

A summary of lessons from Phase 1 of the Africa Soil Health Consortium



Special report for
World Soil Day 2015

Sharing good ideas on soil fertility

5 December 2015

Christian Witt reflects on the progress of ASHC

As a grants officer within the Bill & Melinda Gates Foundation all grants are important, but the Africa Soil Health Consortium grant was also personal.

This grant was personal because for many years I was a soil research scientist working in the field. I knew that there were blocks in the research extension continuum and I felt that this grant could address them.

I know that a scientific training is about writing up findings in journals. Journals lock up knowledge in two ways: firstly, they are often not open to people who need to read them because of fees; secondly, journals are written for other scientists, not to support last mile delivery or to support farmers. The convention of journals also means that tacit knowledge collected by the researchers is often not reported. I am not blaming the scientists – they do valuable work – but too often they don't have crucial support to ensure that their labours make a difference to food security or farmer incomes. Agricultural scientists, through their training, have little understanding of how knowledge travels outside of research circles.

Knowing the problems that farmers are facing in the field is a great place to start to plan information campaigns.

I faced this frustration myself and as I developed research I tried to move my practice to look at things that can make a difference on the ground. Generally, however, there is no infrastructure or incentives in place for this to happen at scale.

My journey as a scientist in South East Asia made me realize that there is a wealth of ideas and innovations which come from researchers partnering with farmers on the ground. Knowing the problems that farmers are facing in the field is a great place to start to plan information campaigns. If you ask farmers where they get information from, the most popular answer will be other farmers.

In the Africa Soil Health Consortium we pulled together a group of people committed to the ideas of integrated soil fertility management (ISFM).

Put simply this is an approach that combines the benefits of improved seed, appropriate fertilizer use and the addition of organic matter plus agronomic practices that best fit for farmers in a given locality. This is the approach that the Foundation believes can help address the

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Christian Witt reflects on the progress of ASHC – continued



Christian Witt

long-term decline in soil health that much of Africa is experiencing.

This group of experts, which became the technical advisory group for the project, helped to ensure that ideas on ISFM were cross-pollinated across nations and crops. They worked with the team at CABI to present a set of principles in the ISFM handbook. Then the CABI team picked up and developed inclusive participatory approaches to make crop specific ISFM material that would work in a specific location and context. Their write-shop process challenged scientists to create material that talked to farmers and ensured that extensionists and farmers groups gave appropriate feedback to refine the materials. Central to this was a focus on the practical actions the farmers needed to take, rather than a narrative redefining their problems. This process also helped tap into that tacit knowledge that never made it into the journals.

The ISFM library on the ASHC website now has several hundred examples of what farmers-friendly materials can look like.

The challenge now is to make sure that this information is supporting

adoption and adaption of ISFM to meet the needs of millions of smallholder farmers in sub-Saharan Africa. This is why I am delighted that the Foundation has been able to invest in a second phase which is using a campaign style approach to reach and influence farming practices in smallholder farming families.

The challenge now is to make sure that this information is supporting adoption and adaption of ISFM to meet the needs of millions of smallholder farmers in sub-Saharan Africa.

The first phase was more difficult than it seemed on paper. At the planning stage it seemed easy. ASHC would help scientists share what they knew and everyone would be a winner. But, it took a very long time for ASHC to build trust. There was a real fear that this was some attempt to steal data or claim credit for other peoples work. But slowly and patiently the team built trust of key individuals and agencies.

Phase 2 will see CABI facilitating more knowledge being developed

into usable information. This will see a great focus on getting information out to farming families in a range of formats.

ASHC has worked as a catalyst for change. What is actually a very small team of dedicated people in ASHC is starting to find like-minded people who want to make change happen. In phase 2 there are already signs that the ASHC team is using the Foundation grant to leverage funds from other investors and this is great to see.

What this team has done is appreciated by the scientific and extension communities they have worked with. This is because they are meeting an important need. I am pleased that the team is sharing their lessons in an open and candid way. This seems to speak to the essence of what World Soil Day is about.

I would like to thank everyone who contributed to project over the past four years. Without the support of farmers, extension, the private sector, academics and the research community these lessons would never have been learned. ■



15 key lessons from ASHC phase 1

Partnership approaches

In phase 1 the ASHC did lots of partnership working. The work with COMPRO II on marketing new bio-products saw ASHC delivering communications services. The Optimizing Fertilizer Recommendations in Africa (OFRA) project meant the ASHC team had more responsibility for facilitating partnership working. This partnership is clearly defined by the bid.

Lesson 1: ASHC working with the private sector

Advocating integrated soil fertility management involves recommendations on better seed, the use of organic matter and chemical fertilizer along with other good agronomic practices. Increasingly the private sector is the provider of these inputs, including organic matter such as pelleted chicken manure. Learning how to work with the private sector was essential to the long-term success of the ASHC approach.

In 2012 ASHC partnered with the IITA-led project COMPRO II. ASHC was asked to deliver communications services to support promising new commercial agricultural products.

A scoping exercise by COMPRO II had earlier identified three biological agricultural products ready to take to scale in the six project countries. These products included rhizobia inoculants produced by MEA Limited in Kenya and Notore Chemical Industries Limited in Nigeria.

ASHC's involvement with COMPRO II provided an excellent opportunity to engage with the private sector. ASHC ran a write-shop in March 2014 in Addis Ababa, Ethiopia where project partners developed a prototype manual on the use of rhizobium inoculants. This document incorporated ASHC's principles on farmer-friendly information packaging and was designed to be re-purposed in the other five participating countries.

At the event Notore asked ASHC, in its role within COMPRO II, to be the technical consultant for a farmer education film on the use of inoculant in soybeans for use by their field

agents in Nigeria. The resulting film shows farmers good agricultural practices for growing soybean including land preparation, use of inoculants, planting in rows, weeding and application of fertilizer using farmer-friendly measures ('one soda-bottle cap full per foot'). Although the film is a Notore production in collaboration with ASHC, the brand name of the inoculants is not used and no pack shots are shown.

