARROLLO RURAL Y MEDIO AMBIENTE (SEDEMA) Ing. Agr., Univ. Boliviana de Informática	**Haba**

Curso 4: Yacuiba, 14-17 noviembre 2005

NOMBRE: LUGAR DE TRABAJO	TRABAJO Y EDUCACIÓN	PITA
Yurvin Moruno YACUIBA	FUNDACIÓN CHACO, YACUIBA ING. AGR.	**Supervisor de PITAs**
Napoleón Castro Chacón MONTEAGUDO	PROINPA Ing. Agr., UNIV. SAN FRANCISCO XAVIER DE CHUQUISACA	**Maíz**
Agustín **Tarqui Hinojosa** CAMIRI, SANTA CRUZ	CONSULTORA DESCON ING. AGROPECUARIO	**Maíz**
Jacqueline Hurtado M. SANTA CRUZ	CIAT ING. AGR., UNIV. AUTÓNOMA GABRIEL RENE MORENO, SCZ	**1. Soya; 2. Achachairú**
Ivar Mario Reyes Vaca YACUIBA	Instituto Superior de Agronomía, UAJMS ING. AGR., UNIV. AUTÓNOMA, JUAN MISAEL SARACHO, TARIJA	**Supervisor de PITAs**
Rosmery Zeballos V. SANTA CRUZ	ANAPO ING. AGR., UNIV. AUTÓNOMA GABRIEL RENE MORENO, SCZ	**Comunicadora (no PITA)**
Macario Escobar Moreira SANTA CRUZ	ANAPO LIC. EN AGRONOMÍA, UNIV. AUTÓNOMA GABRIEL RENE MORENO, SCZ	**Maní**
Edgar Hinojosa MUYUPAMPA	FUNDACIÓN NORD SUD ING. AGR.	**Maíz**
Luis Antonio Barja S. MUYUPAMPA	FUNDACIÓN CHACO ING. AGR., UNIV. AUTÓNOMA GABRIEL RENE MORENO, SCZ; POST-GRADO UNIV. DE PELOTAS, RGS/BS	**Supervisor de PITAs**
Manuel Alex Moscoso Huayalla MUYUPAMPA	FUNDACIÓN NOR SUD LIC. EN INGENIERÍA AGR., UNIV. SAN FRANCISCO XAVIER DE CHUQUISACA	**Maní**
Antero Maráz SUCRE	ATICA ING. AGR.	**Durazno**
Claudio Salinas M. BERMEJO, TARIJA	FUNDACIÓN CHACO ING. AGR., UNIV. AUTÓNOMA, JUAN MISAEL SARACHO, TARIJA	**Supervisor de PITAs**
Leandra Mamani T. TARIJA	ASOCIACIÓN DE PRODUCTORES ECOLÓGICOS (APECO) ING. AGR., UNIV. AUTÓNOMA, JUAN MISAEL SARACHO, TARIJA	**Uva**
Alfredo Hidalgo BERMEJO, TARIJA	EMPRESA CIMAT LTDA. ING. AGR., UNIV. AUTÓNOMA, JUAN MISAEL SARACHO, TARIJA	**Papaya**
Máximo González BERMEJO, TARIJA	Información no recibida **(no pudo terminar el curso)**	**Maní**
Naval Illescas G. TARIJA	TRABAJANDO PARA EL DESARROLLO SOSTENIBLE **(no terminó el curso)** ING. AGR., UNIV. AUTÓNOMA, JUAN MISAEL SARACHO, TARIJA	**Maíz**

Annex 2

PITAs that participated in the course

Toralapa: PITAs en los Valles

PERSONA PITA	ZONA DE TRABAJO	CUANDO COMENZÓ Y BENEFICIARIOS	1. DEMANDAS DE AGRICULTORES 2. OFERTA TECNOLÓGICA
Víctor Dionisio Maní	Municipios de Marrana, Samaipata, Chirusillas, Pampa-grande, Comarapa, Saipina	Octubre 2005 125 beneficiarios en la primera fase. Ahora 400	1. Mercado seguro y buen precio de maní 2. Apoyo a la producción, cosecha, post-cosecha, mercadeo y fortalecimiento institucional
Benigno López Duraznero	Municipios de San Benito, Germán Jordán, Esteban Arce	Marzo 2004 220	1. Apoyo a la producción, mercado de durazno en el Valle Alto 2. Asistencia en manejo, control de plagas y mercadeo
José Tangara Café	Departamento La Paz y municipio Coroico y Caranavi	Enero a Julio del 2005	1. FECAFEB 2. Control de la broca de café con *Beauveria bassiana*
Gonzalo Sandoval Cebolla	Punata, Valle Alto	Febrero 2005 80 directos	1. Variedades de mayor rendimiento y manejo de plagas y enfermedades. Mayores precios por el producto 2. Semilla de mejor valor genético. Fertilizaciones apropiadas. Control de plagas y enfermedades. Labores de post-cosecha para darle mejor precio
María del Pilar Orozco Uva de mesa	Calamuchita, La Angostura, Mururayo, La Choza, San Isidro, Ancori Chicho, Valle Bajo del Municipio de Uriondo, Tarija	Noviembre 2005 450	1. Viveros para producir variedades de uva de mesa. Asistencia técnica para MIC y MIP. Formar cuadrillas especializadas en cosecha y embalaje 2. Poda, tratamientos de invierno, aplicación de yeso agrícola y de estimulantes de brotación. Uso de moto-fumigadora
Omar Tames Cebolla	Oruro	Abril 2004 240	1. Mayor asistencia técnica. Tienda de insumos. Apoyo en la venta 2. Asistencia técnica y fortalecimiento institucional. Transformación
Daniel Fernández Flores	Cochabamba, La Paz	Febrero 2005 12 familias	1. Introducir en el mercado nacional e internacional una flor excelente para flor cortada 2. Una especie probada en diferentes zonas agro-climáticas y con tecnología nueva
Johan Antezana Morato Cebolla	Tarija		
Modesto Felipe Locoto	Mun. Colomi, cantón Tablas monte		1. Elevar rendimientos y comercialización 2. Rozado, tumbado y picado en la preparación de las parcelas; uso de bio-fertilizantes; uso de bolsitas para plantines; MIP (uso de trampas amarillas, alternancia de productos

