



# Soil Health news

Project Manager George Oduor:

June 2012

## The ASHC Update

**We are actively seeking innovative communications approaches to test their suitability for ISFM messages, including use of mobile phones**

This newsletter comes to you after a very successful meeting of the technical advisory group (TAG) meeting in Nairobi, Kenya on 3-4 May. The TAG members are leading experts in a range of aspects of ISFM and they have helped to shape the priorities in our work plan for the coming year.

At the TAG meeting we launched our two new films on the principles of ISFM. These advocacy films have two different sets of messages. The short film is a five-minute introduction for a policy audience – designed for use at conferences and policy workshops. The longer film covers a greater level of technical detail. In parallel with the film has been a major work programme to develop a handbook on the principles of ISFM.

The films are already on the ASHC website and the handbook will be available to download in the next couple of months. Anyone interested in more details on this should follow us on Twitter: [ashc\\_2011](#).

A draft of the first of a series of nutrient deficiency technical field guides is completed. This, when finalized, should revolutionize the way that extension workers identify soil deficiencies and help cereal farmers address the underlying issues to make their soil productive once more. More guides are being developed looking at legumes, root crops and cash crops. Production can soon start on the first of these robust laminated field guides – designed for use in the field for many years to come.

Over the coming months the ASHC will be working with a range of partners to get in place a series of materials for use by extensionists and farmers. I am delighted that the TAG has agreed to act as the quality control for these information materials. We are in the process of reviewing the way that our training is undertaken in our priority countries.

Within the ASHC we have an innovation fund for exploring different approaches and media for getting out our message. The second series of television make-over programmes “Shamba Shape Up”, is now being

We are now writing up our findings

screened in Kenya in both English and Swahili. The programme starts with a diagnostic approach looking at what a small farm needs – experts then bring in a series of innovations. ASHC sponsored some programmes with soil health messages.

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as a case study. This is one of the formats we will be piloting to see what creates 'messages that stick'. We are actively seeking other innovative communications approaches to test their suitability for ISFM messages, including use of mobile phones.

The website is being overhauled in an attempt to show how incremental progress is being made. We have also been working on the partner

pages to show the extent of the reach of the African Soil Health Consortium. The next step is the introduction of more blogs and interactive features. However, the most significant job of the website will be to host a database of exemplar extension and policy materials. These materials will be appearing on the website shortly.



**Microdosing utilizes a soda bottle lid as a handy measure of the quantity of fertilizer needed**

## Briefly

**ASHC communication strategy goes on-line**

ASHC's communication strategy and plan has now gone online. The strategy attempts to show the innovative ways used by the consortium to develop practical communication materials on ISFM. Copies of the monitoring and evaluation strategy and the gender strategy are also available in the ASHC website: [www.cabi.org/ashc](http://www.cabi.org/ashc)

**The newsletter is going digital**

The ASHC newsletter is going to be produced in an electronic format in future. To be added to our mailing list – either go to the ASHC website [www.cabi.org/ashc/newslettersignup](http://www.cabi.org/ashc/newslettersignup) or email [a.mchana@cabi.org](mailto:a.mchana@cabi.org) subject: **Newsletter**.

## Where ASHC is working

	Western Africa	Southern Africa	East Africa
<b>ASHC priority countries</b>	Ghana Mali	Mozambique	Tanzania
<b>Other countries with some activity</b>	Burkina Faso Niger Nigeria Senegal	Malawi Zambia	Rwanda DRC Kenya Uganda

A list of activities and links to each of the countries above can be found on the ASHC website: [www.cabi.org/ashc](http://www.cabi.org/ashc)



**Catholic Relief Service project, Kamonyi, Rwanda**



## Principles of ISFM set out in handbook and film

ASHC launches two new resources to set out the principles of integrated soil fertility management (ISFM) for training and briefing policy makers.

