The Foundation continues to evolve – and so does its Review

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Letter from the Chairman and Executive Director

A great deal has changed since our Anniversary Review at the end of 2011. Mali, where our Foundation has worked successfully for over 30 years, has been through political turmoil. In West Africa as a whole, we are increasingly shifting from national projects to a more regional approach, mainly focused on rice. In East Africa, we have introduced Farmforce, a powerful software tool that will make it easier for buyers to source from smallholders. We have also made great progress in what for us is a new crop, making high-quality potato seed available to more and more farmers in Kenya and Tanzania.

Our projects in Asia and Latin America have taken big strides forward, always with the aim of scaling up as efficiently as possible from the pilot phase, to serve hundreds of thousands or even millions of smallholders in the longer term. Worldwide, launch of the platform AgPartnerXChange significantly boosts our drive to stimulate more public-private partnerships for agricultural development. These and many other changes are the subject of this Review, combined as in 2011 with background information on selected key themes in our field of operation.

Further major changes have taken place within the Foundation itself. Internationally, several staff members have joined our organization, including the new Executive Director of Syngenta Foundation India. A founding member of our Board, Pierre Landolt, retired in 2012, followed in 2013 by our longstanding Chairman, Martin Taylor. We are immensely grateful for the untiring manner in which they generously shared their expertise and insights in the service of the Syngenta Foundation, and wish them long and happy retirements.

While on the topic of change, we would also draw your attention to the questionnaire accompanying this Review. In the past, we have asked more generally for comments on this publication, and have received some very helpful guidance. This year, however, we would greatly value your more detailed views on specific aspects. So please do take a few minutes to tell us how you would like our reporting to develop in future. The Foundation’s focus remains firmly on the improvement of smallholders’ yields and their links to markets. How we can inform you best about that work, however, and about sustainable agriculture in general, is definitely for you to say.

If this copy of the Review no longer contains the questionnaire, or if you prefer to complete it online, you will find an electronic version on our website (www.syngentafoundation.org).

Michel Demaré
Chairman of the Foundation Board

Marco Ferroni
Executive Director
Every village hectare needs a business plan

Cost-benefit analysis takes smallholders a big step forward

In most professions, solid data are the bedrock of decisions. Enabling smallholders to run their farms as sustainable businesses requires data collection, interpretation and application to practice. This process can have numerous and sometimes surprising results. We asked the Syngenta Foundation’s Chief Science Advisor, Mike Robinson, to tell us more.

Theoretically, sustainable agriculture has three main dimensions: environmental, economic and social. But in practice, aren’t the first two often contradictory?

Mike Robinson: Not at all. They are closely interdependent. Careful use of natural resources helps farmers to be more productive – and to stay in business long-term. Their economic success makes farming a more attractive profession for their children, who then invest in the land and local environment.

Worldwide, many young people continue to leave their family farms for urban employment. What is the Syngenta Foundation doing to halt that trend?

We and our many partners are not trying to stop a new generation entering industry or the service sector. But we do want to make smallholder farming more remunerative. That way, it becomes a serious professional alternative to leaving the countryside. In 2012 and 2013, our Foundation put more effort than ever into studying how farmers can manage their production to get the best returns, and into sharing those insights with them.

So are you saying that every village hectare needs a business plan?

Essentially, yes. Farmers need to see better what is a good investment, or what is less worthwhile, and be able to act accordingly. Sometimes, just small changes in their practices can take farmers a long way towards sustainable success.

What would be an example?

Well, to the surprise of many farmers, harvest quality improves their bottom line much faster than quantity. Enhancing a crop by just ten percent can increase their income more than raising yield by a third. Acting on that knowledge requires a significant change in mindset for many smallholders.

But presumably you look at more than just income?

Yes, that is very important. Viewing farming seriously as a business requires a detailed look at the entire cropping year. Each cycle of planting, cultivation, harvest and sale needs careful analysis of the real costs and earnings.

Investments in soil quality pay off rapidly

What about the soil?

Good soil management is one of the many areas where ‘environmental’ and ‘economic’ go hand in hand. Healthy soil is vital for a healthy crop. Often, however, a smallholder knows very little about what’s under his or her feet. Is this field too acidic? Does that one contain too little organic matter? How suitable is the soil structure for the crops grown? Proper soil testing, wherever that is possible, should also be part of the business plan. So, then, should be an educated course of improvement – for example, liming fields that are too acidic, or adding the right kind of fertilizer to poor earth. Investing in good soil management pays off fairly quickly, typically within three years. But farmers need to see that!
Let’s suppose the farmer does everything right, from soil preparation through to harvest. What happens if she or he can’t then store the crop safely?

Frequently, lack of storage coupled with lack of cash means that many farmers are forced to sell quickly after harvest. But that’s when most produce is on the market, so prices are low. A ‘full cycle’ business plan helps smallholders to see the value of storage. By protecting harvested crops from damage, they can sell later at higher prices.

“Aggregation of farmers has many advantages”

But surely, even with a business plan, individual smallholders can’t all afford private silos?

Storage is one of several activities best done together with other farmers. We’ve gained considerable experience here in Mali, for example, and are trying new storage models in Kenya. An organized group of smallholders can access credit better, and jointly build a storeroom. Looking carefully at costs and income, farmers also soon notice other benefits of ‘aggregation’. In a group, they can save money by bulk-buying quality seeds or fertilizer. They can perhaps also afford some machinery that makes them more efficient, and less dependent on laborers, whose wages are increasing rapidly in countries like Bangladesh or India. Extension agents paid by the group can train a few farmers thoroughly on how to spray crops correctly; these specialists can then take on the task for 50 colleagues.

As a group, farmers can more reliably supply a wholesaler who needs large amounts, or meet the sophisticated demands of restaurant or supermarket chains. This ability lets them tap important new sources of income, as we’ve seen in Peru, Kenya, Indonesia and Vietnam, for example.

As you’ll see on page 16, our Foundation has recently introduced Farmforce. This new software helps produce-buyers work far more efficiently with large groups of farmers than in the past. And farmer groups don’t have to stop at 50 members. Aggregation is highly scalable: 100,000 smallholders can get together without the costs of organization shooting up proportionately.

You stress how important it is for farmers to ‘look at the figures’. But usually, smallholders don’t record the numbers they need…

Traditionally, that’s correct. For a true picture of return on investment (ROI), we had to build our own collection of data. We were able to do so because the Syngenta Foundation works closely with farmers, and with other partners along the agricultural value chain. Here again, scalability is very important to us: behind the individual numbers for each local situation, we want to establish an ROI model that we can apply all over the world. As a relatively small foundation, we have to be clever. That means working in the right partnerships, for example, but also not ‘reinventing the wheel’ each time, or trying to increase our impact by pumping in funds.

Money up front is important to get most businesses going. Surely that’s also true of small farms?

A kick start, or ‘catalytic nudge’ as we call it, by definition involves outside assistance. And yes, that often includes some financial investment. But professional ROI measurement makes it much easier to identify what’s really needed. Whether the initial support comes from a development agency, potential buyer, credit institute or other sources: solid data and a business plan show clearly how much financial investment is required, for how long, and when payback is likely. That insight is a major encouragement to invest in sustainable agriculture.
Sowing the seeds that meet customers’ needs

Demand-Driven Plant Variety Design

The Syngenta Foundation wants to maximize the benefits of international research and development for smallholders in developing countries. Improved crop varieties are a key focus of that R&D, and can greatly contribute to improving food security. However, technology solutions alone are not enough. Scientists also need to connect closely to the channels that give smallholders access to improved seed and use demand-driven approaches to increase adoption of new varieties.

Customer demand is a vital ingredient for successful businesses. This also applies to the breeding of improved crop varieties for smallholder farmers in developing countries. It is essential for food security that public programs generate more varieties that farmers and their customers want to use. Some government programs include farmer participation in variety development. However, typically the public sector focuses less on demand than private companies.