Montero: PITAs en el Trópico Húmedo

PERSONA Y PITA	ZONA DE TRABAJO	CUANDO COMENZÓ Y BENEFICIARIOS	1. DEMANDAS DE AGRICULTORES 2. OFERTA TECNOLÓGICA
Edgar Alanoca Murga CAFÉ	Caranavi, La Paz	Mayo 2005 126	1. Mejorar rendimiento del cultivo del café 2. Asistencia técnica con productor-a-productor
Erwin Aguilera Vidal SOYA	Norte integrado, zona este, o expansión, Santa Cruz	Marzo 2004 300	1. Temas nuevos, nuevas tecnologías de manejo de cultivo, plagas, enfermedades 2. Mejorar la rentabilidad y sostenibilidad de soya a través del manejo de enfermedades, plagas malezas, mercadeo. Grupos de mercadeo
Celso Alexander Lora Apuri ARROZ	Municipio San Javier, el Beni	Agosto 2004 350	1. Piscicultura, granja múltiples, caña, frijol 2. Manejo del cultivo, de suelo, de plagas, diversidad de siembra
Ervin Abelardo Enríquez CAÑA	Santa Cruz, zona integrada (Warnes, Montero, Saavedra, Mineros)	Agosto 2004 200 directos y 1245 indirectos	1. Variedades de caña de azúcar con mejores rendimientos, para diferentes suelos. Semilla de calidad 2. Variedades de mayor producción. Capacitación en suelos, plantación, control de malezas, plagas
Amalia Flores Guzmán ARROZ EN COCHABAMBA	Trópico de Cochabamba	En proceso	1. Variedades de arroz, más rendimiento 2. Variedades, densidades de suelo
Richard Arteaga Rivero PLÁTANO	San Ramón, El Beni	En proceso	1. Nuevas técnicas de cultivo, más rendimiento 2. Tecnologías nuevas
Armando Espinoza CAÑA	Santa Cruz (Norte Integrado)	En proceso 400	1. Capacitación en manejo de caña 2. Manejo de suelos, MIP, malezas
Amílcar Justiniano Barba ARROZ	Municipio San Javier, el Beni	Agosto 2004 300 familias y 9 comunidades	1. Proyectos de caña, piscicultura, lecheros, hortícolas 2. Manejo de suelos, plagas y enfermedades, cultivo de arroz, cosecha y post-cosechar
Marcelo Meave PLANTACIONES FORESTALES		En proceso	
Rosmery Zeballos SOYA			
Juan Antonio Alvarez Giácoman Ganadería		¿Diciembre 2005 250	1. Mejoramiento del campo ferial y mercadeo de ganado a través de centros de remate 2. Mejoramiento genético. Implementar centros de remate

