

FARMING MATTERS



Cultivating diversity

- Breaking through the glass house ■ Women and diversity in India
- Ecuador: realising the potential of peasant seeds

ANNOUNCEMENTS

IYFF-2014 PHOTO COMPETITION

Visualising the potential and contributions of family farmers worldwide



The International Year of Family Farming (IYFF) 2014 photo competition is calling for photos that represent the motto "Family Farming: feeding the world, caring for the earth". Winning photos will receive a cash prize.

SEND US YOUR BEST PHOTOS!

The deadline for entries is May 1st, 2014 and the winners will be announced in October 2014. Read more:

www.agriculturesnetwork.org/photocompetition

The IYFF-2014 photo competition is organised by the AgriCultures Network and the World Rural Forum, in close collaboration with the Asian Farmers Association, CLOC-La Via Campesina and the More and Better Network.



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CALL FOR ARTICLES

Family farmers in living landscapes

"Landscapes" come in different shapes and sizes: mountainous areas, drylands, forests, coastal areas, watersheds, and many more. They are always changing, and so are the strategies of the people living in them. Growing pressures on the land lead to competing claims for resources, within and between communities of farmers, pastoralists and forest dwellers, but also increasingly from pressure by larger external forces including expanding cities, tourism, mining and agro-industries. Family farmers, pastoralists and forest communities depend on their landscapes for food, fuel, fodder, timber, medicines and more. For many rural communities, landscapes also have cultural and religious significance. Yet, these communities are often excluded from land governance structures, natural resource management and policy development.

In recent years, landscape approaches or territorial approaches have gained popularity as tools to enable researchers, policy makers, NGOs, activists, private sector players and rural communities to better understand the multiple functions of landscapes and the competing demands of different landscape users. Leading up to the December 2014 Global Landscapes Forum in Peru, *Farming Matters* will explore the efforts of family farming, pastoralist and forest communities in shaping resilient and

living landscapes. How do they deal with the increasing pressures on their landscapes – whether internal or external, local or global?

We are looking for stories about the relation between forests, sustainable farming and resilient landscapes, and about the connection between your landscape (or territory), local culture and the regional economy. Send us your articles on the struggles to defend these landscapes from the threats of large-scale industries, mining companies and other forces. What governance mechanisms and policies are needed to ensure that the rights of rural communities are respected? Can win-win arrangements be reached with other landscape users, allowing local communities to strengthen their agro-ecological production systems? What future do rural communities envisage for themselves and their landscapes? We look forward to reading about your experiences.

Articles for the September 2014 issue of *Farming Matters* should be sent to the editors before June 1st, 2014. E-mail: info@farmingmatters.org
For author guidelines, see www.agriculturesnetwork.org/get-involved/participate/guide-for-authors



The Peasant Box

Every week, we pack 70 boxes with cauliflower, spinach, pumpkin and many other vegetables for our customers in the city. With seven other farming families we participate in the *Cutie Taranului*, or “Peasant Box”. This initiative started in 2012 and together we now deliver to about 250 people in the cities of Bucharest and Cluj-Napoca. Through a special website, people can subscribe to the Peasant Box.

On our farm we produce many different crops, often using traditional heirloom seeds and applying little or no chemicals. This is appreciated by our customers who communicate with us regularly.

Before, we were often living in uncertainty, sometimes spending days at the farmers’ market

without selling anything. The problem in Romania is that big supermarkets and commercial retailers are taking over the food markets. The Peasant Box is a wonderful solution. It guarantees us about 70 customers each week. This means that we can make more long-term investments in our farm and experiment with new crops. Our customers in the city are happy to receive fresh, high quality food. They say that the diversity of the Peasant Box vastly exceeds what they would normally buy in the market.

Ildi and Levente Haidu are family farmers in Transylvania, Romania. Interview and photo: **Josefin Smeds**, MSc student in Sweden and intern at the peasant association *Eco Ruralis* in Romania



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Living gene banks in farmers' fields

In evolutionary plant breeding (EPB), a genetically diverse crop population leaves the crop to cross freely. EPB can rapidly increase agrobiodiversity and the local adaptive capacity of crops. In Iran, EPB trials with barley and wheat have exceeded scientists' expectations. Participating farmers have realised new sources of seed and evolutionary populations continue to spread throughout the country.



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From barren land to biodiverse home gardens

Many people from low-lying atolls in the Federated States of Micronesia have been forced to migrate because of climate change. An experience in Yap has shown the complementary roles of traditional and science-based agricultural practices. By rehabilitating degraded soil and employing a number of other management practices the settlers have been able to establish and maintain biodiverse home gardens that include their traditional crops.



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Seeds or grains: Breaking the dichotomy

So-called "seeds of passion" secure farmers' access to environmentally and culturally appropriate seeds. Synergies between collective action, politics and science were put to work in Paraíba, Brazil. The establishment of a Seeds Network supported knowledge exchange, the conservation of agrobiodiversity and a growing political voice of farmers.