In addition to the COMPRO II commission, Notore asked the ASHC team to support the making of a film on urea deep placement (UDP) for rice. UDP is not part of the COMPRO II project, but is an ISFM technology. Notore sells urea granules as briquets in Nigeria. They wanted a film that their network of village promoters could use as a promotional and awareness raising tool for farmers.

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A high quality film on UDP already existed on the Access Agriculture website. This was shown to Notore representatives but they did not think it met their need. They wanted a film that included use of their products so a new film was made with members of the ASHC team acting as technical consultants. The film's credits state that the film is a 'Notore production in collaboration with ASHC, a CABI-led project'.



Notore Chemical Industries asked ASHC for technical support when they made new training films on fertilizer application

Notore developed an ingenious distribution strategy using existing commercial Gidan Kalos, the Hausa terms for viewing centres. These are local sports-bars/movie theatres that charge people a fee to watch international soccer matches via a satellite link or to screen action movies via DVDs. They attract audiences of 30-100 people. The audience is predominantly 12-25 year old young men.

Notore's village promoters negotiated a fee of around US\$ 6 per village to show the short film on soybean during the half-time break in popular soccer matches. This enabled the films to be shown to 3,000 people at a relatively low cost and with no capital investment.

As a next step, Notore plan to train the viewing centre owners so they can show the films without the village promoters being present. Additional similarly cost-effective approaches are needed, however, to reach other segments of the target audience, including young women and older men and women farmers.

One issue when working with new agricultural inputs is the tension between creating awareness to fuel future demand, and the frustration that farmers face when promoted products are not available.

Working with the private sector offers real opportunities to have lasting impact at scale. ASHC saw this as an essential part of the communications mix and developed a set of principles to guide its private sector engagement policy. It is designed to ensure that it cannot be accused of bias or inappropriate action. For example, the Technical Advisory Group for ASHC and some research partners had suggested previously that brand names should not be used in

communication materials preferring reference to generic active ingredients. Whilst this sounds simple and fair, in practice farmers only know products by their brand names and would not recognise the long and technical description of active ingredients.

ASHC has developed other private sector relationships with freelance designers and media companies, including Young African Express (see lesson 5), Shujaaz (see lesson 6), and Shamba Shape-Up. When working with media companies, publication deadlines have often proved challenging with the need to get all of the required information assembled, fact checked and signed off by partners in the required time.



Isaac Mamman and Lydia Wairegi discuss the progress of the Notore filming

This is exacerbated when materials are not in English. When the deadlines are clearly communicated, however, the sense of urgency has led to some very creative work. ■

ASHC private sector rules of engagement

- ASHC should not be seen to be endorsing material for private sector suppliers. When ASHC develops generic materials pack shots of commercial products may be used. However, images should show where different companies are providing similar products. Showing packs and brands is very helpful in a low literacy environment. Using chemical names for active ingredients in products is not an effective way to share information. In some cases there will be only one brand in a country – such as an inoculant – in which case ASHC will use pack shots of the only supplier.
- ASHC will not use its logo on private sector materials such as point of sale materials or pack designs. Where appropriate, a short statement such as ‘developed and designed by the Africa Soil Health Consortium’ will be added to the materials.
- ASHC should offer opportunities to all players in the market. When ASHC is invited to work with private sector partners it should attempt to create a level playing field, working across the market. This should start with contacting trade associations or major players in the market and setting out the ASHC offer.
- This should not preclude ASHC starting to work with any private sector company and responding to their deadlines but, before the work is delivered to the private sector partner, ASHC must contact the other players in the field to see if other opportunities exist in the market.
- ASHC might make a call to the private sector to become a partner, either contacting the companies directly or through a third party organization such as a trade body.
- Exceptions to this approach would be, for example, where ASHC was asked to be a partner in a tender or a call from a third party.
- ASHC should work with the right commercial partners. ASHC needs to make adequate checks and undertake due diligence to ensure that its partners are financially stable, have a good track record and have in place the necessary government approvals to offer products in the ASHC focus countries. Only in exceptional cases will ASHC work with start-up companies.
- ASHC will usually work within Creative Commons – but in appropriate cases it will ensure commercial confidences are kept. In some cases ASHC may have the chance to continue work on third-party campaigns. In such cases, and ASHC deems the public good to be strong enough, it will work on the basis of non-disclosure and ensure that commercial confidences are kept.
- ASHC may provide material to the commercial sector under a Creative Commons license – but in the spirit of Creative Commons, this will never be on an exclusive basis.

Lesson 2: Case notes on supporting IPNI to communicate better with farmers

There is an absence of simple, straightforward and visually compelling agricultural information materials targeting smallholder farmers. Research-led organisations collaborating with communications experts can help to overcome this problem.

The International Plant Nutrition Institute (IPNI) launched its 4R Nutrient Stewardship project in January 2013. It aims to address and close the gap between the yields farmers achieve in their fields and those scientists achieve in their research trials.

The low yields of farmers have been attributed to poor crop and fertilizer management, widespread nutrient deficiencies and depletion of soil fertility. The 4Rs project focuses on best fertilizer management practices, summarised by the '4Rs':

- applying the right fertilizer source
- at the right rate
- at the right time in the growing season
- in the right place.

The 4Rs project uses a combination of on-farm demonstrations, workshops and field days. It also shares knowledge products through media and ICT platforms to inform Kenyan farmers, extension agents and fertilizer dealers about 4R practices.

IPNI approached ASHC with a clear brief. They wanted communication materials to help smallholder farmers in Western Kenya to understand the importance of three key nutrients for maize - nitrogen, phosphorus and potassium. They wanted a leaflet and a poster for each of the three nutrients.

ASHC designed full-colour posters with three sections: role of the nutrient in maize, symptoms of the nutrient deficiency in maize and examples of which fertilizer should be applied to add this nutrient. Each poster was illustrated with photographs of symptoms of the nutrient deficiency in maize and also featured a close-up of a Western Kenya farmer.