Mojotorillo: PITAs en el Altiplano

PERSONA PITA	ZONA DE TRABAJO	CUANDO COMENZÓ Y BENEFICIARIOS	1. DEMANDAS DE AGRICULTORES 2. OFERTA TECNOLÓGICA
Digno Huanca Bautista QUINUA	Comunidad Kepallo, Linares, Potosí	Noviembre 2005 121	1. Producción de quinua comercial 2. Conservación de suelo. MIP. Cosecha y post-cosecha.
José Luis Poro Jiménez QUINUA	Caracollo, Oruro	Noviembre 2004 150 en 6 comunidades	1. Mejorar la calidad del grano 2. Mejorar el sistema de siembra tradicional. Control de plagas, MIP, cosecha y post-cosecha.
Javier Rollano Murillo HABA	Provincia Linares, Potosí	Noviembre 2005 506 en 20 comunidades	1. Mejorar la producción de haba, especialmente los calibres más grandes que tienen mercado internacional 2. MIP. Apoyo técnico en el mercadeo de haba. Sistemas sostenibles de mercadeo
Wilson Ramírez Magne HABA	Sorocachi, Oruro	Marzo 2005 75	1. Más rendimiento. Conocimiento sobre plagas y enfermedades 2. Manejo integrado de plagas
María del Rosario Cebula HABA	Tiquina, La Paz	Agosto 2004 700	1. Producción, mercado, vender haba como semilla certificada, a buen precio 2. Manejo de cultivo, mejoramiento de producción, control de plagas
H. David Cáceres Mamani HABA	Oruro, municipio Caracollo, Provincia Abaroa-Dalence	Septiembre 2004 240	1. Incrementos de rendimiento del haba. Conservar el mercado 2. Manejo y clasificación de semillas y otros
Julio César Flores Ruiz QUINUA	Caracollo, Oruro	Noviembre 2004 450	1. Mejor rendimiento de quinua. Conseguir mercado. Fortalecer organización de productores. 2. Manejo ecológico de plagas y enfermedades. Fertilización orgánica. mecanización de la pos-cosecha
Marco Antonio Escalante F. Fernández HABA	Yocalla, Potosí	Septiembre 2004 150	1. Incrementar rendimientos. Mercados a buen precio. 2. Tratamiento de semilla. Sistemas de siembra. Labores culturales. Cosecha, post-cosecha, mercadeo.
Benedicto Chile Antonio HABA	Municipio Yocalla	Septiembre 2004 150	1. 2. Clasificado en zarandas
Antonio Zamora HABA	Iscayachi, Tarija	Octubre 2004 200	1. Semilla de buena calidad para exportar grano. Ser productores de semilla. 2. Trilladoras, seleccionadoras, molinos
Ramón Quiroga Espinoza AJO	Iscayachi, Tarija	Junio 2004 108	1. Manejo de ajo. Control de nemátodos y Sclerotium) 2. Manejo del ajo (preparación de suelos, uso de semillas sanas, prevención de problemas fito-sanitarios, manejo de labores culturales)
José Luis Marconi QUINUA	Viacha, La Paz	Septiembre 2003 140	1. Mejorar rendimiento de quinua. Producir semilla de alta calidad. Mejorar la calidad del grano comercial. Conocer nuevos mercados. 2. Variedades mejoradas de quinua. Preparación oportuna de suelo. Control de plagas y enfermedades, fertilización. Mejoras en cosecha y post-cosecha.
Servando Lazarte Valverde PAPA	K'aspi-kancha, Tiraque, Cochabamba	Noviembre 2004 200	1. Reducir ataque de plagas y enfermedades. Más producción. Vender a precios estables. 2. Semillas certificadas

PERSONA PITA	ZONA DE TRABAJO	CUANDO COMENZÓ Y BENEFICIARIOS	1. DEMANDAS DE AGRICULTORES 2. OFERTA TECNOLÓGICA
Vicente González Aramayo PAPA	Ayllu Andamarca, Potosí	Diciembre 2005 160	1. Mejorar la producción, los ingresos. Conocer tecnología moderna, tener mercado. 2. Semilla de calidad, capacitación, comercialización
César Cruz PAPA	Betanzos	Octubre 2004 120	1. Más inversión 2. Innovación en la calidad de semilla
Luis Evans Alba Barrientos HABA	Cinti, Chuquisaca	Diciembre 2005 200	1. Mejorar su sistema de producción tradicional. Control de plagas y enfermedades, capacitación en post-cosecha. Búsqueda de mercados. 2. Nuevas variedades. Centro de selección y acopio

Yacuiba: PITAs en el Chaco

PERSONA PITA	ZONA DE TRABAJO	CUANDO COMENZÓ Y BENEFICIARIOS	1. DEMANDAS DE AGRICULTORES 2. OFERTA TECNOLÓGICA
Leandra Mamani Uva ecológica	Valle de Tarija	Nov 2003 100	1. Mercado para productos ecológicos en Bolivia. Establecer industrias. Hacer derivados de frutas, hortalizas 2. Manejo ecológico de suelos, manejo ecológico de plagas y enfermedades, capacitación e intercambio de experiencias, manejo de poscosecha y comercialización
Jacqueline Hurtado Soya; Achachairú	Santa Cruz	2004	1. Soya: Manejo sostenible del cultivo y mejor rentabilidad. Achachairú: mejorar su producción de fruto 2. Aprendizajes de nuevas tecnologías
Agustín Tarqui Hinojosa Transformación del maíz	Caraparí	En evaluación 176	1. Cadenas agro-productivas 2. Transferencia de tecnología
Napoleón Castro Chacón Maíces para el Chaco Chuquisaqueño	Muyupampa, Monteagudo y Huacareta, Chuquisaca	Ago 2003 150	1. Mejoramiento de semilla y productividad 2. Transferencia de tecnología
Antero Maráz Atica	Sucre		
Manuel Alex Moscoso Huaylla Semilla de maní	Iguembe	Nov 2004 312	1. Producir semilla artesanal para mejorar sus ingresos 2. Variedades y maquinaria
Yurvin Moruno Abejas			
Rosmery Zeballos Maní			
Naval Illescas Semilla de maíz	Segunda sección Gran Chaco	Oct 2004 176	1. Mejorar las técnicas de producción de semilla. Usar más semilla certificada 2. Tecnologías de producción: abonos verdes, rotación de cultivos, MIP. Post-cosecha: acondicionamiento de semilla, almacenamiento
Edgar Hinojosa Variedades de maíz	Muyupampa	Nov 2004 584	1. -- 2. Talleres teórico prácticos y ECAs
Macario Escobar Moreira Maní	Gutiérrez	Julio 2005 240	1. Mejorar el manejo del cultivo de maní con la introducción de nuevas tecnologías 2. Manejo agronómico con productos químicos. Introducción de equipos a tracción animal. Abaratar los costos de cosecha y pos-cosecha con la introducción de maquinaria nueva
Claudio Salinas Supervisor de pitas	Bermejo	Marzo 2004 500 (4 pitas)	1. Mejorar producción, conscientización, transformación 2. Control de plagas y enfermedades
Ivar Mario Reyes Vaca Maní	Caiz, Barrial, Tierras Nuevas	2004 60	1. Nuevas variedades 2. Control de plagas