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Reviving the Ankole Longhorns of Uganda

Ankole Longhorns are one of the oldest indigenous cattle breeds in Uganda. The Longhorn population is at risk of extinction but the Bahima pastoral group is taking action to revalue and revive their traditional breed. They received support to document and share their intergenerational knowledge about the Ankole Longhorns. These actions have contributed to a wider appreciation of the socio-cultural, economic and medicinal values of traditional breeds.

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This issue was produced in collaboration with the Hivos / Oxfam Novib knowledge programme Agrobiodiversity@knowledge.



Biologists estimate current yearly losses of species to be 1,000 times higher than historic rates. Linguists predict that by the end of the 21st century, 50 to 90% of the world's languages will disappear. These findings, from a recently published scientific article, point to a strong correlation between biodiversity and language extinction. This sounds like a final wake-up call: what kind of world we are heading for, destroying our nature and cultures at such a massive speed?

We all seem to agree that biodiversity is not only beautiful but also essential to keep the global ecosystem going. So why aren't we making some radical decisions? Why aren't we doing something concrete, both as individual citizens and as a society? Is this tremendous loss of biodiversity inevitable? No, it is not.

So let us fight against the forces that undermine biodiversity and care for the great variety of plants and animals that still exist today. Let us enjoy the colour, flavour, texture and nutritional value of our food. Let us remember what happened after hurricane Mitch in Central America: the greater the variety of trees and crops on farms, the less damage was incurred by farmers. Biodiversity offers an insurance against an unpredictable climate, far superior to the use of climate-smart “miracle seeds”. So let us value the important role that family farming, fishing and herding communities play in maintaining global biodiversity. They hold precious knowledge and are rendering a great service to humanity. Paradoxically, little value is given to what these producers do: their approach to agriculture is considered “peripheral” to the global economy.

Biodiversity goes hand in hand with multifunctional family farming and is inextricably linked with farmers' knowledge, language and culture. If family farming ceases to exist as a way of life, the consequences for our food system, the world's biodiversity, our languages and culture will be severe. Better reverse the dramatic decline before it is too late. Long live biodiversity, long live family farming!

Edith van Walsum, director ILEIA

ANNOUNCEMENTS

Seedmap.org explores food diversity, threats and solutions

An interactive website



Seedmap.org is an interactive, multimedia tool that is ideal for practitioners, researchers, policy makers, educators and students. It highlights the origins of our food crops and livestock, the farmers who continue to nurture them, the threats to our food supply, and achievable solutions. Using Google Map technology, the virtual map chronicles hundreds of case studies that bring critical food issues to life. It also offers an extensive online reference tool on seeds, agricultural biodiversity, corporate concentration in the seed and food sector and agricultural issues.



Seedmap.org comes at a time when safeguarding our seed diversity is more urgent than ever. Biodiversity is nature's brilliant insurance policy against disaster. We have lost three quarters of our plant genetic diversity in the last century within an industrial food system dominated by twelve plant and five animal species. Thankfully, smallholder farmers feed over 70% of the world from a much wider diversity of food crops and livestock.

USC Canada, the Hivos-Oxfam Novib agrobiodiversity@knowledge programme and ETC Group are currently building Seedmap.org into Wikiseedia, an open source knowledge sharing platform with wikis and community forums to connect experts and users across borders, languages and sectors. For seedmap.org and the Wikiseedia, we invite you to **share your success stories** of promoting and conserving agricultural biodiversity.

Contact **Sarah Doornbos** (Hivos) at s.doornbos@hivos.nl or **Faris Ahmed** (USC Canada) at fahmed@usc-canada.org

Biodiversity Stewardship Award

The Southern Africa Biodiversity Stewardship Recognition and Award initiative acknowledges and reaffirms the achievements of smallholder farmers who are directly or indirectly contributing to the conservation and sustainable management of the region's biodiversity. The award is designed to share innovations and inspire other farmers to adopt such practices.

Nominations are currently being invited from a number of Southern African countries. We also welcome ideas and support to develop a global Biodiversity Stewardship Recognition and Award initiative.

Send your nomination to **Andrew Muchita** (andrew@ctdt.co.zw) or visit www.ctdt.co.zw for more information.

Farming Matters welcomes comments, ideas and suggestions from its readers. Please contact us via e-mail at info@farmingmatters.org or write to P.O. Box 90, 6700 AB Wageningen, the Netherlands.



Entrepreneurial farmers

Your latest issue came at the right time. Yet I found some contradictions in it. You say that entrepreneurship may worsen the position of women, or that it might mean “taking over” other farms. Why? Jose Manuel Bisetto is clearly an entrepreneur, and you praise him. I am sure he is also interested in profits that can help him grow. Why is it wrong if other farmers follow his example? I find it contradictory that you talk of autonomy and freedom, but also imply that farmers only need an “income that provides them with a decent life”. Is Jose Manuel only interested in a “decent life”? Doesn’t freedom also mean the right to develop other skills, study, travel, earn money so as to buy a telephone or a TV or a bigger house, or maybe choose a different career to that of your father? Everybody should have that right.