The technical advisory group (TAG) of the ASHC identified the need for materials that set out the principles of integrated soil fertility management. These have now been commissioned and are available from the ASHC website – materials section. These first materials consist of films and a handbook.

### The handbook

Production of the handbook on ISFM has been coordinated by the ASHC’s technical editor, Thomas Fairhurst.

The guide has five major sections:

- Soil and crop production – an introduction
- The need for ISFM
- Principles of ISFM
- Soil fertility management practices for ISFM
- ISFM implementation

The 138-page guide is designed as reference point on ISFM. Amongst a wealth of detailed information, the guide sets out the 4 R’s of effective fertilizer use:

- Right fertilizer product
- Right rate
- Right time
- Right placement

‘Right’ for fertilizer use in the sub-Saharan Africa? The handbook proposes the need to “consider the ‘opportunity cost’ of fertilizer and make sure that scarce fertilizer resources are delivered to the part of the cropping system that delivers the maximum economic benefit to the farmer.”

The handbook also explores the policy aspects and points out how governments can play an important part in promoting ISFM adoption through advocacy programs that disseminate ISFM information to farmers or through subsidy schemes. Other indirect investment in roads,

**“Some government policies that hinder ISFM include under-investment in extension services, education, quality control of inputs and grades and standards for crops.”**

irrigation and research & development also contribute.

Some government policies that hinder ISFM include under-investment in extension services, education, quality control of inputs and grades and standards for crops. Other issues highlighted include the problems caused by fluctuations year to year in fertilizer subsidies which impacts on the private sectors ability to effectively plan and market fertilizer. Land tenure security is also highlighted as critical to the adaption of programs that encourage investment in soil quality.

The guide will be available from the ASHC website shortly as a series of pdfs reflecting the sections of the report. Plans are also being developed for wider circulation and publishing. However, as this is a creative commons publication the ASHC is keen to encourage other organizations to adapt and customize these materials to maximize its reach and impact in sub-Saharan Africa.

ASHC project manager, George Oduor, said:

*“This comprehensive guide to the ISFM principles fills an important gap in the literature. We have a handbook here that we are very proud of and which has been possible as a result of a wide range of partners in the consortium sharing information.*

*We know that this handbook can be further developed*



**A farmer in Mali applying compost to his farm. Courtesy of ICRISAT**



Use of organic resources

Use of mineral fertilizers

Good agricultural practices like proper spacing

## ISFM can make a lasting difference to farm productivity, food security and livelihoods

*and that it will be essential reading for anyone with a remit for soil policy, research or the practical application of soil improvement programs. This guide will be further complemented by a series of very practical guides written for extension activities or farmer's use.*

*I would encourage anyone with ideas about how to further develop this guide to get in touch and share with me how they are developing and customising this handbook."*

Publication date: early September 2012

### The movie...

The technical advisory group member Paul Van Mele of Agro-Insight has produced a film called 'Integrated soil fertility management in Africa'.

George Oduor, ASHC project manager, explains:

*"Paul visited several countries in sub-Saharan Africa to produce a film that would set out the principles of ISFM.*

*The idea was that he would use evidence from six different countries in West, Central and East Africa and produce an introductory video for university students and development projects. The resulting film is easy to understand with*

*exciting examples from the region.*

*There are two versions of the film – The longer 22-minutes version of the film is ideal for training or as a refresher for people who are more involved in the detail of the policy or work at a practical level. A shorter version of about five minutes presents the high level messages for policy makers.*

*Whilst ISFM has clear and proven benefits – the term sounds complicated and we need to get over this by helping policy makers and practitioners to see that simple and achievable – integrated steps can make a considerable difference to farm productivity, food security and underpin farmers financial viability."*

After the screening at the ASHC technical advisory group, Christian Witt of the Bill & Melinda Gates foundation commented: *"This is an excellent showcase of core ISFM principles – which many people still don't understand. I am really pleased with it."*

Paul Van Mele- paul@agroinsight.com

Thomas Fairhurst- tfairhurst@cropconsult.com



## Governments urged to give extension agents training on ISFM to complement fertilizer subsidies

**A**SHC's first policy brief proposes training extension agents on ISFM.

An ASHC policy brief explores economic benefits of ISFM – with a suggestion that direct government support to train extension agents might be a viable option to complement other policies including fertilizer subsidy.