Annex 3

List of presentations, classroom and field exercises and handouts for the course *Helping PITAs to offer technology*

Presentaciones en sombrilla no se hicieron como PowerPoints.

Presentaciones

CÓDIGO	NOMBRE DEL ARCHIVO	OBSERVACIONES
P1	Introducción a oferta tecnológica	Qué esperar del curso.
P2	Introducción a la Clínica Global de Plantas	
P3	Fuentes de información	
P4	Muñeco de nieve	Cómo bosquejar un mensaje de extensión
P5	Más que un clic	Fotografía
P6	Cómo usar información en el Internet	Uso de Google y pistas generales para búsquedas
P7	Redacción de hojas volantes	
P8	¿Dónde está Pedro?	Buscar información relacionada a hojas volantes y PITAs
P9	Cómo validar material escrito	Instrucciones para la revisión por árbitros agricultores
P10	Etnopastelería	Análisis de los resultados del ejercicio de aula 'etnopastelería'. Introducción a la etnociencia y conocimiento local.
P11	Ir al Público una introducción	Un novedoso método de extensión
P12	Investigación práctica para PITAs	Experiencias de investigación ágil y participativa, desarrollando tecnología con el Proyecto INNOVA
Px	Diseño y diagramación (hojas volantes)	Demostración en vivo mostrando cómo crear hojas volantes
Px	Uso del Crop Protection Compendium	Demostración en vivo
Px	*Resultados del ejercicio F1– el tomar fotos*	Uno desarrollado específicamente en cada curso
Px	*Fotos de despedida: eventos de la semana*	Uno desarrollado específicamente en cada curso

Ejercicios de aula

Ejercicios en sombrilla no tienen archivos de computadora – se hicieron verbalmente, usualmente con individuos.

CÓDIGO	TÍTULO O NOMBRE DEL ARCHIVO	OBSERVACIONES
C1	Perfil personal Bolivia	
C2	Perfil de PITA	
C3	Actuales fuentes de información para PITAs	
C4	Tópicos tecnológicos de relevancia para PITAs	
C5	PITAs tecnologías, demanda y oferta de tecnología	Presentaciones por cursillistas. Mientras uno escribe los demás escriben comentarios en tarjetas
C6	Bosquejar un mensaje	Presentaciones por cursillistas, con comentarios por sus compañeros
C7	Redacción de hojas volantes	
Cx	Edición del texto	Sesión individualizada del autor con el editor
Cx	Diagramación y diseño de la hoja volante	Sesión individualizada del autor con el editor
C8	ABC: mi primer diagnóstico	Ejercicio flotante
Cx	*Revisión en grupo*	Todo el grupo revisa HVs en la pantalla
C9	Etnopastelería	Ejercicio flotante: F3 es un ejercicio relacionado, pero de campo.
C10	Evaluación del curso	

Ejercicios de campo

CÓDIGO	NOMBRE DEL ARCHIVO	OBSERVACIONES
F1	Tomar fotos	Se probó primero la segunda semana, seguida por presentación
F2	Validación	Revisión por árbitros agricultores
F3	Etnociencia	

Hojas de memoria (*Handouts*)

CÓDIGO	NOMBRE DEL ARCHIVO	OBSERVACIONES
Hx	Objetivos del curso	
H1	Fuentes de información	Dónde conseguir información
H2	Redacción de hojas volantes	Cómo escribir hojas volantes para el público
H3	Internet	Cómo buscar información en Google
H4	Producir HVs	Diseño y diagramación

Annex 4

Course evaluation

Les pedimos a los cursillistas que nos escribieran una carta, explicando qué les gustó y qué no les gustó. No damos todos los resultados, pero de 15 personas que respondieron a la evaluación en el Altiplano, los 15 dijeron que les gustó mucho el curso, por lo que aprendieron. Todos mencionaron varias cosas que aprendieron (ver cuadro). Dijeron que aprendieron a escribir hojas volantes, de una manera sencilla, con fotos, y que les gustó el contacto con sus compañeros. Los técnicos de los PITAs casi no se conocían entre ellos, y el curso fue una oportunidad de compartir experiencias.