Leaflets provided more detailed information. Both the posters and leaflets featured strong colours, red, green and blue, in their design.

A leaflet on good maize production was also developed covering land preparation, seeds, fertilizer use, planting and general crop management.

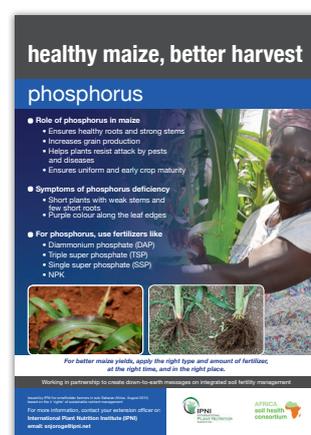
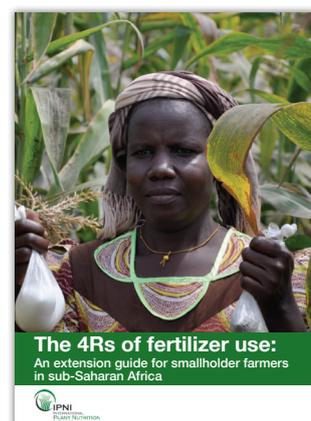
ASHC evaluation of the campaign materials found:

- Farmers liked and were motivated by the photos of healthy maize grown by people like them. Some particularly liked seeing the photograph of a woman farmer with her healthy maize cobs featured in the phosphorus leaflet.
- Though most farmers liked the photos showing symptoms of nutrient deficiencies, these could be off-putting to farmers who struggled to understand the messages.
- Farmers who struggled to read received help to understand the materials from their better-educated children.
- One farmer suggested that Kiswahili would be more appropriate for older farmers. However, ASHC's experience in Ghana indicates that literate farmers could read English while illiterate farmers could read neither English nor local languages.

In July 2014, ASHC interviewed smallholder farmers, ministry and IPNI staff in Western Kenya to determine the use and the impact of the materials. Over a period of 10 months 2000 copies of the 7 different materials had been used in group training sessions involving 200 smallholder farmers and 30 extension staff and agro-dealers. An additional 300 copies had been distributed to individual farmers.

A local extension worker appreciated the fact that the materials were simple, straightforward and visually compelling – all qualities lacking in materials he had had access to before.

Smallholder farmers who had applied the information in the materials claimed that their yields had approximately doubled – from between 450 – 720 kg per acre before, to 1170 – 1350 kg per acre after. Farmers had good recall of the information on correct use of fertilizer.



The fact that IPNI approached ASHC asking for help in developing these materials is indicative that the expertise of the ASHC team in developing farmer-friendly communication materials became increasingly recognised during the course of the project. IPNI awarding ASHC a certificate of appreciation in recognition of their outstanding partnership with the 4Rs project reinforces this view. ■

Lesson 3: Case notes on working with Plantwise

Plantwise is a global programme led by CABI that works to help farmers lose less of what they grow by overcoming plant health problems. Working closely with national agricultural advisory services, it establishes and supports sustainable networks of plant clinics, run by trained 'plant doctors', where farmers can find practical plant health advice.

The Plantwise programme was officially launched in 2011 though CABI has been helping to set up plant clinics for over a decade.

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Farmers visit the plant clinic with samples of their crops and plant doctors diagnose the problem and make science-based recommendations on ways to manage it. Plant clinics are supported by the Plantwise Knowledge Bank, which contains practical online and offline plant health information, including diagnostic resources, best-practice pest management advice and plant clinic data analysis for targeted crop protection.

ASHC collaborated with Plantwise in a number of ways:

- **Making ASHC materials available on Plantwise USB datastick** for off-line use. ASHC learned Plantwise was about to produce and distribute 4,000 USB versions of the Knowledge Bank to plant doctors. Plantwise agreed to the ASHC proposal to include 80 ASHC soil health materials alongside the 3,000 Plantwise factsheets.
- **Pest and disease factsheets.** Plantwise and ASHC produced a series of pest and disease factsheets targeted at extension workers and more able farmers.



Pest management guide summary cards – produced in partnership with CABI Plantwise

The series covered the most important pests and diseases of the major crops, including cereals, legumes, roots and tubers, and bananas, grown by smallholder farmers in sub-Saharan Africa.

53 factsheets, in English and Kiswahili, provide the most up-to-date information available and included practical advice on prevention and control of the pests and diseases. Each fact sheet is illustrated with colour photos. The factsheets have also been repurposed as a manual and sets of summary cards. ■

Joined up thinking...

Information exchange between CABI projects offers great synergies and facilitates the exchange of expertise and resources between ASHC and other colleagues. ASHC was slow to partner with other CABI programs, partly because it did not want to be seen to favour in-house needs. This meant that some opportunities to support smallholder farmers were delayed or missed.

Lesson 4: Case notes on working with OFRA

Optimizing Fertilizer

Recommendations in Africa (OFRA) is an AGRA-funded project that wants to provide smallholder farmers with new and improved guidance on how to add nutrients to their soil. It advises a cost-effective approach, recognising that farmers are resource constrained. ASHC will be looking at how to encourage farmers to think about fertilizer differently in phase 2.

Extension services in many sub-Saharan countries only have access to blanket recommendations that cover the whole country. Often the same recommendations are applied to multiple crops. These recommendations are expensive to apply and are largely ignored by farmers. The thinking is that farmers should maximise the production of crops regardless of the costs of production.

OFRA uses a more rational and sustainable approach of working towards the maximisation of profit and offering options for farmers, even at very small levels of investment. It encourages farmers to slowly increase their investment in fertilizer, based on the positive returns they achieve. This includes recommendations for point placement of nutrients, rather than broadcasting them over the whole plot.