The ASHC's first policy brief sets out the economic benefits of integrated soil fertility management (ISFM). The brief was produced by Rodney Lunduka, post-doctoral fellow (policy), and Professor Valerie Kelly of Michigan State University, and a member of the TAG.

The brief proposes greater short-term investment in extension services including staff, field demonstrations and publicity materials to train farmers in ISFM techniques, and other practical ways to make fertilizer subsidies work more effectively. In particular it cites combining organic manure with intercropping maize with pigeon peas as

an approach that allows for less inorganic fertilizer use – without reducing total outputs or net revenues.

The brief highlights the need to develop and use dissemination materials and demonstration plots. In trials in Tanzania, farmers experienced an increased net profit per hectare from intercropping pigeon peas and maize. When this was combined with the recommended amounts of fertilizer they achieved the highest profit of US\$305/hectare. Maize cropping alone with recommended doses of fertilizer gave a return of US\$230.9/hectare.

Intercropping with half fertilizer gave a return of US\$231.8/hectare. In similar trials in Kenya, a US\$180/acres premium was achieved from maize when fertilizer was combined with manure over the use of fertilizer without manure. The next policy brief will explore 'Implementing smart use of fertilizer subsidy.'



Maize intercropped with pigeon peas at a farm in Gallapo, Tanzania



### Why produce policy briefs?

Policy briefs are important because long-term sustainable change often requires institutional change to be implemented along side technical innovation.

George Oduor, ASHC project manager, said: *“The ASHC wants to offer evidence from ISFM research and present options and ideas for policy makers to craft policies that solve real problems. We must not fall into the trap of lecturing policy makers, or farmers for that matter. We must be honest brokers of information and let the audiences for our material decide on the best way ahead.”*

One of the commitments of the TAG meeting held in Nairobi in May was to ensure that the ASHC could draw on persuasive examples of economic data. Initially the policy recommendations were to be based exclusively on evidence directly out of ASHC’s work. This approach is being refined by the TAG.

Professor Ken Giller explains: *“We need to set out the evidence as honest brokers. It is essential that we don’t get carried away with our advocacy approach and become evangelical about the merits of ISFM in general. When we identify institutional and policy issues we need to ensure we present options that are backed by evidence to ensure that we create changes in policy that stick.”*

In developing its policy recommendations the ASHC needs to refer to some of the research reports setting trends and challenges for Africa such as the Africa Development Bank report highlighted above.

The African Development Bank published its report “Africa in fifty years time” in September 2011.

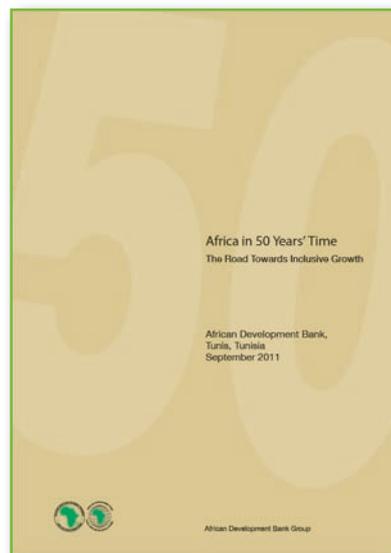
There is a wealth of information on the need for improved food production and on agricultural changes which fits well with ASHC’s approach.

The report has several paragraphs on transforming African agriculture (page 41). It states...

“There is growing concern among agricultural scientists that a decline in long-term soil fertility is already limiting agricultural production in Africa, and that the problem is getting worse.