Resumen, comentarios del Altiplano

Comentario	***Número de veces mencionado (de 15 respuestas)***
Fue un excelente curso, aprendí mucho	15
Aprendí a hacer hojas volantes	10
Redacción sencilla	6
Aprendí sobre: Fotografías	4
Información sobre plagas y enfermedades	3
Nuevos métodos de extensión	6
El trabajo de campo	1
Etnociencia	1
El muñeco de nieve para organizar ideas	1
Ir al público	1
Compañeros: el contacto con otra gente que trabaja en PITAs, aprender de ellos	5

NB: las respuestas habrían sido más altas si hiciéramos preguntas cerradas ('¿Aprendió a hacer hojas volantes?) Por ser respuestas abiertas ('¿Qué aprendió en el curso que le servirá para su PITA?') son bastantes altas

Algunos comentarios reales del Chaco:

Me quedo muy satisfecho por los conocimientos adquiridos en este curso. La verdad … a partir del segundo día, comencé a encontrarle el gusto. Profundicé mis conocimientos en identificar una demanda tecnológica y elaborar una propuesta tecnológica… Lo más valioso consistió en refrescar y ampliar mi conocimiento en el diseño y elaboración de una hoja volante.

Claudio Salinas

Espero que este curso no sea el primero y el último porque necesitamos más capacitación a este nivel

Napoleón Castro

La actualización de las hojas volantes, la forma de presentación y su estructura para poder redactar, muy buena. La enseñanza de la toma de fotografías, el intercambio de experiencias con los participantes. La comunicación entre ustedes y los participantes. Lo que debería mejorar es salir al campo para identificar plagas y enfermedades en los distintos cultivos.

Alfredo Hidalgo Choque

Annex 5

After all these years
A second outing for Going Public in Tiraque, Bolivia

Eric Boa

I remember the event with a vividness and excitement that is still fresh four years later . In 2001 a series of fortuitous events led to the first Going Public (GP) event in Tiraque. We had a small project that allowed us to be creative; Juan Almanza, an experienced técnico from the PROINPA station at Toralapa who was game for something new; and a weekly fair in Tiraque, a small town bursting with activity every Friday and hundreds of peoples milling around.

First ever GP event: Tiraque, Bolivia

AROUND 100 PEOPLE watched Juan Almanza of PROINPA repeat a simple test for finding potato cyst nematodes in soil. He showed other nematodes with the microscope. The bean roots showed that nitrogen fixing nodules and nematode cysts were different.

For three hours Juan cycled through five minute demonstrations in the back of a pick-up truck, explaining the difference between bean root nodules and nematode galls on potato. There was banter, questions, answers and the start of a new extension method that we called Going Public.

In 2004 and 2005 I took part in two GP exercises, one on banana bacterial wilt in Uganda and the other on napier grass stunt in Kenya. Each one took place over four days and attracted around 800 people using local extensionists and back-up from the Global Plant Clinic.

Banana bacterial wilt in Uganda

WE STOPPED AT a small banana depot to describe the symptoms and what to do about the disease. Jeminah, chief agricultural officer for Bushenyi, answers questions. Okaasai from the Ministry of Agriculture holds up a male bud, the part that must be removed quickly to reduce disease spread. Paula Nash of the Global Plant Clinic uses photos to explain symptoms.

One important difference between the two campaigns was that peoples' comments and questions were carefully noted in Kenya but not in Uganda. Margaret Mulaa of KARI Kitale recorded what people said after the short GP message, later summarised in a short report I wrote (see below for list of publications).

GP goes two-ways. Those who give it also receive – unsolicited questions and information that reveal new things about farmers. I'll give two examples from Kenya and Uganda. Farmers repeatedly asked if cattle could eat the infected napier grass and some wanted to know if the disease could be passed on in excreta. The answers were 'yes' and 'no'. In Uganda, many worried that removing the male bud to stop insects passing on the disease to banana would affect the potency of beer brewed the fruit. We tried to reassure them otherwise.

Napier Grass Stunt in West Kenya

YOU DON'T HAVE to Go Public in a market. Margaret Mulaa talks to people outside a district agriculture office. There are many other places where people hang around. GP provides light relief from the tedium of waiting for paperwork or for a bus. Although we didn't have any samples here we did have a photosheet showing key symptoms.

The variety of people who listen to GP events is a valuable source of new information, but you have to work to get this. Margaret has a PhD and much experience writing reports and papers. She knows the value of information *and* she's familiar with taking notes. All other people who've helped to hold GP events have been technical staff, mostly from extension or similar areas. Many of them are experienced in the field and at talking to farmers, but less adept at writing.

We (Jeffery Bentley and I) saw the same pattern as we took eight técnicos back to Tiraque fair on the 28 October 2005. This time it was onions and not potatoes, thrips and not cyst nematodes. Gonzalo Sandoval was the star of the event, jumping straight in with his fluent description in Quechua of damage caused by thrips and what to do about them. The other six técnicos stood around. One started to take notes this didn't last for long, as onlookers demanded attention and wanted to know more.

Thrips on onion, Tiraque, Bolivia

GONZALO JUMPS RIGHT in. Pilar holds sign. Someone looks at the photos while another person examines the damaged onion. José and Víctor at the top, two técnicos from our course, cautiously view what's going on. As many women watch as men.