Michael K.J. Smith

Thank you for your letter. We are not discouraging entrepreneurship. As you rightly point out, entrepreneurial farmers like José Manuel bring about crucial innovations in agriculture and society. “Entrepreneurial” in this sense refers to innovative farmers, taking risks to try out new ideas. But the word “entrepreneurial” is often used in a narrower sense, when policies and programmes aim to develop family farms into businesses where the sole objective is to maximise profits, disregarding other benefits and risks. Many examples in the literature show that unbalanced commercialisation of agriculture has led to great-

er (gender) inequities. Agriculture that provides farmers with a “decent” (or “dignified”) life to us means having the freedom to make choices for your own future – whether this means becoming an entrepreneur selling products globally, buying a TV, or making a positive choice to manage a family farm.

The editors

Pastoral land

The article “From conflict to profitable alliances” brought to mind problems that pastoralists face. All over the world, herders risk losing their pasture land due to land grabbing or degradation. Pasture land is collectively used, so often herders’ ownership is not legally recognised and its economic value is low. As a result, pasture land is more vulnerable to re-allocation – particularly affecting female and poor herders who experience less social protection and have less influence when lobbying for their rights. Nomadic herders have rich cultural and traditional values, inherited from generation to generation, which modern civilisation needs to protect and recognise.

Hijaba Ykhanbai in a comment on www.farmingmatters.org

Time to stop “capacity building”? (1)

I agree with many of Steve Sherwood and Myriam Paredes’ points. However, the more compelling question is not whether we should stop capacity building as a development approach, but how we can support and catalyse social change. This perspective is largely lacking in

Development 3.0. It takes a social movement, not just individual practice, to bring about a new reality. I agree that change almost always starts small, grows and diversifies in all kinds of unpredictable ways. But in social movements people are educated, mobilised, and organised, to challenge the power-holders and society as a whole. Before a farmer can say “no” to pesticides or GMOs, she has to understand why they are harmful and what the alternatives are. Strengthening the critical consciousness of people and strengthening the capacities of local organisations are at the heart of efforts to fix the global food system and promote family farming.

Peter Gubbels, Groundswell International, West Africa

Time to stop “capacity building”? (2)

In my subject of expertise, remote sensing, capacity building is still important. Nevertheless much time should be given to practical exercises with local cases where people can relate. Capacity building is often oriented in just one direction, creating a teacher-student duality. The learning process can be mutual when capacity building is more integrative of local knowledge, local practices and local needs. In that way we all learn from each other and we reach more equality in the distribution of knowledge.

Marcela Quinones, Project Engineer at SarVision, the Netherlands

Read more and respond on www.agriculturesnetwork.org/dev30

Agriculture, biodiversity and communities: does it add up?

In 1905, Einstein published the world's most famous equation: $E=mc^2$, which has since become a fundamental principle. A hundred years on, it's time to propose another equation as a fundamental principle of the 21st century: $A=bc^2$. Agriculture (A) equals biodiversity (b) multiplied by communities (c) squared – including both rural communities and the global community at large. While agrobiodiversity holds great promise for the future, unleashing its potential will require a deep transformation in agricultural policy, practice and knowledge sharing.

Gine Zwart, Sarah Doornbos and Willy Douma

Agrobiodiversity encompasses crop, livestock and fish species, varieties and breeds, soil biodiversity and pollinators and the diversity of farming systems and agricultural landscapes. It is the basis of the food we eat. Agricultural biodiversity is also about how, over generations, people have drawn on their accumulated skills and knowledge, building on the natural environment and all its diversity, to utilise, develop and conserve these natural resources and their products – the seeds that grow into our food crops, the livestock and fish, the wild biodiversity that supports key functions of the agro-ecosystem, the diversity of landscapes, farmers and knowledge systems.

Agriculture depends on biodiversity. It is the DNA of the agricultural landscape, both literally and metaphorically, and the cornerstone of food and nutrition security, climate change adaptation, conservation and sustainable livelihoods. However, in practice the vast majority of the world's agriculture and food systems are destroy-

ing the very biodiversity on which they rely at a very fast pace. Control over genetic resources is increasingly being placed in the hands of transnational corporations. Farmers' access to these resources is at risk.

Industrial biodiversity? One of the big debates around agrobiodiversity centres around “land-sparing” versus “land-sharing”: either the separation or integration of farming and natural ecosystems.

Proponents of *land-sparing* advocate intensive industrialised agriculture. They argue that this leads to more productivity per hectare, and leaves land for nature and biodiversity conservation. This approach has failed to nourish the majority of the world's rural people, has polluted and depleted vast amounts of natural resources and biodiversity and displaced local communities. Moreover, the homogenisation of agricultural systems has resulted in the increased vulnerability of crops and livestock to the effects of climate change and to pests and diseases. The recent avian and swine



At the annual Mother Earth festival in Meghalaya, India, young students learn about landraces of maize. Every year, communities from different states exchange knowledge on local biodiversity.