Program funders often support specific objectives matching the Millennium Development Goals or national policies, such as ‘improving drought tolerance of food staples in Sub-Saharan Africa’. Funds go into, for example, the discovery of new genes, research to understand their function, and incorporation of key beneficial traits into the best local varieties. The emphasis is therefore frequently on technology rather than customer demand.

‘Demand-driven’ plant breeding puts customers at the heart of R&D. It involves users even before the scientific work start. These ‘users’ are not only farmers, but also stakeholders right along the value chain. They influence how the crop is traded as fresh food, processing material, and as seed. Adoption of new varieties by smallholders depends on more than just their intrinsic benefits. Good quality seed needs to be available, affordable and accessible. Seed organizations, however, can only flourish when they have a range of sought-after varieties to sell that bring benefits along the value chain.

Designing a ‘customer-driven’ variety means taking into account the preferences and needs of key stakeholders. Table 1 lists some possible crop features. Market researchers ask farmers, seed companies, processors, consumers and others to rank the importance of each requirement. Breeders then review the wish list for technical feasibility. Because developing new varieties can take a long time, breeders need also to assess how customer preferences and agriculture could change over the next decade.

Table 1: Examples of characteristics contributing to an ideal variety

<table>
<thead>
<tr>
<th>Consumer aspects</th>
<th>Agronomic performance</th>
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<tbody>
<tr>
<td>Taste</td>
<td>Yield in different climates and soils</td>
</tr>
<tr>
<td>Flavor</td>
<td>Resistance to extreme weather</td>
</tr>
<tr>
<td>Shape</td>
<td>Response to fertilizer and crop protection</td>
</tr>
<tr>
<td>Color</td>
<td>Resistance to key pests and diseases</td>
</tr>
<tr>
<td>Texture</td>
<td>Water usage</td>
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<tr>
<td>Cooking qualities</td>
<td>Germination time and growth cycle</td>
</tr>
<tr>
<td>Storage life</td>
<td>Ease of harvesting</td>
</tr>
<tr>
<td>Nutritional qualities</td>
<td>Quality and yield of animal fodder</td>
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<tr>
<td>Safety</td>
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<thead>
<tr>
<th>Crop and food processing</th>
<th>Seed production</th>
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<tr>
<td>Resilience to transport</td>
<td>Fertility</td>
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<tr>
<td>Suitability as raw materials</td>
<td>Germination rates</td>
</tr>
<tr>
<td>Speed of processing</td>
<td>Propagation and production</td>
</tr>
<tr>
<td>Quality of end-product</td>
<td>Resistance to seed-borne disease</td>
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<tr>
<td></td>
<td>Cost</td>
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<table>
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<tr>
<th>Seed sellers</th>
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<tr>
<td>Clear benefits over existing varieties</td>
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<tr>
<td>Pricing and profitability</td>
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<tr>
<td>Access to germplasm</td>
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<tr>
<td>Intellectual property and other rights</td>
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<tr>
<td>Certification systems</td>
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<td>Costs of distribution</td>
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</table>
Integrating demand-driven design into public sector breeding requires support from governments and donors. Researchers and breeders need access to reliable market knowledge, and be able to translate it into their work. This may require partnerships with the private sector. Additional considerations may also be important: for example, some national authorities only register new varieties that meet particular yield criteria. Table 2 lists major preconditions for more demand-driven crop design in Africa.

Creating a design that has customer support is the start of a program. Later, however, technical difficulties can arise. If they do, maintaining the customer focus and not lowering the technical specification are essential for subsequent adoption. Public and private sector experts need to share knowledge and solve problems together. Public-private partnerships provide an ideal framework for both sectors to combine their skills to best advantage to create and deliver new varieties that farmers and their customers really want.

Table 2: Key requirements of demand-driven variety design to build Africa’s seed sector

| **Customer-designed varieties:** | Seed organizations require portfolios that meet a wide range of stakeholders’ needs in different regions. |
| **Multi-disciplinary inputs:** | Stakeholders along the entire value chain need to be able to inform scientists about their various requirements. |
| **Scaling up production:** | Breeding strategies need to enable cost-effective large-scale seed production. |
| **Public breeding capacity:** | Many African countries lack capacity for demand-driven crop breeding. Opportunities for investment in National Agriculture Research Systems need to be identified. |
| **Enabling environment:** | Governments need, for example, to encourage public-private partnerships, easy transport of germplasm and speedy registration of varieties that meet customer demand. |
| **Public-private partnerships:** | PPPs can greatly boost seed scale-up. They enable public sector breeders to access information, germplasm and routes to better farmer adoption. The private sector can access more testing capability and tailor new varieties to strengthen commercial seed channels. |

This article summarizes a recent article by our Senior Advisor Vivienne Anthony, written as part of the co-sponsored project on Seed Scaling between USAID and the Syngenta Foundation. The full text is available on www.apxc.org under “Scaling Seed”.

7
Helping Africa manage crucial technologies

Stewardship supports safe access to technology by smallholders

The Syngenta Foundation supports stewardship capacity-building in developing countries. We view this as an essential component of developing and delivering relevant technologies to small farmers.

‘Stewardship’ in the agricultural context means the responsible management of farming practices and technology. It is a core requirement for sustainable agriculture by smallholders and large-scale farmers alike. Plant biotechnology stewardship focuses on the responsible and safe management of a new crop variety at every stage of its life cycle. The quality and safety approach is applicable to any new crop variety, whether produced using transgenic technology or new bioscience techniques with conventional plant breeding.

Stewardship requires researchers and stakeholders to evaluate their processes. ‘Hazard critical control point analysis’ (HCCPA) identifies where risks could occur. Scientists then need to implement best practices using standard operating procedures (SOPs) to prevent mistakes that could compromise safety or the preservation of variety identity.

Since 2009, the Foundation has been supporting the introduction of stewardship in Africa. Our partnership with the Forum for Agricultural Research in Africa (FARA) has pioneered implementation of best practices in public sector research and development programs across the continent. Six countries participated in the SABIMA project (Strengthening Capacity for Safe Biotechnology Management in Sub-Saharan Africa). Burkina Faso, Ghana, Kenya, Malawi, Nigeria and Uganda were all already undertaking programs with genetically modified crops.

SABIMA has created stewardship policy statements, communicated these in each country and applied them to R&D programs on genetically modified and conventional crops, as well as to livestock and veterinary products. Over 1200 researchers and farmers have received stewardship training from 20 African stewardship leaders who qualified through FARA’s ‘Train the Trainer’ program. By late 2013, over a dozen institutes had conducted HCCPA on their procedures and implemented over 70 SOPs.

Following the first Pan-African Biotechnology Stewardship Conference in 2011, twelve African case studies from the project continue to help spread best practices. During 2012 and 2013 awareness-building by the stewardship leaders in each country continued. In parallel, FARA has with our assistance been seeking larger funding to increase capacity-building in the original six countries and others. At its Africa Agriculture Science Week in July 2013, FARA devoted a special meeting to SABIMA. African participants and the Syngenta Foundation continue to advocate strengthening biotech stewardship capacity for safe and successful delivery of products that will benefit smallholders.

http://www.fara-africa.org/our-projects/sabima/publications
Soil fertility, carbon and food

Healthy soils are essential for successful agriculture. Keeping farmland fertile, however, requires hard and careful work. The Foundation addresses many facets of soil health.

‘Good soil’ is a loose term, but specialists regard certain parameters as particularly important. These include the amount of organic matter and available nutrients, the activity of organisms such as bacteria and fungi, and the soil’s pH. The interaction between these factors and plants is crucial for crop cultivation. Microorganisms depend heavily on organic matter. Soils with a high level of organic matter can also retain more water and nutrients for the plants.