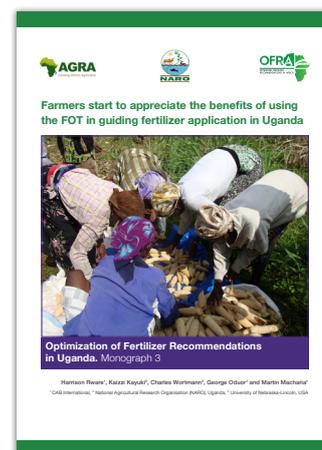
Current recommendations also often use blends of fertilizer that do not offer the optimal nutrients for the crop or the agro-ecological zone. Expensive and unnecessary nutrients can be substituted with missing, crop limiting micronutrients that can increase crop productivity hugely – often at a lower cost.

OFRA facilitated a large number of fertilizer-response trials across 13 countries using a common protocol. It also gathered large amounts of data from previous fertilizer research (legacy data). This has been organised into a database accessible

from the ASHC website.

This new approach to fertilizer recommendations will inform the development of materials and recommendations in ASHC going forward.

Acting as the facilitators for OFRA also helped ASHC to frame how it wanted to organise and service the working of the partnerships that will be essential to the delivery of the second phase of ASHC. ■



OFRA publication

The OFRA tool kit comprises:

- A computer-based fertilizer optimisation tool (FOT). Work to provide this tool as an app for mobile phones has helped ASHC learn about the opportunities of IT-based approaches to support extension.
- A look-up table that makes adjustments in the fertilizer recommendations to take into account on-farm integrated soil fertility management (ISFM) practices. ISFM practices include the use of organic inputs and legume intercrops.
- A fertilizer calibration tool converting recommendations, expressed as kg per acre or hectare, into locally available measures, such as discarded plastic water bottles or crown cork bottle caps per planting hole or length of row. Different types of fertilizer vary significantly in density, so this tool helps farmers apply the recommended fertilizer more accurately.

Technical Advisory Group



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Reaching young people

In phase 1 ASHC wanted to explore new ways of working, so a small innovation fund was set aside. This fund was able to be both responsive and proactive to allow the team to act as innovation brokers. Having some flexible funds and human resource available means that potential collaborations with organisations with shared objectives and aspirations can be supported.

Central to the innovation fund pilots was a desire to explore gender in different ways. Reviewing the gender statistics, one group jumped out as under-represented and marginalised in extension – youth. In African countries the number of young people far exceeds the number of adult women and young women are in greatest danger of marginalisation.

The output of the fund was to build up some case studies to inform both ASHC and others producing development communications about how to maximise returns on communications investment. The next two lessons explore how ASHC used its innovation fund to address the question ‘can young people be an effective conduit for development communications messages?’

Part of the inspiration for this approach was exploring some aspects of the Green Revolution in India. It appeared that schools had been used as a conduit to reach smallholder-farming households. In countries where trust in traditional institutions has been eroded, schools and teachers often retain a trusted status.

Lesson 5: Schools as a conduit for information to families

Agriculture has been dropped from the primary school curriculum in Kenya, and it is optional at the secondary school level. However, with creative thinking, it can still be possible to fit agriculture into the curriculum - in this case in science and art and design.

In 2013/14, ASHC partnered with Jacaranda Designs in a pilot targeted at Kenyan primary and secondary school pupils. The objective was to inspire young people about agriculture and explore their potential to act as conduits for delivering agricultural information to farming families.

Jacaranda Designs is a Nairobi-based integrated communications company that aims to develop and produce high-quality, multimedia educational and social communications packages. The company publishes Young African Express (YAE). This award-winning magazine aims to provide relevant and practical skills-focused learning for upper primary and secondary students and is complemented with curriculum support materials for their teachers. YAE is approved by the Kenya Institute of Education for official use in schools. The ASHC agronomist and

communications staff worked with staff from Jacaranda Designs to develop a 4-page article for Young African Express. This curriculum support materials featured integrated soil fertility management and other good agronomic practices. The Young Africa Express team packaged the ISFM technologies as ‘smart farming’ to appeal to the young audience. Notes were also produced for teachers covering plans for a science lesson and an art lesson.

The science lesson was based on the principles of ISFM: improving crop production with improved seed, fertilizer and organic inputs such as manure or compost, and the integration of legume crops. A second lesson focused on how to design a poster to share the information with local farmers. At this time a poster competition was launched which was open to all upper primary and secondary school pupils in Kenya. Prizes were offered at both individual and school level.

The number of entries received by the advertised closing date was disappointing; many fewer than

Jacaranda had predicted. The company therefore provided additional support in the form of their team of animators and they also negotiated a sponsorship package involving the Amiran Foundation Kenya. This foundation is closely aligned with Amiran Kenya (a major input supplier to the Kenyan horticulture and floriculture industry). The closing date



Detail from Felix's winning poster

for the competition was also extended and Jacaranda developed several more pieces of editorial on smart farming – extending the scope of ideas beyond accepted definitions of ISFM.

Some schools benefited from visits from professional animators– young people trained and employed by Jacaranda Designs to facilitate young peoples’ involvement in areas covered by the magazines. For this pilot they helped and encouraged pupils to complete their competition entries. After some additional delays caused by a teachers strike, 150 competition entries were finally received.

A judging panel including independent judges as well as ASHC staff selected the overall winner, Felix Kamiri Muchiri of Kiambu High School. ASHC was keen to equate individual effort and reward and so opted for a laptop, as a tool to support smart farming, as the prize for Felix.

The competition gave ASHC a direct link to the winning schools to see what had been produced. In Felix’s case, this saw him combine knowledge from school lessons with learning from his family and neighbours’ farms: it was this additional work that that made him stand-out as a winner.

This exercise proved that young people can be excited by the opportunities that smart farming can provide. They can see the difference between smart farming, based on sound science and business practices, and traditional approaches that are not standing up well to climate uncertainty and other challenges.

There was a planned final campaign stage to the pilot in which parents and local agro-dealers were to be invited to come to the school and view the posters the pupils had produced. This activity had to be cancelled because it would have taken place during the run-up to the elections, a period associated with increased risk of bringing groups of people together. The Amiran Foundation prize of a nursery starter kit was to be given to the school that ran the best campaign. Gentiana Primary School, Nairobi received the award for the

‘most supportive school’: they won the nursery starter kit, including a greenhouse, to help them grow food to provide lunch for the whole school.