Photo: Annelie Bernhart (NESFAS)

flu epidemics are a clear reminder of the latter.

A *land-sharing* approach does not separate biodiversity from agriculture but acknowledges the intrinsic linkages between the two. This approach builds on the productive potential of agrobiodiversity combined with farmer knowledge, cultures and skills. A land-sharing approach, translated into policy and support for scaling up, could safeguard the biodiversity base of our food and agricultural system and reduce the risk of (further) surpassing our planetary boundaries and risking the future of farming.

Small farmers, huge potential

According to the FAO, over 1.5 billion people in Asia and sub-Saharan Africa alone live on smallholder family farms. These farmers have the right to a sustainable livelihood in the areas they currently live in, and agro-ecological practices building on biodiversity can provide them with a strategy to claim that right.

Family farmers are, often by default, custodians of biodiversity. This especially holds true for those living

in poverty, as building resilient farming systems is the most logical choice for them. This is clearly seen in the Deccan region of India (p. 42). Many family farmers who live on marginal land where climate change impacts and selection pressures are greatest, have become local experts in identifying crop species and varieties resilient to shocks and stresses. Particularly women and older farmers are active breeders of plants and livestock, conserving local landraces and traditional breeds, drawing on wild species and selecting their preferred and adaptive characteristics over generations. Building on the natural capacities of a diverse agro-ecosystem makes these family farmers less dependent on external (chemical) inputs. Agro-ecological practices are also well suited to the smallholder context, as labour use is flexible and used to optimise livelihoods rather than to maximise production.

However, farmers' rights to develop, save, exchange and sell their landraces and traditional varieties is threatened. Under pressure from international trade agreements and conventions such as UPOV (International Union for the Protection of New Varieties of Plants), many governments have started to give intellectual property rights over seeds to transnational corporations. Legislation increasingly demands requirements of stability, uniformity, and distinctness on seeds that are sold and exchanged. Local varieties used by farmers often do not meet these conditions as they carry high genetic variability. This puts biodiversity, cultural heritage and farmers' rights at risk and stifles the very innovation and development such agreements claim to stimulate.

Knowledge for transformation

Globally, there is a rich mosaic of locally rooted practices and initiatives that promote and enhance agricultural biodiversity. Together, they make up the ingredients for a transformation of the current system towards robust future-proof and farmer-centred agro-ecological systems based on agricultural biodiversity. But such a transformation will not happen by chance. Analysing case studies and learning from emerging successes of scaling up (see box) are essential for understanding the factors that could catalyse large-scale change. *Farming Matters* shows that many groundbreaking experiences are or can be the foundation for larger transformations.

For the past two years, a network of organisations and individuals in the agrobiodiversity@knowledged knowledge programme has started to address some of the questions around the transformation of our food system and the role of generating, sharing and promoting the uptake of knowledge on agrobiodiversity at different levels. We found that there seems to be a "glass house" that prevents the many positive examples from around the world from taking hold at a larger scale. Scaling includes both horizontal scaling out (spreading of prac-

tices) as well as vertical scaling up (uptake in policy and by institutions). The Network members identified five interlinked themes that constitute entry points for positive change: markets and trade; policies and governance; seeds, breeds and technology; information platforms, and community resilience.

Catalysing the process of scaling

Why does change lead to transformation in some regions or systems, but not in others? Social and cultural norms form some of the strongest barriers, according to Michael Commons (p. 24). Many experiences show that interaction between researchers and local communities plays a crucial role in understanding how landscape and system transformations take place. Scientists can contribute by, among other things, making models for analysing data aggregations, bringing in new germplasm from other areas and providing technological support. Communities naturally have a deeper knowledge and understanding of local conditions, including experience of historical events that have contributed to shaping the current system. And they outnumber the scientists. Their potential contribution to change is enormous. Such collaborations have shown to be effective in a number of experiences, as can be seen in Micronesia (p. 26) and Iran (p. 12).

Furthermore, experience shows that with adequate support and investment from governments, agro-ecology can be efficiently scaled up. This requires political will and, ultimately, a real democratisation of agricultural and food governance. Political will can be created through positive experiences and pressure from civil society, as was the case in Brazil (p. 30) and India (box). In other places around the world, farmers, indigenous communities, citizens and non-governmental organisations are mobilising to protect the right to save, exchange and sell seeds. As this issue goes to print, farmers and citizens are contesting proposed seed legislation in Ghana and Brussels that would increase corporate control over seeds, threaten the sale of traditional and farmer varieties and, in the case of Ghana, allow the commercial sale of GMOs. Farmers and citizens point at the high cost of GM seeds and the failed promises of better yields and lower pesticide use in surrounding countries. Several months ago, Colombian farmer organisations successfully protested against a resolution that would have made it illegal for farmers to save seeds and handed all control over seed markets to private companies. At the international level, civil society pressure has led to the ambitious reform and significant democratisation of the decision making processes of the FAO's Committee on Food Security.