Integrated soil management includes good use of manure and plant waste. When nutrients are lacking, farmers can additionally compensate with fertilizer. However, this requires knowledge and care. Underuse reduces yields; overuse can lead to soil acidification or air and water pollution, and is expensive. Especially for resource-poor smallholders, better application efficiency makes a crucial contribution to improving food productivity.

Soil absorbs greenhouse gases by binding them via plants, and is a huge carbon reservoir. Plants use carbon dioxide (CO₂) from the atmosphere for photosynthesis, integrating the carbon into sugars. The plants release carbon into soil via their roots or litter. Net transfer of carbon from atmospheric CO₂ to soil is called ‘sequestration’. Carbon sequestration enhances soil quality, and is thus essential for agricultural production.

Partnerships for pressing problems

The world’s population is growing rapidly, and so is the demand for food, feed and fiber. Since the 1980s, global consumption of wheat, for example, has increased by almost half and corn by over 110 percent. Today, about one billion people are food insecure, most of them in developing countries. However, global farm resources are limited and productivity growth is currently slowing. In Sub-Saharan Africa, some experts predict that yields of certain food crops in Sub-Saharan Africa will decline sharply by mid-century. This forecast is based partially on years of soil depletion in the region. Reasons for farmers’ inadequate soil management include weak land rights, volatile crop and input prices, insufficient knowledge and lack of access to credit. A sustainable response requires close cooperation between many partners.

Over the last few years, our Foundation has been involved in several initiatives linked to preventing soil degradation. These include Payment for Ecosystem Services, its subset Payment for Agrobiodiversity Conservation Services, and work aimed specifically at improving carbon balance. For example, the World Bank BioCarbon Fund (BCF) mobilizes finance for innovative projects that sequester or conserve carbon in forests and agro-ecosystems, while generating income for smallholders. Our Foundation has supported BCF since 2007. Further initiatives include the recent collaboration on training material with Switzerland’s Research Institute of Organic Agriculture (FiBL), support for ‘TraPs’, a major global initiative related to phosphorus, and the Namibian-Swiss project described on page 26.

This text is an abridged version of a project paper by Tanja Wenger, the Syngenta Foundation’s intern for 2012-13.
The Syngenta Foundation is working to create properly functioning seed systems in East Africa. Its initial aim is significantly to improve smallholders’ potato harvests. As always, we have teamed up with partners to achieve this ambitious goal. Ian Barker, our Head of Agricultural Partnerships, explains.

How would you describe your work in brief?  
Ian Barker: We are helping to raise potato yields in Tanzania and Kenya by increasing the availability of high-quality seed. Two crucial aspects are regulatory simplification and close cooperation between large farmers and smallholders.

Why is good seed so important?  
Because it can increase farmers’ yields and profits – more than double them, in the case of potato. Good disease-free seed developed to match local conditions and markets is farmers’ most valuable input. Lots of other factors affect agricultural productivity, but planting better seed has the largest impact of any single change. Seed is also very ‘scalable’: it is much easier to increase supplies than, for example, to provide more and more extension workers to train farmers.

Why haven’t East African smallholders used good seed so far?  
With potatoes, clean new seed accounts for 40% of production costs. Seed saved from previous years is often diseased. But up front, using saved seed is a very low-risk strategy, because it avoids financial outlay. Access to affordable crop insurance enables smallholders to reduce the risk of investing in new seed. But even if all smallholders had insurance, they would still have a problem on the supply side. The major issues in the seed market are ‘the three A’s’: availability, accessibility and affordability.

Outsiders often sweepingly claim that good modern seed is too expensive for smallholders. But when a properly functioning private sector puts seed within farmers’ reach, they will buy it. The jump in yields offsets the extra investment by a considerable margin.

However, making seed available for sale is highly complicated. To be accessible in the first place, it needs to be officially tested and registered, disease-free, reliably produced, and safely transported and stored. Smallholders also need financially to bridge the period between planting and crop income. So affordability at the point of sale often also involves suitable credit and/or insurance mechanisms. Essentially, none of these preconditions have been in place in East Africa.

A step-change with seed:

“We want to double the yields of a whole region’s staple”

Why are you concentrating on potato?  
Potatoes have a number of advantages, and that’s why they are a key crop in Kenya and Tanzania. They have a short growing cycle: the calories are available three months after planting. Unlike the other local staple, corn, potatoes are fairly drought-resistant. They are nutritious, and contain much more Vitamin C than corn. Potatoes are also what I call a ‘dual crop’ – farmers can grow them both for family consumption and cash.

What obstacles have you encountered in this work?  
In a sense, all the Syngenta Foundation’s projects are about obstacles – or rather, about removing them! In this case, the major hurdle was a change in regulatory approach. Appropriate potato varieties were already registered in Kenya. The East African Community also had a legal mechanism in place for this registration to be valid in other member countries such as Tanzania. But nobody had ever actually used this possibility. The authorities worked very hard to overcome their lack of familiarity with the mechanism and achieve speedy registration in Tanzania. Since then, the obstacles have been more related to questions such as in-
infrastructure – poor rural roads can make punctual and cost-effective transport very difficult!

How much impact have you made so far, despite the challenges?
The program is already supplying seed to thousands of smallholders. Our partners estimate the farmers’ average additional profit at about $2000 per year. That is a huge percentage boost to their income. From talking to these smallholders, we know that a lot of the extra cash goes straight into their children’s school fees.

“Better seeds keep children in school”

Who are your partners?
I am delighted to say that the drive to make quality seed available has united a wide spectrum of highly professional partners. They include the large operations that are now growing seed potatoes – Kisima Farm in Kenya, Mtanga Farms in Tanzania, together with their many smallholder neighbors. Under the umbrella of TransFarm Africa, Lion’s Head Global Partners LLP has played a key role. Lawyers at Sidley Austin have contributed enormous energy and vital expertise to accelerating variety release and developing new licensing models. As just mentioned, staff at the Kenya Plant Health Inspectorate Service worked closely with colleagues at the Tanzania Official Seed Multiplication Institute. Our program is also most fortunate to enjoy the support of several social impact investors.

What has surprised you most so far?
What surprised me first was the low attention paid to potatoes, until recently, by the international development community. This is now starting to change, and rightly so: in East Africa alone, the crop ensures the livelihoods of 2.5 million smallholders. In our work there, I have been very pleasantly surprised by the willingness of private and public partners to pull together and address the important national issue of seed supply. There haven’t really been any unpleasant surprises. It’s been a difficult journey, but we knew it would be. I’m passionate about potatoes, and about making seed available, so every step forward has been very rewarding.

What are the main differences between the situation in Kenya and Tanzania?
Kenyan regulatory officials have more experience in applying seed legislation to potatoes, and had trial data already available. But there are more similarities than differences: in both countries, potatoes are a very important smallholder crop, but so far without a proper seed market. Both countries have entrepreneurial large farms willing to pioneer seed-growing to the benefit of nearby smallholders. The private sector crucially complements government capacity to produce seed. But in both countries there is still a lot of work to be done before enough seed is available to double yields nationwide.

Critics maintain that modern certified seed pushes out traditional varieties and therefore further reduces crop biodiversity. How do you view this?
There are situations in which that can become a problem. Peru, for example, has greatly benefited from recent efforts to encourage Andean smallholders to grow their grandparents’ indigenous potatoes again, alongside more recently bred varieties. And crop biodiversity issues worldwide are not restricted to potatoes. But in East Africa, potato is an ‘introduced’ crop without indigenous land races. So high-quality seed is not squeezing out the local biological patrimony; it’s replacing diseased seed with clean, and raising yields.