Colourful award ceremonies were organised at the winning schools. These gave pupils the opportunity to meet Juliani, a hip-hop gospel artist and a rising star in the Kenyan music scene. Juliani is the Amiran poverty eradication ambassador.

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The sponsors were very keen to introduce branding into the prize-giving events. This included wanting all photographs of the pupils to be taken wearing branded shirts; the schools, however, were keen to see their children photographed in their school uniforms. Clearly when negotiating sponsorship it is essential that expectations are clearly understood and agreed.

The entries received suggested that the ISFM messages in the magazine and the learning points from the science and art lessons had been understood by the entrants and also that children can be excited by farming. Although organising and running the competition was time-consuming and involved significant costs, the data that was collected made it a cost-effective alternative to conventional monitoring and



Felix from Kiambu High, smart farming poster competition winner, putting ISFM into practice on his family’s farm



Felix receives his prize from the governor



Gentiana Primary School receiving their nursery starter kit

Lesson 6: Comics help drive better agronomy in Tanzania

Comics can be an effective means of delivering agricultural information to farming families in Tanzania. The graphic-rich comics are acceptable to adults as well as young people and are easy to understand, even for those who do not read well. Comics can be an effective complement to more traditional, face-to-face approaches to extension.

In 2014, ASHC commissioned a story in the Kenyan comic Shujaaz on growing maize. Shujaaz circulated 500,000 comics and shared information and ideas on its social media platform and over 20 radio stations targeting Kenyan youth.

The comic carried a single, character-driven story aimed at inspiring young people, showing positive role models. Shujaaz means heroes. The storyline combined a youthful romance with farming. The central characters were a dynamic young woman, her boyfriend and her farming grandmother. By accident, the three of them discover the benefits of integrated soil fertility management: the use of improved

seed, fertilizer micro-dosing, the addition of organic matter, correct spacing of maize and the importance of keeping crops weed-free. As a result the grandmother gets the best maize crop ever and they are all heroes!

The final panel of the comic included some look-up tables and an interview with a farmer who used ISFM on her plot in Tanzania. The story was based on yield data provided by Peter Okoth and his work at CIAT in Western Kenya and FIPS-Africa recruited a young woman farmer who shared her story.

The story was well received in Kenya, but ASHC had little qualitative data on what impact, if any, it had. A follow-up experiment in Tanzania tested what part comics could play in development. To do this, the ASHC team repurposed the comic into an 8-page booklet and printed 16,000 copies. The original comic was in Sheng (a slang used by Kenyan young people which is part Swahili and part English), so the team translated the text into Kiswahili as spoken in Tanzania.

ASHC worked with FIPS-Africa who disseminated the comics and undertook follow-up studies to gather anecdotal evidence of the impact that had been achieved. FIPS-Africa has a network of village-based advisors who provide advice and sell inputs to smallholder farming families. 7,200 copies of the comic were distributed by 180 advisors in Northern Tanzania (Meru, Moshi and Same districts), a further 7,200 copies were distributed by 180 advisors in Southern Tanzania; and 1,600 copies were distributed by 40 advisors in Morogoro rural district.

Raymond Jumah of FIPS-Africa reported that, farmers who received copies were 20% more likely to adopt the correct spacing of maize being promoted by FIPS and which featured in the Shujaaz story.

More broadly, Tegemea Musola from Iringa District, one of the 180 FIPS-Africa advisors who disseminated the comic to smallholder farmers in the region, reported that the comic helped him reach farmers he rarely found at home when making follow-ups in the villages. He considered that the comics reinforced the good agricultural practices he promoted in the villages in which he worked.

Targeting the comics to young people provides a real opportunity for youth in farming families to engage with their parents and to influence farming practices. Having a story which is driven by strong women role models seems to have lit a flame in a number of women readers.

ASHC has now run two stories in the newly launched Tanzanian version of Shujaaz as part of the Maharage Bingwa campaign. Results from this campaign and lessons will be posted to the ASHC website. ■



One young woman shares her journey from reading Shujaaz...

Veronica Victorice of Mtego Wa Simba village, Morogoro Rural District, Morogoro Region in Tanzania reported that the comic had helped to bring about a new relationship with her father. Veronica, a young Muslim woman, previously had a traditional relationship with her father and she had no influence on what was done on the family farm. The tipping point came when her father asked her to read the comic to him – the font was too small for him to read himself. This led to the pair of them brainstorming on what they should do and gave her an opportunity to challenge him on some of his traditional practices. For example, previously he favoured broadcasting manure all over the plot and he considered there was no need for fertilizer. Using the story in the comic as a starting point, she argued that they should target the manure to the planting hole and also to micro-dose with fertilizer, as well as adopting the FIPS-Africa recommended spacing for their improved maize variety of 75 cm x 25 cm. The result was an increase in yield on their plot, from 500 kg to 700 kg, and a new type of relationship with her father. Msize, Veronica's father, explained that he adopted the improved maize variety, DK8053, for two reasons: firstly, because FIPS-Africa had helped him grow a 5 metre x 5 metre trial plot the previous season and he liked the way it performed, but also because his daughter had helped him read the comic and together they implemented the new practices. This illustrates how the comic complemented and reinforced the conventional FIPS-Africa approach, which includes facilitating mini on-farm trials.