## Africa in 50 years

### The road towards inclusive growth



Available at: <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Africa%20in%2050%20Years%20Time.pdf>

One immediate area for action is to establish supporting mechanisms to increase use of nutritional supplements such as fertilizers in agricultural production, as agreed in the Abuja Declaration on Fertilizer for African Green Revolution of the African Union in 2006.

This calls for:

- development of national agricultural input credit guarantee facilities;
- use of “smart” (targeted and time-bound) subsidies to ensure that poor smallholders have access to fertilizers;
- creation of regional fertilizer procurement and distribution centres;
- and removal of trade barriers and impediments to local fertilizer production



## Research focus: Exploring the role of ISFM in mitigating climate change and building food security

The ASHC project aims to improve knowledge of integrated soil fertility management at all levels of the society, in public and private sectors. This means that ASHC has to know what research is happening, and what impact this will have on the advice and guidance we produce.

We invited Jean-Claude Bidogeza from the International Fertilizer Development Center in Nairobi, Kenya, to share his thoughts based some recent research on ISFM and food security and mitigating climate change.

Land degradation and reduced soil fertility has been observed to be compromising agricultural production in large parts of sub-Saharan Africa. This is aggravated by increased rainfall variability and elevated temperatures as a consequence of climate change. However, research as part of the ASFIC project suggests that integrated soil fertility management offers opportunities to mitigate the effects of climate change, and therefore to improve food security.

Improved food security is a significant issue. According to the Food and Agricultural Organization (FAO) of the United Nations, Africa will have to triple its food production by 2050 to feed a population of two billion. Despite the latest commitment of the international community through UN Millennium Development Goals (MDG) to halve hunger by 2015, only three years from now the number of malnourished in sub-Saharan Africa stays stubbornly high.

Food security implies physical, social and economic access to sufficient, safe and nutritious food by all people at all times to meet their dietary and food preferences for an active and healthy life (FAO, 1996).

Food production through agronomic management of natural resources is one component of food security. Climate has a direct and considerable effect on agriculture. The rainfall variability and climate change will have a significant impact on sub-Saharan Africa food production, because of limited ability to adapt. The livelihoods of 90% of the population depend on rain-fed agriculture and subsistence farming.

Climate models converge on one certainty: rainstorms

and increased temperatures will be more severe, damaging arable land, some 65% of which is already eroded in sub-Saharan Africa. There is a strong link between food security and climate change.

Model results from International Food Policy and Research Institute indicate that by 2050, as a result of climate change, yields will decline:

- rice by an average of 14%
- wheat by an average of 22%
- maize by an average of 5%



### Building food security

Ernest Molua from the University of Buea, projected that, a 7% decrease in rainfall in Cameroon would cause net revenues from crops to fall by US\$ 2.86 billion. A decrease of 14% would cause net revenue from crops to fall by US\$ 3.48 billion. His earlier study showed that a 2.5°C warming would cause net revenues to fall by US\$ 0.79 billion, and a 5°C warming would cause net revenues to fall US \$ 1.94 billion.

Farmers in sub-Saharan Africa need to pursue a sustainable intensification to maintain food security, mitigate the effects of weather variability and climate change, protect land, and increase incomes.

Integrated soil fertility management is a sustainable farming approach that acknowledges the need for both organic and mineral inputs to sustain soil health and crop production, due to positive interactions and complementarities between them.



Under the high variability of rainfall distribution coupled with the inherent low soil fertility of African soils, ISFM secures crop yields and enhance soil carbon.

The combinatorial approach of organic and inorganic fertilizer has proved to improve nutrient, water use efficiency and crop production. ISFM is key to increasing agricultural productivity, while reducing nutrient losses.

ISFM should be considered an intervention strategy for food security, as well as an innovation to mitigate the effects of weather variability, since it improves the efficiency of agricultural inputs.

Despite the recognition that ISFM can improve agricultural productivity in an environmentally sustainable manner, more awareness needs to be raised to reach a larger audience.