The Tajik and Afghan Pamirs sit around the *dastorkhon* to eat, decked with summer fruits from the garden. Almost every Pamir household has a small orchard with many different kinds of fruit. Photo: Frederik van Oudenhoven





Pearl millet farmers in Chololo Ecovillage, Tanzania.
Photo: Kerry Farrelly

We found that it is fundamentally important to invest in knowledge building and sharing among different stakeholder groups and to tailor your messages and means of communication to different audiences. The use of participatory approaches that bring different knowledge systems together is particularly important, as is the building of partnerships based on trust and equality. This is what we learnt from the work of EkoRural with farmers in Ecuador (p. 20). Similarly, in Uganda, Ankola Longhorn cattle keepers have played a crucial role in documenting and sharing their knowledge on the importance of animal genetic diversity (p. 38).

The road to success and scale cannot always be thoroughly planned in advance. Sometimes you need to grab an opportunity when it presents itself by making use of champions, as in the case of Ecuador, or by recognising windows of opportunity. The Deccan Development Society (p. 42) celebrates successes among women farmers and the Centre for Sustainable Agriculture in India used the opportunity provided by a well-known talk show host to share its case.

The future holds promise

A transformation towards an agricultural system powered by biodiversity and farmer communities is possible and already happening. Its scaling requires inclu-

sive, community-oriented and knowledge-based approaches that put farmers, rather than corporate interests, centre stage. It builds upon readily available resources: people, their labour, their knowledge and their local natural resources. Local and informal sector networks and initiatives are not only important for promoting biodiversity-based agro-ecological farming and sharing knowledge and skills. They also matter for enhancing farmers' capacity to stand up for their rights at local, national and international fora. The International Year of Family Farming is an excellent opportunity to acknowledge, celebrate and support such networks and initiatives, and to put their successes in the spotlight. We hope that this issue of *Farming Matters* is a good start and will be an inspiration for many.

Gine Zwart, Sarah Doornbos and Willy Douma work on the joint Hivos/Oxfam Novib knowledge programme agrobiodiversity@knowledged, which has been operational for the past two years. They work with a large group of organisations and individuals from around the globe to generate and share knowledge around agricultural biodiversity. This issue of *Farming Matters* has been compiled in close co-operation with the agrobiodiversity@knowledged programme. E-mail: ginezwart@oxfamnovib.nl; s.doornbos@hivos.nl; w.douma@hivos.nl.

Scaling up in India

In January 2014, G.V. Ramanjaneyulu and his team at the Centre for Sustainable Agriculture (CSA) in India received the Best Innovation Award for their work on sustainable agriculture, especially on ecological practices to reduce pesticide use. Many farmers have reported on the effectiveness of these practices, their economic viability and how they have increased their self-confidence. Women farmer organisations have even demanded that the programme be initiated in their villages. CSA's goal to mainstream an alternative to pesticides overlapped well with the government's aim to improve livelihoods through cost reduction in farming. Bringing other actors on board scaled up individual islands of success. CSA is currently working in more than 11,000 villages! The Maharashtra State Rural Livelihoods Mission award holds further promise for the future, as the state aims to collaborate to scale up the experience in ten districts. Just one week later, CSA received another award, this time in Bihar. Their work clearly is convincing people and changing attitudes (see also *Farming Matters* 29.4).

EVOLUTIONARY POPULATIONS:

Living gene banks in farmers' fields

Rapidly increasing on-farm biodiversity is a matter of urgency in an era of climate change. Farmers often have limited access to genetic resources. Not only do they need greater access to the genetic material in research stations and gene banks, they also need to collaborate with scientists who are willing and able to work together with them to create new knowledge. The Evolutionary Plant Breeding programme in Iran is one example of what can be achieved when these challenges are overcome.

Maryam Rahmanian, Maede Salimi, Khadija Razavi, Dr Reza Haghparast and Dr Salvatore Ceccarelli

Access to genetic resources and genuine collaboration with scientists is lacking in most parts of the world. The Centre for Sustainable Development (CENESTA) in Iran developed a model that has given a large number of farmers access to a great amount of biodiversity in a relatively short time: Evolutionary Plant Breeding (EPB). A dynamic and inexpensive strategy, EPB rapidly enhances the adaptation of farmers' crops to climate change. It builds on our experience with Participatory Plant Breeding (PPB), where farmers plant a number of different varieties of the same crop and, after several years of selection, choose a small number of varieties for multiplication and use. In EPB, farmers start planting a much larger mixture of hundreds or thousands of different varieties, and do not necessarily aim to arrive at single varieties.