Making materials

ASHC produced a wide variety of materials – usually for use by farmers or extension teams. The team's approach got off to a slow start, but it quickly learned how to put in place approaches and commissioning models that kept the materials development pipeline open. In the end, around 500 materials were developed. These can be accessed in the ISFM materials library on the ASHC website. Here we share the lessons on how the team developed materials and how processes were refined to reduce the time to develop more complex

List of ASHC materials

ISFM principles and practices, customized for specific locations location	No. products
Cassava	7
Cereals /striga	39
Banana/coffee	4
Legumes – generic	12
Cowpea	8
Common bean	55
Soybean	31
Maize-legumes	9
Maize	24
Millet	1
Rice	17
Sorghum	1
Grain/seed	3
Soil fertility	22
Total	233
ISFM principles including crop specific materials	142
Pest management guides	118
Book chapters	2
Policy brief	4
Literature reviews	3

Summary of partners

Africa 2000 Network; Africare; Agricultural Research Institute Maruku; Clinton Hunter Development Initiative; Christian Rural Aid Network; Ethiopian Institute of Agricultural Research; The International Crops Research Institute for the Semi-Arid Tropics; Instituto de Investigação Agrária de Moçambique; International Institute of Tropical Agriculture; International Plant Nutrition Institute; Kenya Agricultural & Livestock Research Organisation; Millennium Villages; MEA Fertilizers Ltd; N2 Africa; National Smallholder Farmers' Association of Malawi; Savanna Agricultural Research Institute – Ghana; Agricultural Research Institute – SELIAN Tanzania; Sokoine University of Agriculture; Wageningen University; Zambia Agricultural Research Institute. In addition ASHC produced 21 different pieces of promotional information for ASHC, COMPROII and OFRA.

Lesson 7: Farmer friendly materials matter

Part of the motivation behind the Africa Soil Health Consortium was to explore ways to present information on soil fertility approaches that would talk directly to farmers. The approach favoured by ASHC is integrated soil fertility management. This approach combines improved seeds, fertilizer and organic matter with good agronomic and water management principles.

There is no shortage of soil fertility technologies ready to be adopted.

ASHC developed a participatory write-shop process that has proved effective, participatory and highly appreciated by the participants. The process maps common practices amongst farmers and then compares this to the desired changed with the proposed technology. The participants then seek to spell out the benefits to the farming family. The use of scientific jargon is kept to a minimum and farmer-friendly measures are used that farmers can easily follow. It enabled farmer-friendly information materials to be developed quickly and accurately.

Over 5 days in 2014, an event was held with seven AGRA Soil Health Program grantees working on soybean

and pigeonpea in central and eastern Africa. The event incorporated a write-shop and a number of media training activities. This event proved very productive with delegates each producing 3 or 4 print-based materials. This is a very good example of how ASHC has used the write-shop process to develop capacity in partner organisations and give them tools to address future communication challenges.

In phase 1 we tried hard to link the message to the media that would make a change in the intended audience. However, many partners did not go on to take campaign materials to scale. In phase 2, ASHC is partnering at every step of the process and we are already seeing how this can have a dramatic impact on the conversion of concepts into materials available to farmers. ■

Why has it proved so hard to find good farmer-friendly materials that are agronomically accurate?

- Scientists are rewarded for producing materials that talk to other scientists – not producing farmer-friendly materials.
- Scientists use lots of jargon, which is not used by farmers, and they are often afraid to create simple instructions that farmers understand
- There is a lack of empathy for the conditions smallholder farmers face. For example, they don't have scales or tape measures, so many recommendations are hard to apply.
- When materials are circulated amongst colleagues, it is often the case that they become more complex as people add in detail based on what they know, rather than an empathetic response to what the audience needs to know.
- Often funding proposals are very specific about what materials will be produced and this works against an exploration of what would work best and participatory approaches to develop materials.
- It is hard for scientists to imagine innovative approaches to information dissemination: projects and teams are rarely led by younger scientists.

Lesson 8: Market survey on ASHC products and processes

Regular stakeholder feedback helps keep the focus

In April 2014, ASHC carried out a series of key informant interviews in Kenya with representatives of 25 current and potential partner organisations. These included NGOs, national and international research organisations, government extension and outreach agencies and private companies. Only four had worked with ASHC previously. The study gathered feedback on ASHC services and outputs and also gathered inputs on prototypes of pest management factsheets.

Demand for services

- There was a clear continuing demand and need for ASHC's services and outputs.
- There was enthusiasm about the role

ASHC has to play in creating better access to soil health knowledge.

- Many NGOs do not have development communication expertise in-house and are therefore potential users of ASHC's services.

Promotion of library of resources

- For many key informants access to up-to-date information was a problem. If ASHC's material library can serve this function that would be beneficial.
- More awareness needed to be generated about ASHC's services and library of materials.

Ways of working

- It was important to avoid duplication of effort and for harmonisation of messages among organisations. This required better coordination and communication.

- Dissemination plans were needed to ensure materials produced were effectively shared and used.
- Lack of adequate staff means that ASHC cannot always meet clients'/ partners' expectations.
- ASHC should help bridge the gap between farmers and scientists to facilitate two-way interaction.
- ASHC needs to clearly articulate how it will work with the private sector and what services it will provide to them.
- Some organizations have prescribed ways of presenting and communicating information, but seek content.

The final point made was that the ISFM handbook was an important and useful resource but it would need to be updated at some point in the future. ■

Lesson 9: Needs assessment studies in Tanzania and Ethiopia

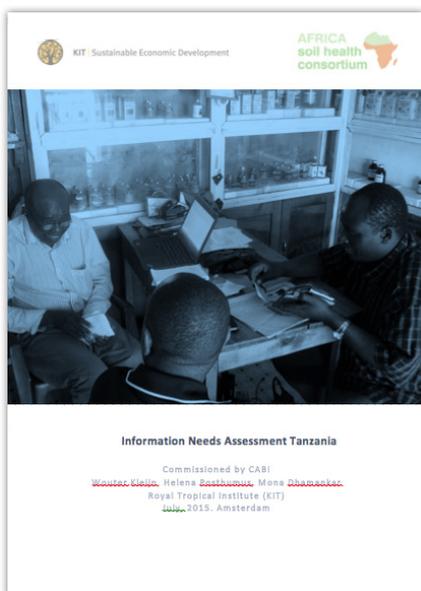
ASHC commissioned KIT (the Royal Tropical Institute) Amsterdam, to carry out an information needs assessment in Tanzania to provide insights for designing new materials as well as delivery channels for phase 2.