Where do you see your projects going in future?
We are still at an early stage. Mtanga Farms and Kisima Farm have considerable scope for increasing production. Rising urban demand for processed potatoes acts to expand the market for smallholders, if they grow the right varieties – so we are currently working on these, for seed production in East Africa. Fair and equitable licensing terms between seed companies and farms are crucial here, and we’ve already shown that these are possible. Our Foundation now wants to roll out its approach to seed systems development in other countries. We are already working on other crops that lack proper seed markets in East and West Africa, for example sorghum, beans and vegetables. Overall, we’ll be pressing for greater regional harmonization in plant regulatory and trade legislation, and for better appreciation of the private sector’s positive role in improving seed supply.
Breeding the basis for better yields

International R&D with strong local links

As well as working directly with smallholders, the Syngenta Foundation also supports research and development (R&D) to improve crops. Our partners in this endeavor come from a wide range of national and international organizations. The three examples on this page span four continents.

Drought-tolerant corn

Our ‘AAA’ project aims to make drought-tolerant corn Affordable and Accessible in Asia. The partnership with CIMMYT*, Syngenta and national research organizations is developing resilient hybrids that will produce good yields both in drier and wetter years. The basic idea is to combine genes from more drought-tolerant African varieties with locally used Asian germplasm. “The research trials so far have been encouraging”, says Mike Robinson, the Syngenta Foundation’s Chief Science Advisor.

In its effort to characterize the genetic basis of drought tolerance, AAA is generating a huge amount of data. These will help scientists around the world to develop crops that need less water. However, this project is not just about sophisticated laboratory science. “Importantly”, adds Mike, “the National Agricultural Research Systems in Indonesia and Vietnam are working closely with the private sector to ensure that the improved corn really reaches smallholders.” When the new varieties achieve local registration, distribution priority will, for example, be on drier areas currently lacking modern technology.

Cassava

Africa grows about 250 million tons of cassava per year. However, the crop is highly susceptible to viruses and bacteria. More resilient modern varieties rarely reach farmers, so yields remain much lower than they could be. Our partnership with Embrapa** aims to improve this situation. “One aim is to get better cassava material out to farmers, fast and economically”, explains Mike Robinson. “But that alone wouldn’t be enough. So the project also includes guidance to small and medium-sized growers on more efficient cassava farming, and better links into commercial opportunities.”

Experts believe that a combination of more robust varieties, more efficient propagation and distribution of planting material and improved agronomic practices could quadruple current cassava yields. “Our project is still in field trials in Brazil”, reports Mike. “So it is too early to predict the actual yield increases achievable in African practice. But initial results look very promising.”

Tef

Tef is the national cereal of Ethiopia, the staple diet of a large section of the population, and grown by over six million smallholders. Long overlooked by international science, tef yields are still far below their potential. Our cooperation with the University of Berne and the Ethiopian Institute for Agricultural Research has recently taken improved varieties of tef from Swiss laboratories into African fields. “Crucially”, points out Mike Robinson, “project leader Zerihun Tadele and his team have crossed desirable new traits such as shorter stalks into locally relevant varieties.” Final results will be available in three to four years. Meanwhile, Tadele (photo above) continues to make the fruits of his work available in scientific publications. In June 2013, he received further public recognition with the Dr. Rudolf Maag Prize, awarded by Switzerland’s Günthart-Maag Foundation for services to botany and plant science.

* CIMMYT = Centro Internacional de Mejoramiento de Maíz y Trigo / International Maize and Wheat Improvement Center

** Embrapa = Empresa Brasileira de Pesquisa Agropecuária / Brazilian Agricultural Research Corporation
Many roads lead to market

Better vegetables are an international source of income

**Bangladesh**
Farhad Zamil joined the Syngenta Foundation in 2012. As Director in Bangladesh, he manages a program to increase opportunities for smallholders who have limited resources and access to land. By mid-2013, more than 2000 farmers had already joined producer groups, and increased their productivity, diversification and income. Some farmers’ profits rose by the equivalent of $150 in 2012 alone, a major increase in percentage terms. The Syngenta Foundation has introduced better seeds and other technology, as well as running new outgrower operations through vendors. Our ‘Farmers’ Hubs’ scheme helps smallholders to access information and technology, collect their produce and successfully sell larger volumes. Trading through more direct marketing channels allows farmers to earn better margins. We have also helped develop partnerships between farmers and private sector potato exporters, vegetable processors and seed suppliers.

**Peru**
Our ‘Qorichacra’ program has demonstrated that it is possible to integrate smallholders into a highly sophisticated supply chain, in this case for lettuces. The buyer is McDonald’s, whom ‘pre-commercial’ Andean smallholders had never previously been able to supply. Their income has increased significantly as a result. So has their confidence, as they now know they can build a business together and deliver to the hygiene and quality standards of a large and demanding customer. In 2012-2013, the farmers’ group Samaq Hortaliza consortium expanded beyond the original restaurant in Cuzco to serve a further three outlets. The program is now managed by Carola Amézaga, who joined the Syngenta Foundation in 2013. Qorichacra’s example has encouraged other food companies in Peru to source more from smallholders. It has also confirmed to McDonald’s the importance of such farmers in their supply chain. Together we aim to replicate the Peruvian model soon in other Latin American countries.

**Vietnam**
Our peri-urban vegetable production project in Tien Le made good progress in 2012-13. Project farmers have expanded the area of vegetables grown under protective netting. Many more growers have achieved ‘VietGAP’ certification for their operations. This enables them, for example, to sell through supermarkets and thus command better prices. In 2012, 20 project farmers met this standard; by 2013 the number had risen to over 700. 14 different crops are now VietGAP certified in Tien Le. With support from the Asian Development Bank, the Vietnamese government intends to invest about $1 million in a local packing house, irrigation system and other infrastructure.

Vietnamese partners have asked the Syngenta Foundation to replicate its Tien Le model elsewhere. In Duyen Ha, we shall be demonstrating improved farming methods such as drip irrigation in combination with shade houses. We also aim to
help Duyen Ha growers achieve VietGAP certification. In both project areas, the Foundation continues to improve farmers’ training programs and strengthen marketing support for their produce.

India
Syngenta Foundation India (SFI) uses ‘market-led extension’ to develop the potential of vegetable-growers in selected parts of its existing project areas. Smallholder training and capacity-building focus on market needs. The aim is to create confidence in the concept of ‘grow together, sell together’. In 2012-13, SFI has helped farmers to improve crop productivity considerably and increase their income through commercial vegetable cultivation on a larger scale. A total of nearly 4000 farmers produced over 14,300 metric tonnes of vegetables. Much of the dramatic rise in productivity stems from the introduction of better agronomic techniques, including mulching and drip irrigation.

SFI further strengthened its partnership with Field-Fresh Foods by increasing the area under chillies for export to more than 20 acres and adding French beans on a further seven in Mokhada, Maharashtra. This resulted in handsome profits for farmer groups. In West Bengal and Odisha, SFI gave priority to hybrid seed production, for example for tomatoes. Overall, SFI employees worked with about 20,000 farming families across five states.

Indonesia
The Syngenta Foundation is currently leading two major projects in Indonesia. One is designed to develop a seed system for disease-free certified potato seed. Within a year, the quality of our mini-tuber production has already generated significant interest at major companies. The Foundation is actively leading discussions to encourage investment in the potato seed industry. For further information on the importance of better quality seed potato for raising yields and income, see the interview on pages 10-11.

Our project in West Timor (‘NTT’) recently completed its first full-year production cycle. Here we are implementing credit and extension (training) models in collaboration with NTT Bank, AUSAID and the Australian Centre for International Agricultural Research. In June 2013, we ran the ‘1st NTT Agricultural Investment Forum’. Key public and private stakeholders in NTT increasingly see the Syngenta Foundation as a leader of change in their province’s agricultural sector.

Further information on these and other projects is available on www.syngentafoundation.org
“Every farm can be a business, large or small”, says Olga Speckhardt, the Syngenta Foundation’s Principal Advisor on Reinsurance, Investor Relations and Philanthropy. “Smallholders who view their farms as businesses want to invest, but investment always involves risks. We help farmers understand those risks and reduce them.”