Research title: Food security and weather variability in sub-Saharan Africa: interactions and opportunities for Integrated Soil Fertility Management to mitigate effect of weather and climate change.

## Material matters

Over the next 2 years the African Soil Health Consortium will produce a range of materials to support the delivery of soil fertility messages for smallholder farmers. In the upcoming newsletter, *Material Matters*, we will highlight a number of extension materials produced and share our experiences from Mali and Tanzania.

### ISFM pocket guides for priority cropping systems

**ASHC team:** Lydia Wairegi with Ken Giller

**Intended audience:** Extension workers and researchers

**Progress to date:** The technical advisory group has approved the generic structure for the guides. Guides to be produced include:

- Coffee/banana cropping system
- Maize/legume
- Rice
- Sorghum/millet and legume
- Cassava

### Nutrient Deficiency Field Guides

**ASHC team:** Thomas Fairhurst with Shamie Zingore

**Intended audience:** extension workers

**Progress to date:** The technical advisory group has approved the structure of these photo-led guides to nutrient deficiencies. Work has started on;

- **Field guide 1:** Cereals - maize, sorghum, millet and rice. Work will soon start on the other guides:
- **Field guide 2:** Legume crops - groundnuts beans, cowpea, and soybean
- **Field guide 3:** Root crops - cassava, sweet potato, Irish potato, and yam
- **Field guide 4:** Cash crops - cocoa, oil palm, cotton, coffee, sugarcane, plantain and banana

For more information on these guides contact Thomas at [tfairhurst@tropcropconsult.com](mailto:tfairhurst@tropcropconsult.com)

## ASHC pilots use of Zoho Creator

ASHC team is working on a large number of information resources.

Kelly Stenhoff from the monitoring and evaluation (M&E) team highlights the challenge of keeping track of the materials being produced:

*"Initially we tried to keep track of the materials using an excel spreadsheet. It was hard to ensure that we were all working on the latest version of spreadsheet, because the project team is based in different countries."*

The M&E team is exploring use of Zoho Creator, which has a relational database structure, unlike spreadsheets. This makes it easy to show relationships between materials being produced - on the same or different technologies.

Reports can easily be generated to track progress or review the range of activities being undertaken. Zoho Creator utilizes cloud hosted storage.

ASHC will be reviewing the extent to which cloud-hosting is practical in developing materials for sub-Saharan Africa.



## Drawing lessons from material development workshop in Mali

In February 2012 the ASHC, working in partnership with AGRA, brought together a group of researchers, extensionists, agro-input dealers and farmers with communication experts to learn how to create and disseminate better soil fertility management information materials and products. The event, which took place in Bamako in Mali, is known as intensive in-country intervention.

Using the text and pictures brought to the workshop by the participants, the group created a number of communication products. In time these will be reproduced and given to farmers or be used for training farmers' groups. The materials will be distributed to research institutions, agro-dealer networks, non-governmental organizations and other target audiences.

Seydou Keita, regional director of agriculture, Ségou Region, Mali, said: *"During this workshop I have seen that generating knowledge and disseminating it are complementary - we cannot do one and leave the other. I have realised that scientists need to work with graphic designers and communicators in order to make this happen."*

Jane Frances Asaba, the information and communication for development coordinator at ASHC, explains how the workshop was organised:

*"The workshop on the development of ISFM information materials attracted 34 participants from the agricultural sector to learn how to present information on their technologies mainly to farmers."*

*The workshop concentrated on helping the participants to think about which integrated soil fertility management technologies they had ready for scaling up and then finding effective ways to communicate them. This involved pulling out key messages and finding ways to make the technologies clear and easy to follow.*

*A team of journalists and graphic designers was on hand to create workable solutions and develop templates for use*

*in the future. During the workshop the scientists and the communications specialists learned how to work together effectively."*

Feedback from the delegates has shown the value of this practical, hands-on approach.