The assessment focused on the needs of intermediaries, especially in their interactions with smallholder farmers. Semi-structured interviews were conducted in the field with agro-dealers, representatives of public research institutes, public extension workers and their managers, agro-input companies and farmers.

The field work was carried out in April 2015 in the Mbeya and Arusha regions. KIT was supported by a colleague from Africa Fertilizer Agro-business Partnership, Peter Shao.

Public extension, agro-dealers and agro-input companies also shared information on their needs and aspirations for information.

Full information from the Tanzania and Ethiopia information needs assessments can be seen on the ASHC website. Research into the needs in Uganda and Ghana commenced in October 2015. ■



Information Needs Assessment Tanzania

What they said about working with farmers in Tanzania

Information for farmers should be crop specific and should provide detailed information from land preparation to post-harvest management practices. It should include guidance on new inputs (seed varieties, fertilizer and pesticides).

Pests/diseases were considered to be crucial as new products and pests come and go. Some information needs of farmers are not directly related to ISFM or pest management, such as post-harvest practices and market information. Information should be targeted to the three main agro-ecological zones (lowlands, medium, highlands).

Information should be concise and comprehensive: text for farmers should be reduced to the minimum and supported by photos and diagrams. This is a challenge and prototype testing of different content and formats has been introduced in ASHC phase 2 to address this.

Contact details of information providers involved in materials production, or sources where inputs can be accessed should be included at all times to encourage interaction and follow-up.

Where farming information is sourced

- family and neighbours
- the yearly Nane Nane agricultural fairs
- product labels
- public extension
- research institutes
- private extension (mostly by agro-input companies)

Nane Nane, Kiswahili for 'eight eight', refers to a day held annually on the 8th of August to mark the importance of farmers to the Tanzanian economy. *Nane Nane* agricultural fairs are held throughout the country where government and private sector display their products and services to the public.

- Few of the sample watch television and even accessing radio for farming information was rare
- Only one extension agent used the internet
- Film was highly rated as effective especially in areas where literacy levels are low
- Manuals can be useful for intermediaries
- Print for farmers should have limited amounts of text in a large font and with plenty of photographs. Different formats should be tested
- Photos should depict real life situations and feature local farmers as much as possible

Lesson 10: Cropping system facilitation beats commissioning

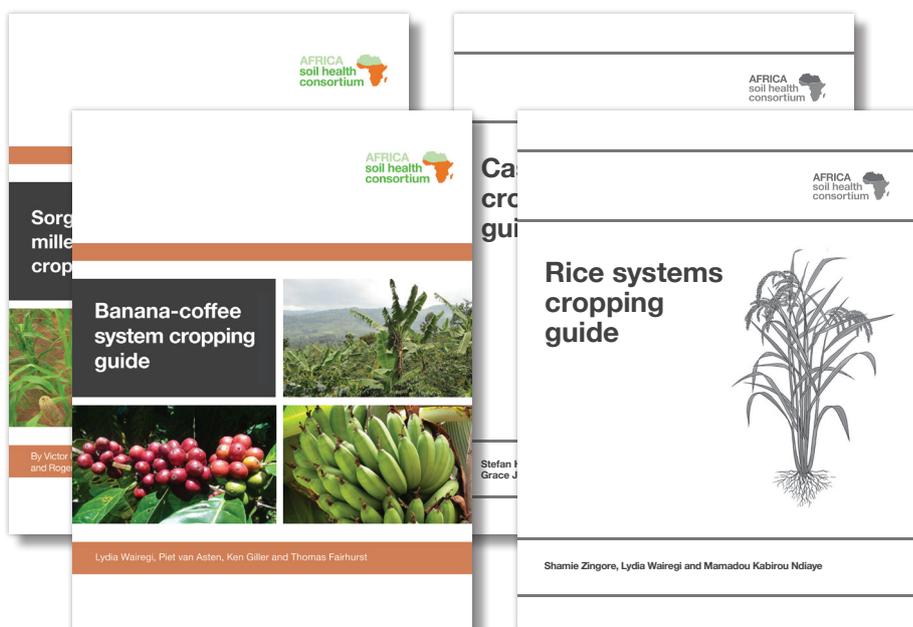
The ASHC cropping system guides present the general principles of ISFM for a given crop. They are targeted at extension workers working with farmers and those developing extension training. Priority cropping systems identified at the beginning of the project were maize/legume, rice, banana/coffee, sorghum or millet/legume and cassava to align to the funders priorities.

Developing the cropping guides was a long process. These documents were designed to drive the development of farmer level information, but in reality they were not completed until the end of the project. This happened because relying on researchers to write practitioner-friendly copy proved unsuccessful.

Through phase 1, a workshop process was developed to overcome the logjam. A facilitator/editor teased practical, actionable information from the technical experts and researchers. The editor then used this information to write the first draft that was then refined through an iterative

process with the experts, leading to the final product. An editorial process that facilitated the production of the content ensured that the guides were consistent and concentrated on

action points. Most of the scientists commissioned to produce guides had a default style – text books and struggled to make the transition into practical guidance material. ■



The cropping guides in colour and black and white

Lesson 11: ASHC commissioned literature reviews

Literature reviews help projects to test assumptions and focus priorities. ASHC conducted a literature review on smallholder farmers' information needs and media preference. The review has a particular focus on agro-dealers and youth as intermediaries to reach farming families.