Olga sees four main groups of risks for farmers: natural, social, personal and economic. “Nature’s risks include pests, crop diseases and bad weather”, she explains. “By ‘social’ I mean problems such as theft, arson or political violence. Personal risks affect both the farmers directly and their animals – sickness or death, for example.” Those three categories are relatively easy to insure; the hardest is economic. These risks primarily involve price fluctuations, both for farm inputs such as fertilizer and for the crops that farmers sell.

As Olga points out, “farmers are permanent risk managers, by profession”. They have many ways to mitigate risk. Working methods include better irrigation, greater crop diversification, careful land use and proper storage. ‘Self-insurance tools’ include asset accumulation – buying a cow, for example – and informal savings groups. A third option is formal risk transfer through insurance.

“The Foundation helps farmers mainly with the first and third approaches to risk management”, notes Olga. “Our employees on three continents work with smallholders to improve agronomic practices. We also continue to scale up our insurance, known in Kenya as Kilimo Salama, ‘safe farming’. In 2012-2013, we extended the range of insurance products: as well as weather, these now include dairy cattle, for example. We also expanded from Kenya to Rwanda. More than 170,000 smallholders now use Kilimo Salama to help run their farms as risk-conscious businesses.”
“We see the challenges, and think in solutions”

It's not just farmers who face risk: imagine you are a potato processor in a developing country. Or you export vegetables, or run a rice mill. With the choice between buying from 1500 local smallholders or one big farm, you see advantages and disadvantages on both sides.

In some ways, the small farmers seem a good choice. There are lots of them to turn to. Multiple sourcing may spread your risk better than depending on one supplier. The smallholders are also keen to work with you: access to a formal market means they will make money. Contracting with you may help reduce their exposure to price fluctuations and unscrupulous middlemen. That should give them greater confidence to invest in their farms, increase productivity and thus sustainably improve their livelihoods.

However, your commercial mind argues differently: “I don’t know what quality or quantity they can really deliver. How can I trace which farmer grew what where? Who guarantees that the crops are safe for consumers? And above all: how can I work with so many farmers, ensure they do the right things and still control my costs?” If things go wrong, you’re out of business.

The trade-off is serious. And so far, it’s mostly been smallholders who lose out. “But we at the Syngenta Foundation are convinced it doesn’t have to stay that way”, declares Olga. “We acknowledge the challenges, but think in solutions. And we work to make them happen.”

Farmforce increases reliability and reduces transaction costs, so sourcing from smallholders becomes more economically viable. “The software can also track productivity and profitability for every farmer over time”, adds Robert. “With those data, we aim to make sourcing from smallholders easier, and thus create new opportunities for the improvement of livelihoods and the release of additional food supplies.”

Developing Farmforce took two years of intensive work. “Today, it is the most comprehensive solution available to bridge the critical ‘first mile’ from smallholders’ fields to formal buyers”, says Robert. Convinced of the technology’s potential, the Swiss State Secretariat for Economic Affairs agreed in 2013 to provide additional funding.

For further information, see www.syngentafoundation.org and www.farmforce.com
In West Africa, the opportunities for agricultural development and growth are as great as the difficulties that interfere with the task. The following pages feature various aspects of the Syngenta Foundation’s evolving work in this region.

As elsewhere in emerging markets and the developing world, economic growth in West Africa continues to generate increases in agricultural trade and the demand for food. These increases create opportunities not seen in decades to link smallholders to value chains and, ultimately, consumers. Urbanization is advancing rapidly in West Africa. Combined with dietary changes, this process represents lucrative new prospects to which many farmers readily respond. Vegetable production near urban areas, for example, offers transformative employment and income opportunities for growers. Our photo comes from the outskirts of Accra, Ghana.

Rice consumption in the region continues to surge (see graph). Local production has so far not kept pace, however, leading to considerable dependence on imports. Rice has therefore become a priority domestic crop for many West African countries. The Syngenta Foundation is engaged in rice intensification efforts with a range of partners (see page 20), and also works on several further crops including vegetables (see page 19).

To be able to profit from the new opportunities, farmers require support services. As our Review illustrates with examples from around the world, these services include training, good-quality seed and marketing support. To thrive, agriculture also needs a supportive governance environment. Investment in health, education and other public goods such as infrastructure plays a vital role, as do law and order, political stability, openness to trade, and appropriate regulatory mechanisms. West Africa faces some particular challenges in these areas, of which the most prominent in 2012-13 was the crisis in Mali (see page 18).

In addition to its direct engagement with smallholders in the field, the Syngenta Foundation works with Michigan State University on ‘SRAI’, Strengthening Regional Agricultural Integration. Our joint aim is to inform policy-makers and promote dialogue on issues related to regional trade and integration, in close cooperation with ECOWAS, WAEMU, CILSS and other regional organizations. Further details are available on page 21.
Well-organized farmers brave the troubles

Progress in Mali

2012-13 was a very challenging period for Mali. Government collapse, the army’s defeat by rebels, Islamist rule in the north and then international military intervention put the population and institutions to a hard test. However, the political future now looks somewhat brighter. Our projects made progress despite the difficulties.

The Syngenta Foundation and its predecessors have worked in Mali for over 30 years, and stayed loyal to the country throughout the recent turmoil. Fortunately, our employees and partners there remained safe, and our projects largely escaped military damage. “We completed over 90% of our planned activities”, reports Oumar Niangado, the Foundation’s delegate for West Africa, based in Mali.

2012 saw the conclusion of PRECAD2. Building on earlier work, this project helped farmers in Cinzana and Katiéna increase their income by organizing themselves for better access to markets. The Foundation also worked to improve the performance of seed producer cooperatives. New links with ICRISAT* enabled the start of hybrid sorghum seed production.

Cinzana’s federation of cereal producer cooperatives UCSCPC benefited from a large new warehouse built by the World Food Programme for the Purchase for Progress (P4P)** initiative. In 2012, UCSCPC sold almost 178 tonnes of produce to P4P for more than CFAF 29 million. Nursery cooperatives established 34 hectares of jatropha and three of gum trees, a total of more than 44,000 plants. “To make local milk more visible, stands and freezers were rented or sold to five retailers”, adds Oumar Niangado. “The herd also increased in size and quality. Altogether, milk sales reached about 139,000 liters.”

Farmer organizations go beyond produce, however. The union supporting the Cinzana agricultural inputs shop considerably expanded its facilities in 2012. Smallholders bought fertilizer and other inputs there worth more than CFAF 17 million. The Dondalaso women’s credit union also continued to thrive despite Mali’s troubles. About 60% of its lending was for fertilizer and marketing purposes.

At the end of PRECAD2, the Syngenta Foundation handed over the project’s training tools, hardware, and other equipment to local partners to help them continue activities. Oumar Niangado and his Malian team leader are now focusing mainly on the Foundation’s broader West African rice initiative (see page 20).

Teaming up has many facets

Other sources of business for local smallholders include sesame, jatropha, gum arabic and milk. In 2012, the sesame producers’ organization sold almost 75 tonnes to a range of customers for over CFAF 29 million. Nursery cooperatives established 34 hectares of jatropha and three of gum trees, a total of more than 44,000 plants. “To make local milk more visible, stands and freezers were rented or sold to five retailers”, adds Oumar Niangado. “The herd also increased in size and quality. Altogether, milk sales reached about 139,000 liters.”

** www.wfp.org/purchase-progress
Saving from scratch brings bumper yields

Pre-payment lets farmers invest

Mali is one of the world’s poorest countries. Smallholders there often have difficulty finding enough cash at the right time to buy good seed and fertilizer. Unable to make these important investments in their crops, they stay trapped in a vicious circle of poor harvests and lack of income. One of our partners, however, has found a promising solution.