Let's look a little more carefully at the 'eight técnicos'. We'd just spent four days with them helping to produce, in the form of fact sheets, technologies that were directly intended for farmers. Three

of them, including Gonzalo, worked with onions, but the others dealt with flowers, coffee, groundnuts, grapes and chilli. Two held up a big sheet of paper explaining the impromptu table with onions, photos and chemical bottles but the other técnicos stood around not doing much at first. I put this down to nervousness about standing in the middle of a market and hesitancy about their knowledge of onions.

It took some time for the whole group to become involved, but first one and then another started chatting to onlookers. Gonzalo was always occupied, alert to any passing listeners and quickly explaining to them why he might have something of interest. Still, the only person taking notes was Jeff Bentley, the anthropologist (see Annex 6). My role was partly to photograph the event and also to get all of the técnicos doing something. I avoided some of my more outlandish ploys for attracting attention since I've come to see that these serve little purpose. Those who Go Public need to work out their own way of delivering the message though a little cajoling and gentle encouragement to try something new is also needed.

Jeff studiously took notes throughout Gonzalo's efforts (an hour and a half at the same spot), and asked him at the end about what people said. I took Daniel, Víctor and Modesto to another place after 45 minutes and encouraged them to have a go as a separate group. We didn't have a table but we did have samples and photographs. I held up the onions high above my head and with plenty of people observing us and milling around we eventually got a couple to come and see what was happening. Two became four became eight and then the three técnicos were away on their own. The previously reticent Víctor (a groundnut specialist) suddenly became comfortable talking to farmers about onions. Modesto (a chilli expert) relaxed and spoke in Quechua about thrips with ease. Daniel (topic: flowers) used the photosheet to point out thrips damage and to recommend what to about it.

You don't have to be an expert

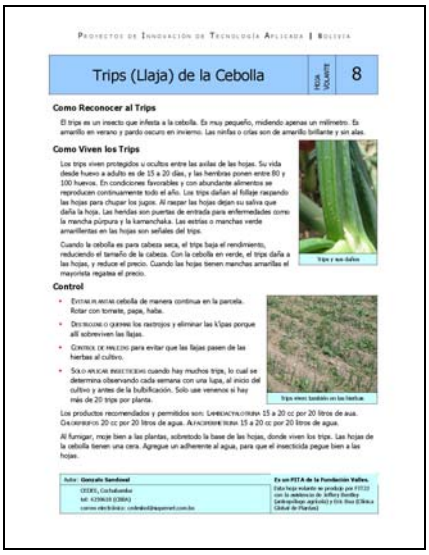
VICTOR WORKS WITH GROUNDNUTS, yet having watched Gonzalo, and with some gentle encouragement, here he is chatting about thrips on onions. You do not have to be an onion expert to have a meaningful, three-minute talk about a new crop.

I slowly withdrew once the Going Public found its rhythm. After 15 minutes around 25 people stopped and listened. The group then went off to visit another place in the market. I left them to it and returned to the main spot with Gonzalo. He was still getting listeners though they were tailing off as the flow of people slowed down towards mid-day.

It is time to try Going Public again in Bolivia. In Uganda, GP is frequently mentioned. The association with two major diseases has undoubtedly helped. There's been no equivalent campaign in Bolivia, where GP has tackled relatively minor topics (potato nematodes and now thrips in onion). Innovations in extension take time to settle down and become more widely known. A flow of published material backed up by good photographs will spread the word. Training courses also help. Even so, we hope that it takes less than four years to Go Public again in Bolivia.

A few lessons learnt

- Don't interfere too much (as tutors) in how the event is run but do encourage people to take part.
- Emphasise the importance of taking notes but don't be too insistent. This can make people nervous again and less likely to do a GP event themselves once they're back in the normal routine of work.
- Use samples and photographs to explain your message.
- GP is active and participatory, not a lecture.


Trips (Llaja) de la Cebolla 8

Como Reconocer al Trips

Como Viven los Trips

Control

Always have something to hand out

THE GP IN TIRAQUE used this fact sheet written during the course.

Further reading

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Annex 6

Solving the Mystery of *Kamanchaka*

Jeff Bentley

In Cochabamba in the rainy season the onions rot from the tips of the leaves, and then they turn black. Farmers call it *kamanchaka*. It would be too much to expect people to know that fungi like *Alternaria*, *Peronospora* and *Phytophthora* could be the cause of the disease. And they do not know it. But I was a little surprised that they did not know the thrips insects (*Thrips* sp.) which open the door for the diseases. But to be fair to the farmers, the thrips are small, just about a millimetre long, and they hide in the base of the leaves. They are difficult to see.

But if few have seen thrips, the farmers have seen its damage: yellow marks on the leaves, which lower the price of onions. People say that the marks are the start of the *kamanchaka*, and they spray fungicides, with no results. The *kamanchaka* is a mystery. People do not know why their onions have it, or how to cure them.