Our ideas evolve, as do our seeds EPB relies on mixing as many different types of a particular crop as possible, and leaving them to cross freely between each other. Genetically, the seed which is harvested is never exactly the same as the seed which was planted. Several farmers in different regions plant and harvest a small sample of seed (4-5 kg) in the same 250 m² plot for successive years. These plant populations then evolve under different types of agronomic management and in the face of specific combinations of stress from diseases, insects, weeds, drought, extreme temperatures and salinity. In this way, the frequency of genotypes adapted to local conditions gradually increases.

The idea of EPB is not new. As early as 1929, methods were developed for generating heterogeneous populations of barley where locally adapted varieties were needed. In 1956, the idea was labelled as the "evolutionary plant breeding method". Yet already in 1956 there was a strong demand for uniformity in the most

important food and feed crops. This was driven by the growing use of chemical inputs, which required uniformity to give a consistent response. In addition, emerging seed companies attempted to protect their breeding programmes and associated products by promoting this uniformity. Therefore it was only in 2008 that EPB was first implemented in a formal project.

Before CENESTA launched participatory breeding projects, all the breeding programmes in Iran had excluded farmers from the most important stages of the breeding process, and farmers often did not adopt the products of these programmes. EPB follows a completely different approach, with farmers at the centre of producing new varieties and applying the principles of natural selection themselves.

Sowing the seeds of success In 2008, with support from Dr Salvatore Ceccarelli, CENESTA started with EPB by providing five farmers in Kermanshah and Semnan provinces with mixtures of, 1,600 different types of barley supplied by the International Center for Agricultural Research in the Dry Areas (ICARDA). This mixture included a wide range of germplasm: the wild progenitor, *Hordeum spontaneum*, landraces from several countries and modern breeding material. Within such an "evolutionary" mixture different plants cross naturally to produce new types. Each year, the types produce more seed and gradually the population becomes better adapted to the specific and changing circumstances of farmers.

The success of EPB spread far beyond these first five farmers. Based on the success of the barley population, the Dryland Agricultural Research Institute (DARSI) established a similar programme for bread wheat. Evolutionary populations of a variety of crops are now also grown in several other countries. Also, the Iranian farmers of the first years were so satisfied with the population's performance that they shared



With EPB, farmers are at the centre of producing new varieties. Photo: Maede Salimi

their mixtures of barley with other farmers in four other provinces, through CENESTA's PPB programme and also informally with neighbours, friends and relatives. The populations now cover several hundred hectares and are planted in 17 provinces by about 150 farmers.

Living gene banks "Thirty years ago we used to have many different varieties," said Abdol-Reza Biglari, a farmer in Garmsar. "Most of the new varieties introduced to us were not suitable for more than one or two years. This shows that we have to return to biodiversity." Gene banks perform an important role in the conservation of species, but they freeze not only seeds but also their evolution at the time of collection. Local varieties and wild relatives must also be conserved *in situ*. By combining participation and evolution in breeding programmes, farmers can guide the evolution of their crop mixtures in the most desirable way for them.

The evolutionary populations can be considered as a living gene bank. Farmers (by themselves or with scientists) select the most desirable plants and use

them in participatory breeding programmes. For farmers who prefer to sow mixtures rather than single varieties, the evolutionary populations serve as a source of genetic resources for creating new mixtures. The importance of having secure access to such a collection of seeds became apparent in Jordan, for instance, where farmers and scientists turned to evolutionary populations once the civil war in Syria disrupted their regular source of breeding materials. Farmers become the owners of their future: with the best varieties evolving in their fields, there is less, or no, need to buy seeds.

Better seeds Nemat Salemian, a farmer in Anjirak, recalls his first encounter with EPB. "We received this wheat from another farmer who told us that it's a mixture of hundreds of different varieties and that we should plant it in our worst soil. My father said that in the 80 years that he has been a farmer, he has never seen better plants, despite the very bad soil and the climatic conditions this year."

The EPB mixtures have been shown to produce higher yields and perform better in adverse conditions than their local or improved counterparts. Despite late sowing, in the first year of CENESTA's programme, the evolutionary populations of barley out-yielded the local barley and performed almost as well as the improved barley cultivar. In the following year, the evolutionary populations of wheat yielded more than twice as much as the local varieties.

The EPB populations are also more resistant to weeds, diseases and pests. In 2011-2012, a farmer in the district of Garmsar witnessed that his evolutionary population of wheat had higher yields than the local improved variety and the evolutionary population did not need to be treated with pesticides and herbicides. This suggests that evolutionary populations could be very useful in organic agriculture and cheaper to grow.

"Farmers can guide the evolution of their crop mixtures"

Farmers can face some challenges with EPB. Very small plots of land may not be enough to grow their own evolutionary population. To resolve this, in a community of small farmers the evolutionary population could rotate among them. Also, in the case of severe climatic events, only a small fraction of the population may survive – leaving too little diversity in the mixture to continue to adapt. In this case it may be



Farmers are proud to share the diversity in their evolutionary population, and the many advantages that such a mixture has. Photo: Maede Salimi

necessary to supplement the mixture with new types. Nevertheless, in such circumstances the farmers growing the evolutionary population will have more chance of harvesting some of their crops, while fields with only one variety may be entirely destroyed.