The NGO myAgro is innovatively combining existing ideas and technology in a new way. Mobile phones, scratch cards and an old savings idea known as ‘layaway’ all play a role. “Layaway is a popular system in many countries”, explains Anushka Ratnayake, Executive Director of myAgro. “The shop reserves an item for a customer while he or she makes advance payments. Once these savings cover the price, the customer can take the purchase home. It’s the opposite of buying on credit, and a good low-risk alternative for everyone involved.”

myAgro has designed its layaway to be easily accessible. Smallholders enroll about six months before planting. They choose a savings target suited to their means and needs – for example, seed and fertilizer for an acre of corn. Each farmer then has a set period to put money into his or her myAgro account. “The twist on traditional layaway”, Ratnayake points out, “is that these smallholders save by purchasing scratch cards. They then send a short message to register their savings.”

Familiar and flexible

Farmers have confidence in this system, because most of them are familiar with buying phone ‘air-time’ via scratch cards. Village shops and other vendors sell cards in small units. The smallholders can save flexibly. When they reach their savings objectives, they receive the farm inputs through myAgro’s distribution network. Critically, myAgro also provides training, for example on fertilizer use. In addition, the NGO establishes links to potential customers, helping smallholders to get good prices.

myAgro started activities in Mali at the end of 2011. In 2012, some 280 farmers in three villages around the capital Bamako signed up to save and plant sorghum, corn and groundnuts. “The improvements were outstanding,” comments Ratnayake. “Smallholders increased yields by an average of 80%, and earned far more than before”.

In 2013 myAgro extended the layaway scheme to more than 40 villages; almost 1200 farmers achieved their own savings targets. The NGO also expanded activities to Senegal, aiming to reach 70,000 farmers within the next few years. Plans there include production of high-value irrigated vegetables in the dry season. The Syngenta Foundation has signed an agreement with myAgro to research and source new seeds from around the world to increase the opportunities for enterprising West African farmers. “The partnership with myAgro will make sure this new technology reaches farmers in a novel and sustainable way” comments Ian Barker, Head of Agricultural Partnerships at the Syngenta Foundation.

When peanuts can mean so much

K.C. is a female peanut farmer who joined myAgro’s Malian program in 2012. After saving for inputs, she harvested 800kg on 0.25 hectare, compared with her usual 250kg. K.C. has nine children, six of them still at school. After her bumper harvest, she stored most of the peanuts for her family. She sold some of the remainder to invest in new inputs, but also had enough to pay for medicine when one of her children caught malaria. “In the past, my husband and I didn’t have enough cash to cover emergencies”, she says. “We would have had to take out a loan”. Now K.C. plans to diversify: with income from the next harvest she wants to buy goods to sell, and also start raising small livestock.
Paving the way to a rice revolution

New program aims to raise yields and income

In West Africa, demand for rice is increasing faster than for any other food commodity. Rapid growth is expected to continue, driven by urbanization and higher incomes. However, local yields are low and the region produces less than 50% of its own requirements. There is therefore a major need to develop the rice sector. Expansion represents a great opportunity for the smallholders who dominate local production.

In cooperation with the research organization AfricaRice, our Foundation has supported rice intensification in Senegal, Mali and Burkina Faso since 2010. The partners adapted Asian land preparation and post-harvest techniques to local conditions. Yields increased by at least 30%. The projects also showed that farmers are willing to adopt new technology and practices, and connect with buyers. As a result, we are now embarking on an ambitious new initiative across the region.

The Syngenta Foundation has a clear vision of the future. Over the next few years, the West Africa Rice Intensification Program (WARIP) will help tens of thousands of smallholders to link better to the supply chain and increase their rice quality and yields. The program will develop and test a ‘Hub & Service’ model with private investors and producer organizations in Ghana, Côte d’Ivoire, Burkina Faso, Senegal and Mali. Farmers will benefit from higher margins by selling through more direct marketing channels.

Better prices, fewer losses

WARIP runs in collaboration with AfricaRice and other public and private partners. The program will make the rice supply chain more efficient and reliable. It will do so through outgrower schemes, contracts and bulk purchase, enabling smallholders to afford the right inputs and equipment. and enable growers to realize at least a 10% quality price premium. A further goal is to halve post-harvest losses, from around 30% to 15%. Better harvesting equipment, a reduction in the number of middlemen, and improvements in milling and handling will all contribute. To ensure optimum management, WARIP projects will use information & communication technology such as the Syngenta Foundation’s Farmforce (see page 16).

In Ghana, our main partner is GADCO, the country’s largest rice producer. Together, we intend to develop an extensive smallholder-based value chain, all the way from rice fields to supermarkets. We are working with GADCO to develop the ‘Copa Connect’ Hub & Service model for at least 3000 smallholders. In Côte d’Ivoire, our partners include the District of Yamoussoukro, commodity traders NOVEL, and AGCO, a leading supplier of agro-industrial equipment. A center for agricultural solutions called ‘Future Farm’, development of a commercial seed system, and provision of on-farm support are expected to reach 5000 smallholders.
West Africa: Strengthening Regional Agricultural Integration (SRAI)

New policy pulls together

The ‘SRAI’ policy initiatives are a response to crisis. As world food prices soared in 2007-08, many countries in West Africa, as elsewhere, imposed short-term national measures such as trade bans. Understandable though such reflex reactions are, they are not in the best interest of long-term regional food security. SRAI is helping to create a new policy environment.

Food prices have stayed high since the crisis, and the concerns that gave rise to SRAI 1 remain at the center of food policy debates in West Africa. In 2013, we began a new phase of work with SRAI 2.

With SRAI, Michigan State University and our Foundation set out to increase the capacity of stakeholders to implement more effective agricultural and trade policies. From 2009-12, SRAI 1 provided analysis to policy makers at national, regional and international level. Investigations focused on three main topics. The first was the impact of responses by West African governments and regional organizations to, for example, increases in the level and volatility of world food prices. SRAI 1 also examined the factors likely to drive the region’s market evolution, and options for better policy design.

The study on price transmission generated two key pieces of advice to governments. The first is to redirect investments into regional production to satisfy rapidly growing demand in coastal areas. The second is to improve key links in the value chain, such as processing, storage and packaging.

Key messages also emerged from the studies on supply response. Policy makers need to recognize that a regional market can contribute significantly to solving short-term problems of food insecurity. To overcome obstacles to production and regional trade, governments must increase incentives for private investment. They should also carefully examine oligopolistic structures, as well as the efficiency of measures and policies implemented at national and sub-regional level.

The SRAI project partners delivered these messages to national and regional policy makers, as well as international donors and development agencies. The findings were also incorporated into major international plans and reports. These included the 2011 UN High Level Panel of Experts report on price volatility and food security, as well as the OECD/Sahel and West Africa Club’s ‘West Africa Futures’ program. The Malian government adopted SRAI’s 2011 ‘Schéma de commercialisation des céréales au Mali’. The regional organization ECOWAS included aspects of this study in its CAADP program.

Broad adoption and a new roadmap
SRAI 2 began in 2013. It aims to give specific information on how the region can meet food demands faster and better. This second project phase will pay particular attention to the constraints and opportunities facing ‘down-stream’ sections of the food value chain, such as processing and marketing. SRAI 2 will also analyze the farm-level adjustments required to meet downstream changes and opportunities.

Among the key topics for discussion with policy makers are West Africa’s rapidly evolving food consumption patterns and their implications for the region’s agriculture and agribusinesses. Also very important are the implications of changes in the rice economy for the competitiveness of West African production, as well as better links between smallholders and the expanding agro-industry.

SRAI 2 will help guide the development and implementation of agricultural and trade policies at national and regional levels. The SRAI partners will organize outreach and policy dialogues with West African organizations, nationally, sub-regionally (e.g. ECOWAS, WAEMU, AIADB and CILSS), at continental level (e.g. with UNECA) and internationally (e.g. with the OECD/Sahel, West Africa Club and FAO).
The Syngenta Foundation’s cooperation with One Acre Fund shows the value of testing new solutions with large groups of smallholders. Relevance to farmers and rapid adoption go hand in hand.