Going Public

It was Friday, 28 October 2005, and we brought a small table to the fair at Tiraque, a town in Cochabamba, and we wanted to solve the mystery of the *kamanchaka*, using the Going Public method (Bentley et al. 2003). Thousands of farmers had come to Tiraque for the Friday fair, to sell potatoes and onions, and to do their shopping. There were so many people that we almost had to elbow our way in. There were ten of us between the instructors and the 'students', but they were not just any students. They were agronomists with years of experience and they had come to try the extension method we call Going Public: short messages given in crowded public places.

Agronomist Gonzalo Sandoval hands out fact sheets to onion growers, to help them remember his message. He writes down the names of the fungicides

On the table we laid out recently pulled up onion plants, with thrips. We put out photos and some empty chemical bottles. People approached us and Gonzalo Sandoval, an agronomist who works with onion, picked up a plant and opened the leaves. He explained in Quechua "See these little dots, these *llajas* (small insects) scrape and scrape the leaf to eat it. See how the leaf is green at the base, but above the insects it is spotted with yellow. Those yellow marks are the damage or wounds of the *llaja*. In the dry season nothing happens, but when the rains start the *kamanchaka* that is in the soil enters the wounds. Where the *llaja* eats, there is an open door for *kamanchaka*."

"So you must open the onion leaves and see if there is *llaja*. Let's count. If there are 25 in the plant, you have to spray with an insecticide, preferably one which is not very toxic. We put two spoonfuls per sprayer, and two spoonfuls of Gomex, because it is sticky (*mach'a*). The onion leaf is slippery (*llust'a*) and if we put on *mach'a*, then the poison sticks to it and the plant sucks it in and none is lost. This can protect a plant for two or three weeks. Then when the rains start one must spray a

preventative fungicide for the disease. And if the plant gets diseased in spite of that, you have to use a curative one."

The other agronomists also answered questions, and went to another part of the fair to show *llajas* and explain that the *kamanchaka* in the rainy season was really caused by a *llaja* hidden in the onion leaves in the dry season. The agronomists tried brought fact sheets they had written the day before. The farmers asked for the names of the fungicides. And the farmers went away with a satisfied look. In an hour the mystery of the *kamanchaka* was solved for about 85 people.

Agronomist Omar Tames shows thrips in onions to a member of the public.

Discussion

Going Public gives a message quickly.

A good message picks up on local knowledge, with concepts like *llaja* and *kamanchaka*.

There are two kinds of demand: explicit (which people can articulate) and implicit (which is real, even though farmers do not express it). *Kamanchaka* is the **explicit demand** ("How can we cure *kamanchaka*?") No one asks for thrips control, because they do not recognize it, but it is an **implicit demand**.

A good popular-technical message has three parts, like a snowman:

Diagnosis: Opening onions to see the thrips (*llaja*)

Basic information: The thrips damage lets the *kamanchaka* in. This part takes an implicit demand and makes it explicit. The following technical solution would be counter-intuitive if not for this explanation.

Technical solution: Count thrips. If there are many, control them in the dry season. Use preventative fungicides in the rainy season.

An extension message does not have to be long and complicated. It only has to be thoughtful: based on demand, local knowledge and presented in a logical way.

Annex 7

Finding the Missing Words

Jeff Bentley

We piled into a pickup with and went to the crowded streets near the main market in Montero, in lowland Bolivia. We were with a dozen 'students,' mature agronomists who work with farmers all the time, and we were teaching them to write clearly, and then to see if people with a few years of primary education can read and understand the message. It was two in the afternoon, bright and hot. We split up into small groups, one of our agronomists, Marcelo Meave, walked over to a man sitting in the shade of his banana stall, and asked him to read a fact sheet. When the man hemmed and hawed, Marcelo realized that the man couldn't read, and offered to read the paper to him. The man smiled and nodded. After reading the paper out-loud, about planting forest trees in the Chapare, the man said "wouldn't it be nice if I had enough land to plant trees." Fair enough, the forest owners in the Chapare have more land than the fruit sellers in Montero, but the man understood the message, except that he didn't know what CETTFOR stood for. Marcelo realized that he had to add a line to explain the name of his institution.

Amalia Flores learned that people couldn't understand her simple table explaining different rice yields of new varieties. She removed the table and rewrote the information as prose. Almost everyone else caught a word or two, or four. The people in the market didn't understand 'a well assisted crop' and we changed it to 'well cared for'. Some people didn't understand the standard Spanish word for 'wasp' so we added a local word to help explain it. Sometimes we learned that whole phrases were confusing and later we re-wrote them.

Armando Espinoza went to a house he knew. It was on a busy highway, and it had an auto supply store in a front room. We rang the doorbell and a stout man came out, wearing only football shorts and sandals, carrying a TV remote control in his hands. He said he was watching the news. He seemed anxious to get back to it. But he was a sugar-cane grower, and a friend of Armando's father and Armando asked him to please read the fact sheet on fertilizing sugar cane. After reading it, the friend said "This is for people who have over 100 hectares. For them it is good." He explained that the smaller sugar cane growers often lacked tractors to spread organic fertilizer. "I plough under my sugar cane every five years, no matter what. Then I grow soy beans for two seasons. I fertilize the soy beans and after the harvest I plough all the crop residues into the soil. That's how I fertilize my land."

The best way to tell if your fact sheet is clearly written is to ask a member of your audience to read it and tell you what it says.