Unexpected growth After receiving a small amount of seed in the first year of the EPB trials, we expected farmers to continue to sow just enough to allow the population to evolve and to act as a source of locally adapted varieties. One of the most unexpected outcomes of the evolutionary population trials was that some farmers decided to sow *all* the seed they had harvested, multiplying and cultivating the seed as their main crop. “About 20 farmers have asked me for this seed, after they saw it in my field last year,” Faraj Safari recalls. “This year I am only going to grow this mixture. I’m going to plant about 40 hectares with this mixture. I can give seed to about 10 or 15 other farmers this year, and more next year.”

The question of the consumer

Many people are concerned if the final product from EPB mixtures is of a suitable quality to use and sell. In Iran, with wheat and barley, there has been no reason for worry. A protein analysis of the barley varieties, which are mostly used as an animal feed in Iran, showed that the evolutionary population had more protein than the local improved variety. For wheat, farmers and bakers have been pleased with the bread they made from the evolutionary populations. Some are even marketing the bread in local artisanal bakeries. Farmers growing evolutionary populations in France and Italy confirmed that creating mixtures not only brings greater yield stability, but also greater aroma and quality to the bread.

The suitability of evolutionary populations as the main crop depends on the use of the crop and the cultural preferences of farmers and consumers. Even when the crop does not lend itself to being consumed as a mixture (as with many vegetable varieties), the evolutionary populations still serve as living gene banks for farmers to source individual varieties. The use of EPB with vegetables is currently underway in Italy with tomato, beans and courgettes.

Where next? The evolutionary populations of wheat and barley continue to be spread throughout Iran, both through farmer-to-farmer exchanges and through exchanges organised by DARSI, the Department of Agriculture of Fars Province, and CENESTA. The main challenge is to keep up with the fast spread of these seeds, to track the spread and the outcomes and to support farmers. The first national workshop on EPB was organised in Shiraz in January 2013 where farmers from several provinces shared their experiences. Regular local, regional and national workshops and field visits are needed to strengthen farmers’ knowledge about how to use these populations. At the same time, we must try to develop awareness of the potential impacts of different seed laws and policies on farmers’ rights to save, exchange, develop and sustainably use their seeds.

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**“Link biodiversity
with the pleasures
of food”**

“If you look at a map of global agrobiodiversity hotspots you soon realise that they are identical with indigenous people’s habitats. There are 370 million indigenous people in the world and they have been custodians of agrobiodiversity for millennia,” says Phrang Roy, co-ordinator of the Indigenous Partnership for Agrobiodiversity and Food Sovereignty. “Regretfully, their practices, such as shifting cultivation and their selection of socially relevant local crops and breeds, are not understood by many development workers, researchers or governments.”

Interview: Janneke Bruil

Phrang Roy has a modest appearance and warm voice and is fond of weaving jokes into the conversation. He is a member of the indigenous, matrilineal, Khasi tribe from India and one of the world's leading advocates for the rights of indigenous peoples and agrobiodiversity. Between 2002 and 2006 Mr. Roy served as the Assistant President of IFAD (the International Fund for Agricultural Development) and he continues to live in Rome.

In 2010 Mr. Roy established the Indigenous Partnership for Agrobiodiversity and Food Sovereignty. The Partnership promotes a dialogue between indigenous peoples and agricultural research and advocacy groups and promotes the acceptance of local knowledge within the agendas of international institutions. In addition, Mr Roy is a prominent member of the International Slow Food Movement and an advisor to the International Fund to Amplify Agro-Ecological Solutions.

“My experience with international organisations taught me that there is a need for a more inclusive approach that treats the custodians of traditional knowledge and modern day researchers as equal, but diverse, knowledge holders. The well-being of future generations cannot be sustained if we continue to marginalise indigenous peoples, fail to learn from them about their cultural ways of respecting agrobiodiversity and do not defend their food sovereignty to practice their farming systems.”

What is blocking the mainstreaming of agrobiodiversity?

Current agricultural trends are all about moving towards a cash economy rather than subsistence farming. Unfortunately, the question is often not “how can I grow healthy food for my own family” but “how can I grow crops that will reap monetary benefits”. In the current system, we don't look at hidden subsidies or at the cost of ill health that comes with a long dependence on chemically supported commercial production. The narrow focus on production, the obsession that we cannot feed the world without chemicals and ignorance about traditional systems are some of the biggest challenges to transformation.

Creating local livelihoods based on agrobiodiversity is one strategy for responding to this situation, but this is easier said than done. It is crucial that farmers proactively share their successful experiences. But many farmer groups have limited opportunities to make their distinctive ecological practices known, or they lack the leverage to influence policy makers. We should be more involved in connecting these dots. We also need to “glamorise” local economies. This would also help the younger generation feel more attracted to farming. Finally, farmer organisations must push more actively

for a thorough and true cost accounting of commercial agriculture.