Idrissa Diawara, regional director of agriculture, Ségou Region, Mali, interviewed during the event said: *"Yesterday I was stressed and I really wondered how I would proceed developing information materials on the technologies that I want to disseminate. But today we have made progress. The process has been well managed and with the help of Oman (the graphic designer), I am well equipped with knowledge on how to develop materials that can communicate effectively to farmers."*



**Left to Right: Dr. Mamadou M Bare Coulibaly, Dr. Nianankoro Kamissoko and Mme Dieneba Doumbia**

George Oduor, ASHC project manager, concluded:

*"When these ISFM materials are complete we will share them with the world using the ASHC website materials section. We hope that these will inspire others and that these materials will be used widely and adapted to local situations and needs"*

*We want ASHC-supported materials to offer farmers and policy makers a series of choices – but we also have a responsibility to ensure that we reduce the risks involved in the uptake of new technologies. The smallholder farmers, who will work with these materials, cannot afford to take*



*risks. For this reason we need to be clear about the food security or economic consequences of missing out some of the components of ISFM. We need to help them make decisions about how they incorporate ISFM either fully or partially into their farming practices, in line with their resources and in a way which maximizes their return on investment.”*

One challenge that needs to be addressed is getting awareness messages and specific cropping and ISFM information out to communities with very low levels of literacy. ASHC will be exploring graphic-led information, films and radio as part our approach to developing a suite of innovative communications tools.

### Summary of some monitoring and evaluations findings from the design workshop conducted in different countries

#### Tanzania (November 2011)

- The initial choice of venue was not like by invitees and the venue proved to have poor access to the internet and printing facilities.
- Participants had significantly different levels of understanding about ISFM.
- The participating researchers didn't know the sort of materials to bring to the workshop. They brought too few photographs and too many dense technical reports - with little prior though given to the messages to farmers.
- In designing materials on cropping systems participants wanted an opportunity to incorporate farmers' knowledge and work with community based organisations and not just have a downward flow of information from the researchers.
- Participants assumed that the ASHC would support the costs of material production – whereas the ASHC model is to hothouse good content for projects to publish and disseminate themselves.
- The ASHC needs to think more about getting buy-

in that goes beyond participating in a workshop. The ASHC needs to consider a process to enable institutional changes to be embedded in the participants' organizations.

- The ASHC needs to ensure that invitees to the workshop include private sector providers of information as well as academic institutions, NGOs and government bodies.
- Participants would have preferred training in June/ July.

#### Differences between the Tanzania event and the Mali event

In Tanzania, working groups were made up of researchers and service providers. In Mali, working groups were defined by the cropping system of the delegates' own choosing. In Tanzania the graphic designers worked independently to bring together technical messages with graphical representation. In Mali the graphic designers were embedded into the cropping system working groups working alongside the technical experts from the participating organizations.



**Left to Right: Mme Camara Rokiatu Kouyate, Seydou Keita, Amara Diakite and Dalla Diarisso**

#### Mali (February 2012)

- Working with a multilingual audience requires more thought to go into the PowerPoint slides. All learning materials need good graphics to explain principles and rely less on dense text.
- Participants wanted French language pre-workshop reading distributed to them in good time



- Participants did not commit to attend all days of the event and they felt that the length of the workshop was off-putting.
- Participants didn't understand what materials they should bring with them (such as research and existing leaflets)
- The graphic designers needed to be included from day one of the workshop and not introduced on day three. During the evaluation, it was observed that a graphic designer was not filling in the form. When asked about this, he replied, "I am not a part of the program."
- More graphic designers should be included (at least two for each cropping system) to make the group work more effective.
- Lengthy debates meant that there was insufficient time dedicated to the task of designing materials
- The participants wanted an ASHC executive member and technical scientist to attend the event.