How can the results of costly agricultural research best reach farmers? This very important ‘delivery’ or ‘technology transfer’ question is currently attracting considerable attention. (See also page 6). The debate reflects growing concern that technology is too often left on the shelf instead of being adopted by large numbers of smallholders. Traditionally, scientists and developers have often proposed a particular technology without adequately involving its intended users: farmers.

The Syngenta Foundation works both by implementing projects through its own field-based staff and through partnerships with a wide range of public and private organizations. We believe that technology solutions must be driven by market needs. Who that ‘market’ is, varies enormously. Sometimes it is a miller seeking thousands of tons of paddy rice, sometimes a smallholder trying to sell his or her excess production.

Our Foundation develops partnerships for impact, seeking out organizations that think in terms of demand across the entire value chain. One such partner is One Acre Fund (1AF), which is now well established in Western Kenya. The organization’s motto is “Farmers First”. 1AF provides inputs such as seed and fertilizer to smallholders, along with farming advice. Innovatively, these packages are linked to the provision of loans with flexible repayment terms.

In seeking to expand the range of products and services, 1AF has developed a process of testing new technologies by trialing them with increasing numbers of farmers. It charts uptake and client satisfaction through measures such as loan repayment rates. Farmers ‘voting with their pockets’ in pilot studies are a good indication of a technology’s chance of large-scale adoption.

Partnership between 1AF and the Syngenta Foundation has resulted in several solutions being evaluated in Western Kenya. The two organizations cooperate closely to extend our Kilimo Salama farm insurance to large numbers of smallholders. Farmers working with 1AF also test technologies as different as seeds and post-harvest storage. Some proposed solutions fall short, but others prove very popular. In 2012, for example, 78,000 farmers chose to plant the fast-growing tree *Grevillea* (photo); this number rose to some 130,000 in 2013.

We have recently extended the partnership to evaluate a range of new varieties of beans, corn and vegetables. The plan is for 1AF’s smallholder clients to evaluate seed samples at increasing scale, and for our Foundation to communicate the demand to African seed companies that might otherwise be wary of entering the market. This approach is intended to solve the frequent ‘delivery’ problem in seed markets.

Farmers come first with new technologies
AgPartnerXChange bridges important gaps

We launched AgPartnerXChange in 2012. The new platform aims to improve smallholders’ livelihoods through better public-private partnerships (PPPs). Co-host is the US non-profit organization Global Access to Technology for Development (GATD).

“We need to change the enabling environment for PPPs devoted to the development of agricultural markets and delivery of research goods to farmers”, explains Sara Boettiger, who leads the initiative. “AgPartnerXChange is designed to do exactly that. Our goal is to catalyze more and better PPPs that add value for smallholders.”

AgPartnerXChange draws on feedback from experts at our 2012 PPP conference in Ottawa. GATD is running the platform during a two-year assessment. “We're looking at two key questions”, says Sara: “Is there sufficient demand for the activities that AgPartnerXChange is pioneering, and sufficient donor interest to fund future operations?”

Launch of the platform included presentations at the G20 summit in Mexico and the World Food Prize in Iowa, USA. In 2014, our Foundation and GATD plan another Ottawa conference, again in partnership with Canada’s International Development Research Centre. “This meeting will bring together leading international donors for innovative critical thinking”, Sara comments. “We want to create a new agenda for financing PPPs to benefit resource-poor farmers.”

Further planned activities related to AgPartnerXChange include redesigning the website (www.apxc.org), writing partnership case studies, enhancing the Syngenta Foundation’s extensive PPP database and a project with USAID called Scaling Seed Systems for Sub-Saharan Africa.

APXC: What and Why

Three questions to Sara Boettiger

What is the thinking behind AgPartnerXChange?
There have been public-private partnerships (PPPs) in agriculture for many years. However, partners keep ‘reinventing the wheel’ because not enough information gets shared. There’s no ‘institutional memory’ of how to build smarter partnerships. APXC proposes to address this gap.

What have been your priorities so far?
AgPartnerXChange is designed to enable a landscape view of what’s needed in agricultural PPPs, and to target investment in some new tools. For example, we think there’s a lot of work required to measure PPPs’ impact well. Other priorities are understanding strategies for negotiating intellectual property issues, a business school curriculum to help future agri-business leaders take better decisions, and work with governments and foundations on increasing engagement in PPPs.

Why is AgPartnerXChange important?
Experts increasingly see PPPs as a critical way to overcome challenges in the global food system. The public sector’s radical shift towards ‘performance-based philanthropy’ and ‘outcomes-driven approaches’ bring new appreciation of partnering with the private sector. On the private sector side, there are also a lot of changes; many companies are working with governments and NGOs to reach markets in developing and emerging markets, and Corporate Social Responsibility has gained further in importance.

Despite the growing demand, however, few people really understand the problems and constraints. There’s been a fair amount of academic work, but very little sharing of practical knowledge, or analysis rooted in practice. AgPartnerXChange bridges this gap in three stages. First we look across a wide range of PPPs to identify the big problems. Then we marshal our partners’ collective intelligence to solve them. Finally, we translate these system-level insights into practical tools that PPPs can readily adapt and implement. Ultimately, these tools will make PPPs better at improving the livelihoods of smallholder farmers.
Alongside partnerships in smallholder farming, the Syngenta Foundation also engages in policy analysis and public debate. Our aim is to improve understanding of the world food situation, agriculture and sustainability.

The Foundation continues its thought leadership on topics like food security, agricultural extension, sustainability, and public-private partnerships. In early 2012, among his many speaking engagements, Executive Director Marco Ferroni addressed the One Health Summit in Davos. He highlighted that ‘one health’ is about interactions between agriculture and health, and requires sustainable agricultural productivity growth.

Later in the year, also in Davos, agriculture appeared for the first time on the agenda of the International Disaster and Risk Conference. The Syngenta Foundation organized sessions on identifying and tackling risks in farming. Speakers from several countries debated topics such as climate, pests and diseases, price volatility, and threats to water and soil.

Widespread concern about food supplies and ‘inclusive growth’ has renewed interest in agricultural support services, especially extension. In March 2012, the Chinese Academy of Agricultural Sciences and our Foundation organized the ‘Roundtable on Agricultural Extension in Asia’, held in Beijing. The purpose was to discuss what has and what has not worked in agricultural extension, and to learn from experiences in China, India, Indonesia and Vietnam. Topics included public and private extension, partnerships and pluralism in delivery, as well as the role of information technology and mobile phones. Participants stressed the importance of extension as a major issue for agricultural development.

Rewiring for food security
Further involvement in public debate included a speech by Yuan Zhou (see box) at the 2012 GFRAS Meeting in Manila. She spoke about the private sector and information technology in extension. Marco Ferroni gave the Margaret Gilliam Lecture at McGill University, Montreal, on ‘Rewiring Science, Business and Public Goods for Global Food Security’. Long-term global food security, he stressed, is unthinkable without sustainable intensification, productivity growth, scientific advances, better service delivery, access to markets and the right mix of public and private action. The Syngenta Foundation also presented its views on scalable solutions for African smallholders at the IFA Africa Forum in Doha, and on the private sector’s role in smallholder farming at the ICRISAT 40th Anniversary Science Symposium in Patancheru, India.

As well as lectures and roundtables, the Foundation also continues to contribute to a range of publications. Recent examples include a paper on Indian agricultural extension in the Global Journal of Emerging Market Economics. 2012 also saw the publication with the Centennial Group of a major book, Transforming Indian Agriculture: India 2040, edited by Marco Ferroni. The book contains several contributions from the Foundation, notably on agricultural extension and research systems. In 2013, Marco Ferroni published an essay entitled ‘Private-sector R&D, supply chains and the small farmer’ in the Insights book Africa’s Future … Can Biosciences Contribute?

A wide range of Foundation papers and presentations is available on www.syngentafoundation.org.