It may be uncomfortable for an agronomist to accept it when farmers explain the limits of new technologies: this is for larger farmers, for example. Extensionists and agricultural scientists often ask us how they can get farmers to accept their new technologies.

"Extend the technologies farmers want to adopt", we say.

"But we tested this technology, and we know works," the agronomists usually answer. Innovations may work—raise yield or reduce pest damage—but still not fit the farmers' demands, which can be quite subtle, and only worked out after testing prototype technologies in the communities.

After Armando's father's friend finished reading the fact sheet, Armando asked him if there was anything he did not understand.

"I understand it all," the friend said. Armando insisted and the friend added "It is very clear." And that is what we were looking for, a clear message.

Annex 8

Writing in tongues

Jeff Bentley

A family was hoeing a small field of corn and trying to ignore me. I said "buenos días." The man mumbled a reply, and no with further encouragement I climbed over the rock wall and told him that I was giving a course, and we wanted people to read a fact sheet we had written. Juan Muñoz was reluctant to read. He was still half bent over, ready to go back to his weeding. I said please, it would just take a minute and it might interest him. He slowly stood up straight. He took the fact sheet on "rustic potato silos" and rested one hand on his hoe handle. He read without looking up once.

He said the silo was a good idea, although in Mojotorillo they only grew a few potatoes to eat at home. He mentioned several details that suggested he understood the fact sheet, like one had to remove the rotten potatoes before storing, and spray the silo for worms.

Did he understand all the words? He said yes. I said someone else had stumbled over the Quechua words near the beginning. He gave me a sharp look and told me to read them to him, which I did: *phina* and *q'ayru*. "Yes, we understand those words," he said. It seemed that he didn't recognize them until I read them out loud. Most people who speak Quechua are so unused to seeing their own language written that they hardly recognize it in print.

A few minutes later I caught up with two of my students, Benedicto Chile and Marco Antonio Escalante, standing on the bridge with a farmer named don Felipe. Benedicto was happily translating one of the fact sheets out loud, line by line, into Quechua. Don Felipe told us he understood the fact sheet: dipping broad bean seed into boiling water for a minute would clean it of fungus, and help keep the crop disease free.

We thanked don Felipe, and walked out of the village. There is a common misperception in Bolivia that Quechua cannot be written. Extension programs speak to people in Quechua, but write for them in Spanish. Everyone needs literature in their own language. So I asked Benedicto to translate the fact sheet for me, just as he had for don Felipe. We sat on a stone and he spoke the text in Quechua while I wrote it down. That night I typed it and Benedicto and Servando Lazarte corrected it for me, and we had the first fact sheet in Quechua.

Benedicto translates the fact sheet into Quechua for don Felipe

We earn people's attention by writing in their own language. Even when we write in Spanish, our choice of clear words, their words, shows that we care enough about our audience to write just for them.

Annex 9

Etnopastelería, introducción al conocimiento local

A casi todo el mundo le gustan los pasteles, así que decidimos usar masitas de Bolivia como un ejemplo para presentar a la 'etnociencia'. Hicimos el ejercicio en los cuatro cursos. Nos interesa el conocimiento local por varias razones. Si no entendemos las palabras de la gente, y su significado, nos cuesta entender la demanda, y ofertarles tecnología. Los significados de estos nombres frecuentemente no corresponden exactamente con los conceptos científicos, pero aun así tienen significados, los cuales se puede definir.

Método

Dividimos 16 personas en cinco grupos y a cada grupo les dimos siete u ocho pasteles. Pedimos que nos contaran los nombres de cada clase. Era fácil y divertido hacerlo. La pastelería es un tópico no científico, que pone nervioso a nadie. Y a cambio de, digamos, el conocimiento local de enfermedades de plantas, los agrónomos en nuestro curso no tenían 'ruido' de su capacitación técnica. Su educación formal no interfirió con su conocimiento local de pastelería. (Ver cuadro).

Información por Gonzalo Sandoval, María del Pilar Orozco, Víctor Dionisio y Modesto Felipe

Recopilada por Jeffery Bentley

OBJETO DEL MUNDO REAL (en este caso un pastel)	NOMBRE (o etiqueta) DEFINICIÓN (o concepto)
	**Rosquete** Es grande y blanco, hecho de harina de trigo con azúcar. Es rebozado con crema de clara de huevo con azúcar
	**Rosquete de maíz** Es tamaño mediano, hecho de harina de maíz y trigo. Es rebozado con crema de clara de huevo con azúcar, pero es un rebozado parcial, solo salpicado y por eso el color es café con blanco
	**Rosquete de canela** Es pequeño, color café, hecho de harina de trigo con azúcar y canela.
	**Empanada roja picante** Tiene la forma de media luna. Es color naranja-rojizo, por su colorante de ají. Es hecho de harina de trigo con un relleno de queso, cebolla, locoto.
	**Fruta seca** No sabemos porque se llama así, pero siempre sale en esta época aquí en el Valle Alto. Tiene la forma de T irregular. Es color amarillo. Hecho de harina de trigo con azúcar. El color amarillo viene de palillo o cúrcuma.