### **Want to be part of the Ghana soil information product development team training?**

#### **Here is your opportunity!**

In February the African Soil Health Consortium, working in partnership with AGRA, delivered a successful workshop that brought together soil scientists and communications specialists in Mali. The aim was to build a legacy of collaborations and shared respect between the skills and knowledge of the scientists and communications experts to support the development of better farmer extension material.

**In July 2012 ASHC and AGRA will be holding the next workshop in Ghana. If you are involved in a soil health project and would like to be part of our training workshop please contact [ashc@cabi.org](mailto:ashc@cabi.org)**

## **Team changes**



**Mama Kone**

We are pleased to welcome Dr Mama Kone from the Institut d'Economie Rurale (IER), based in Bamako, Mali, who will be helping to facilitate ASHC project activities in Mali and indeed West Africa.

He will be ASHC's West Africa specialist. Currently the chief agronomist at IER, he has a Masters and PhD degrees in soil fertility from Auburn University (USA) has experience in research and soil fertility issues especially in Mali.

Sadly, we say goodbye to Caroline Nyakundi the ASHC communication specialist, who will be leaving the project at the end of May.

### **New chair and vice-chair for technical advisory group**

The technical advisory group has annual elections for the posts of chair and vice chair. At their meeting in May 2012, the TAG chose Dr Shamie Zingore to be chair. He was previously vice chair.

Shamie is the Africa regional director for the International Plant Nutrition Institute in Nairobi. He is leading implementation of research and development programs in sub-Saharan Africa to promote fertilizer best management practices and encourage fertilizer use in ways that are technically efficient, economically rational, and environmentally friendly.

Shamie has worked extensively with farmer groups, input suppliers and other stakeholders to develop innovations, build capacity, and promote information exchange on soil fertility management practices for enhancing productivity of agriculture in Africa.



The new vice-chair will be Dr Andre Bationo. He is the West Africa and Senoir Program Officer Soil Health, Alliance for a Green Revolution in Africa (AGRA)



**Andre Bationo**



**Shamie Zingore**

The ASHC is also pleased to announce that Dr Kabirou N'Diaye will also be joining the technical advisory group. Kabirou is a senior agronomist with AfricaRice.

Dannie Romney, the ASHC project executive, said: *“The ASHC owes Dr Peter Okoth a big debt of gratitude for his excellent stewardship, as chair, through the first year of the consortium’s life. Peter’s support to the delivery team has helped to lay down excellent foundations. His feedback has been both timely and astute and we look forward to continuing to work with him as a member of the technical advisory group.”*

We are also delighted with the newly elected officers – they bring a wealth of experience spread across Africa. Having our new chair working out of Nairobi will facilitate a close working relationship, this is perfectly complemented with a vice chair from West Africa.

**Members of the Technical Advisory Group**

- Andre Bationo
- Ken Giller
- Rebbie Harawa
- Jeroen Huising
- Bashir Jama
- Richard Jones
- Valerie Kelly
- Kabirou N’Diaye
- Abdoulaye Mando
- Paul Mapfumo

- Bell Okello
- Paul Van Mele
- Bernard Vanlauwe
- Shamie Zingore
- Thomas Fairhurst
- Peter Okoth
- George Oduor

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**The Africa Soil Health Consortium (ASHC)**

**Contributors**

- George Oduor
- Collins Abuga
- Jean-Claude Bidogeza
- Thomas Fairhurst
- Ken Giller
- JaneFrances Asaba
- Valerie Kelly
- Abigael Mchana
- Paul Van Mele
- Caroline Nyakundi
- Danny Romney
- Duncan Sones
- Kelly Stenhoff

**All Correspondence to:**

The Communications Unit  
 Africa Soil Health Consortium  
 CABI Africa  
 ICRAF Complex  
 P.O. Box 633-00621  
 Nairobi, Kenya  
 Tel: +254-20-722 4450/62  
 Fax: +254-20-712 2150  
 Email: ASHC@cabi.org  
 Website: www.cabi.org/ashc

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