Successful extension demands flexibility
“There are no ‘silver bullets’ or unique models to improve extension performance”, says Yuan Zhou, the Syngenta Foundation’s Head of Research and Policy Analysis, who co-organized the Beijing Roundtable. “To scale up and reach a wide range of objectives and target groups, governments have to take various approaches. These include state or private provision, collaborations, and a range of contracting models. Mobile applications are becoming essential tools. We also believe that extension offers from input suppliers will expand rapidly, as will contract farming. These developments work particularly well for medium to large farms in well-endowed regions. But the projects we support show that they can also be adapted to deliver value for pre-commercial smallholders.”
Donations: an alternative form of partnership

The Syngenta Foundation primarily engages directly in field and market initiatives through its own employees, and with a wide range of partners. Sometimes, however, we take a different approach.

Each year, we receive numerous requests for donations to other organizations’ projects. We carefully analyze all those devoted to improving smallholder agriculture, and support some of the best. To be selected, projects must, for example, be run in developing countries by suitably experienced organizations. They must also be well planned and documented, and enjoy strong local support.

Our grants are generally modest, and targeted at specific aspects of a project. However, the Foundation is often a source of expertise as well as funds. We see donations as a basis for longer-term partnerships, not as one-off hand-outs. We therefore remain in close dialogue with the applicants before, during and after their projects.

The foci of smallholder projects supported in this way in 2012-13 included water management in Madagascar, crop biodiversity in Peru, soil fertility in Kenya and Ethiopia, and income improvement in several countries.

To celebrate our tenth anniversary as the Syngenta Foundation in 2011, we also made one special larger donation. This funds a two-year Postdoctoral Fellowship for an African scholar at Basel University. For further details, see the following page.
Helping Namibian farmers improve their soils

For its tenth anniversary, the Syngenta Foundation created a Fellowship for an African scholar working with Basel University in Switzerland. The recipient, Dr. Simon Angombe, aims to improve soil fertility in the north of his native Namibia.

The Namibian-Swiss study examines soil management and land use by small-scale farmers. The researchers want to identify those practices which best improve crop yields, soil quality and Soil Organic Carbon stocks. The first step was an inventory of current levels, followed by analysis of different farmers’ practices. The project team aims to identify the best local models for Clean Development Mechanisms supported by Payment for Environmental Services.

The initial field work involved three rounds of data collection. The first section, conducted in August 2012, focused on current soil management and quality. Further research in January and February 2013 mapped vegetation carbon stocks on the previously studied farms, as well as on some additional farms and rangeland used for controlled grazing. The third field campaign in May and June 2013 examined yields on various soils, differentiated by fertility and management practices. Interviews with farmers played a time-consuming but very important role in the information-gathering.

This data collection provided the researchers with valuable insights. “We now believe that farmers really can increase carbon stocks on the communal land they all use here”, says Professor Nikolaus Kuhn from Basel. “Three important methods are manure application, forest/bushland conservation and increased reforestation.” The second early insight is that local smallholders view crop-growing largely as a source of food rather than income.

Many of the household heads are pensioners, often living alone with school-age grandchildren. “Because they are old, they find it difficult to invest much time or effort themselves in improving yields. And because of the general labor shortage, they can’t find other people to tackle soil degradation for them”, adds Angombe. “Our third initial finding is that farmers’ livestock could become a good source of manure, which would greatly help improve yields. To achieve that, however, requires labor, collection facilities and establishment of collection-points, transport and appropriate knowledge, all of which are currently lacking.”

The research team sees potential for agricultural development via a Payment for Environmental Services (PES) scheme. “However, our theoretical assessment focuses on carbon stocks”, points out Kuhn. “We now need to assess acceptance of this idea in practice, especially by the many farmers without livestock, and to see whether PES can really improve their livelihoods.”

1. “Identification of Potential Intervention Mechanisms [...] in the Communal Farming Areas of Northern Namibia.”
2. The Clean Development Mechanism, as defined in the UN Kyoto Protocol, allows a country with an emission-reduction or limitation commitment to implement projects in developing countries. Such projects can earn credits, each equivalent to one tonne of CO₂, which count towards meeting Kyoto targets.
3. For more information on PES at the Syngenta Foundation, see www.syngentafoundation.org/index.cfm?pageID=437

For more information about soil fertility, see page 9 of this report.
People: the Syngenta Foundation in December 2013

Board*

Michel Demaré, Chairman
Chairman of Syngenta and of the Syngenta Foundation since April 2013. Inter alia previously Chief Financial Officer of ABB, Vice-Chairman of the Board of UBS, and a member of the IMD Foundation Board in Lausanne.

Marco Ferroni, Executive Director
Former executive at the Inter-American Development Bank and senior advisor to the World Bank.

Andrew Bennett
Former Executive Director of the Syngenta Foundation. President of the Tropical Agricultural Association of the UK and Chairman of the Board, Centre of International Forestry Research (CI-FOR), Previously Director, Rural Livelihoods and Environment, UK Department for International Development.

Margaret Catley-Carlson
Former President of the Canadian International Development Agency and the Population Council, and from 1989 to 1992 Canada’s Deputy Minister of Health and Welfare.

Radha Singh
Agriculture Advisor to the Federation of Indian Chambers of Commerce and Industry. Former Agriculture Secretary with the Government of India, previous member of the ICRISAT board.

Eugene Terry
Former Chair of the World Agroforestry Centre. Worked at the World Bank from 1997 to 2002 and was Director-General of the West Africa Rice Development Association (WARDA).

Dirk Seidel
Secretary to the Foundation Board. Also works for Syngenta as Legal Counsel.

Staff**

Carola Amézaga, Project Director Peru
Vivienne Anthony, Senior Advisor
Ian Barker, Head of Agricultural Partnerships
Robert Berlin, Agribusiness Manager
Sara Boettiger, Senior Advisor
Paul Castle, Communications Manager
Laura Ciliberto, Administrative Assistant
Dao Xuan Cuong, Program Director Vietnam
Partha DasGupta, Principal Advisor Agronomy
Marisa De Faveri, Office Manager
Panut Djojisumarto, Program Director Indonesia
Marco Ferroni, Executive Director
Rose Goslinga, Agricultural Insurance Initiative Coordinator
Rebecca Hubert Scherler, Legal Counsel
Dominik Klauser, Intern
Clive Murray, Regional Project Manager Asia
Oumar Niangado, Delegate for West Africa
George Osure, Program Director Kenya
Baskar Reddy, Executive Director of Syngenta Foundation India
Mike Robinson, Chief Science Advisor
BT Seshadri, Advisor, Syngenta Foundation India
Olga Speckhardt, Principal Advisor, Reinsurance, Investor Relations & Philanthropy
Farhad Zamil, Director Bangladesh
Yuan Zhou, Head of Research and Policy Analysis

** Clive Murray, Olga Speckhardt and Farhad Zamil joined the Foundation in 2012, Carola Amézaga, Sara Boettiger, Rebecca Hubert Scherler and Baskar Reddy in 2013. BT Seshadri retired as Executive Director of Syngenta Foundation India in 2013. Fritz Brugger was Head of Agricultural Support Services until November 2013. Jonas Hertner worked as a Social Service volunteer in Basel in 2012. Jonas Best in 2013 and Philipp Meier from November 2013. Tanja Wenger was the SFSA intern in 2012-13.

* Pierre Landolt retired from the Board in 2012, Martin Taylor as its Chairman in 2013. Radha Singh joined the Board in 2012.
Contacts and further information

For extensive further information on the Foundation’s activities, please visit our website: www.syngentafoundation.org

Contact address:
Syngenta Foundation for Sustainable Agriculture
WRO-1002.11.54
Schwarzwaldallee 215
4058 Basel
Switzerland

Phone  +41 61 323 56 34
Fax  +41 61 323 72 00
syngenta.foundation@syngenta.com