This has been published in the peer-reviewed journal CAB Reviews: "Communicating with smallholder farming families – a review with a focus on agro-dealers and youth as intermediaries in sub-Saharan Africa." A second review, "Women and ISFM adoption in Mali," was written by the

ASHC phase 1 gender consultant Louise Mailloux from the Overseas Development Institute. This review explored the role gender plays in adopting and implementing ISFM practices. There is a focus on the techniques that should be applied when planning training sessions to ensure that women and men have equal access to ISFM techniques and information. Examples and best practices were drawn from Mali and other Muslim cultures in West Africa (90% of the population of Mali is Muslim). Communication strategies from other agriculture and rural initiatives were also included. ■



The Africare team in Ghana test approaches to sharing information with a group of smallholder farmers

Lesson 12: Printing remains important – to supplement digital publications

Even in the digital age printed documents remain important, especially in parts of Africa that have poor internet connections

The Africa Soil Health Consortium phase 1 planning process saw a commitment to making materials available for printing. The thinking was that the guides would be online and available to download by individuals, or for bulk printing by agencies such as extension services. The reality was both proved to be harder than anticipated.

The handbook was launched at a reception as part of the conference 'Integrated Soil Fertility Management in Africa: From Microbes to markets' (ISFM Africa 2012). This was a shrewd strategy – taking ASHC to places where the ISFM community convened, rather than trying to hold its own events gave the project great

exposure for relatively little cost.

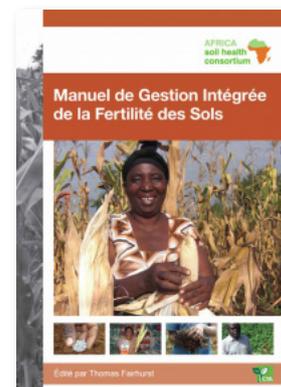
By handing out copies of the handbook many logistical issues were side-stepped. But what became abundantly clear is that there was a high demand for printed materials.

In 2013, the Alliance for a Green Revolution in Africa (AGRA) agreed to fund the printing of 3,000 manuals in English. The ASHC technical advisory group advocated for a French printed version of the handbook. Internet access is low in many Francophone countries. Access to the internet in 2014 is reported to be 4.2% in Burkina Faso compared to 47.3% in Kenya¹ – making downloading the manual in West Africa impractical.

A grant from the Technical Centre for Agricultural and Rural Cooperation (CTA), based in the Netherlands, funded the printing of 3,000 additional copies of the ISFM

handbook, 1000 in French. This was the first time hard copies had been printed in French.

CABI and the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) are cooperating to get the handbook to their 32 university members. ■



The ISFM guide in French

¹ internetworldstats.com

Lesson 13: Production of slides based on the ISFM handbook as curriculum support tools for universities

ASHC partnered with Wageningen University and Research Centre in the Netherlands to produce curriculum enrichment materials based on the ASHC handbook for integrated soil fertility management.

There is a paucity of ISFM materials suitable for use in African universities. So, ASHC has been working on a dual strategy of developing curriculum support materials and getting copies of the ISFM handbook into university libraries in partnership with RUFORUM.

Guidance from the technical advisory group for the project made it clear that ASHC should support curriculum enrichment where it could, without overtly campaigning to change the curriculum content.

Four sets of PowerPoint slides have been developed and a set with a voice-over is close to finalization. Each has supporting notes to help a lecturer to explain all of the essential elements of ISFM. There are also suggestions for exercises to consolidate the learning. When all

four are finalized they will be made available via the ASHC website.

Lecture 1 – The principles of integrated soil fertility management

Lecture 2 – Soil and soil fertility

Lecture 3 – Soil fertility management

Lecture 4 – Targeting ISFM options

This is a good example of a creative approach to repurposing assets and deriving added value for relatively little incremental expenditure. ■



ASHC developed a timeline display for the technical advisory group meeting to help members track the projects progress (see lesson 15 on innovative approaches to information sharing)

Sharing lessons and ISFM promotional material is essential for learning to be possible

Lesson 14: ISFM materials library reaching a wider audience

ASHC re-launched the website in October 2014. The focus of the previous website had been in telling the story of ASHC. The new focus is as a repository of ISFM materials generated by ASHC and partners.

There has been strong upward trend in the number of materials that have been downloaded.

The ISFM materials library has been built up and now hosts over 300 materials. There has been strong upward trend in the number of materials that have been downloaded. June-September 2016 saw a four-fold increase in the number of downloads, compared to the previous four months.

The next area to be developed will be reports and lessons which will be added over the coming months. ■



The ISFM materials library

Lesson 15: Innovative ways of sharing information sparked interest in ASHC

As a communications project, ASHC has to think carefully about how it presents information. The project needs to show in all its communication that it can take complex ideas and present them in a fresh way. In the Tanzanian bean campaign, we shared a poster that helped partners conceptualize how the Legume Alliance was aiming to communicate inter-generationally. Here we used a simple graphic showing how the work of partners creates communications that provide information accessible to the mother, father and children.

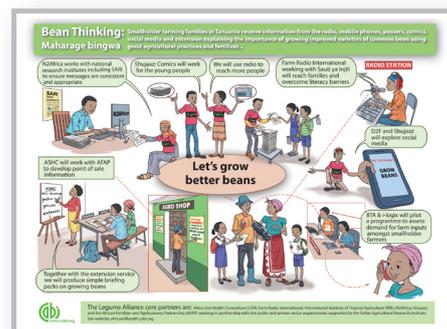
An infographic poster was also developed to explain what was achieved in phase 1.

For Soil Health Day 2012, ASHC asked 15 leading figures in soil health and development what would be their one wish to improve

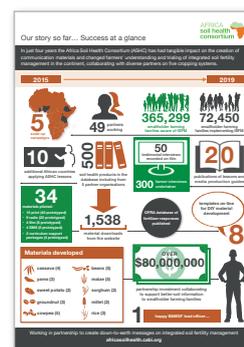
the lot of farmers. Some very ingenious wishes emerged: from a simple idea for a concept for a newsletter we saw some of the blue skies thinking that our partners were engaged in.

We used a simple graphic showing how the work of partners creates communications that provide information accessible to the mother, father and children.

In phase 2 ASHC will continue to innovate in the way that it produces communications about the project. In just a few weeks the Bean Thinking poster has been presented at five international events including the World Food Prize. ■



The Bean Thinking poster



An infographic used to bring the advisory group up to date with progress – further publications have since been added to the website

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