Who are the “shakers” of the system? These are the farmers and communities who maintain their local agrobiodiversity despite modern influences and climate change, including those who adopt modern technologies and adapt them to local conditions. One group of people that I think we seriously overlook in our search for sustainable agriculture are the cooks. Agriculture starts with seeds and ends on the plate. The cook stands in the middle. By influencing our food habits to become more respectful of family farmers, cooks have the potential to be great “shakers”.

In addition, I think that scientists are indispensable partners. But, agricultural research must be driven more by communities and public funding instead of by commercial groups who see agriculture as a strategic investment opportunity. Mechanisms such as Citizens' Juries can enable farming communities to set the research agenda. We are currently involved in a research project on agro-ecological indicators of how indigenous knowledge is sustaining agrobiodiversity. The most important aspect of such an initiative is that it is being done in a participatory manner. Knowledge should not be simply extracted from grassroots peoples but they should be actively involved and informed.

How can agrobiodiversity be effectively promoted? We will gain a lot by linking biodiversity with the pleasure of consuming local food. Food connects communities and shapes their environment, economy and culture. Recent research has confirmed the importance of pride and cultural re-affirmation in encouraging communities to continue their roles as custodians of biodiversity. In this regard, food festivals have proven to be useful entry points. In our last festival we attracted 10,000 visitors who exchanged knowledge with each other. We displayed around 200 edible local plants, of which more than one third were derived from the wild. We invited local chefs to celebrate local dishes, adapted to modern standards of hygiene and aesthetics. The result is that many previously neglected foods are now promoted by farmers and in urban areas.

Another effective strategy is to link local biodiversity to local food shops. For example, in Meghalaya (India) we have set up the first rural indigenous café. It sources products from nearby farmers and foragers and presents local dishes in an appealing way. It gives income opportunities to farmers and sustains the cultivation of local, nutritious crops. We have also worked with schools to improve children's knowledge about wild edible plants by organising educational walks and “biodiversity picnics”. Children can come to better



Youth members of Mawshamok village in India organised a biodiversity walk and wild vegetable festival, highlighting the importance of wild edibles.
Photo: Annelie Bernhart (NESFAS)

appreciate their local food through such initiatives.

Documentation is another important strategy for raising awareness. In the northeast of India, participatory plant breeders are documenting farmers' agrobiodiversity management practices. One of the farmers is now working with her community to promote local agrobiodiversity in the surrounding villages and in schools. What we learn from all these examples is that it is crucial to work with local culture, pride and knowledge.

How do you view the promotion and rise of GMOs? I am not against biotechnology as long as its development has the prior and informed consent of all involved, and as long as the impacts are robustly and honestly considered. Unfortunately, GMO crop technology, as it stands today, is owned and driven by very few companies who are mainly seeking to maximise their profits. Moreover, by replacing diverse multi-cropping systems with monocultures of seeds that cannot be sown year after year, we risk losing important agrobiodiversity that

has been built up through thousands of years of intergenerational knowledge transfer. As a result, we risk entering into a fragile system where we have to rely on fewer crops that depend on more chemical inputs.

It is clear that the existing Intellectual Property Rights regime does not provide adequate recognition or protection of the collective rights of indigenous peoples. The regime is designed to foster commercial growth, while the intellectual property system of indigenous peoples is based on the collective rights of communities. They are very closely linked to their lands and territories, the environment and biodiversity and their cultural heritage. These unique systems need to be upheld. The UN Declaration on the Rights of Indigenous Peoples recognises the collective rights of indigenous peoples. That declaration needs to be supported, as well as the ongoing work that is taking place between indigenous communities and UN Agencies, such as UNESCO and the World Intellectual Property Organisation.

What appeal would you make to young people? When it comes to food there is an emerging trend of localism. Especially in Europe, young people are being very creative in developing a trend of favouring fresh, local and tasty food. "Disco Soups" is one activity from Germany and the Netherlands that creates an interest amongst young people. I believe that if we have a passion and share it with others we will be able to inspire people around us. Even small initiatives, such as kitchen gardens, food festivals or informal conversations can be strategic entry points to important changes in society. If young people don't make that change, we will lose everything.

What difference might this International Year of Family Farming make? The year can highlight the role of women and young people as the future custodians of agrobiodiversity. It should generate greater respect for, and the empowerment of, family farmers, especially the indigenous communities, whose world view is very different from other peoples', and who are often ignored.

My hope is that we can create a platform that increases recognition of the important role of the silent and the marginalised, allows grassroots peoples to voice their opinions, facilitates exchange of knowledge and re-affirms pride in local food systems. Food, when responsibly produced, protects the environment, enhances our health and well being and highlights the role of women as custodians of our agrobiodiversity and our food traditions. I envision a future where our food systems are defined by strong bonds between people, planet, plate and culture.

I was chatting with my mother when a woman carrying grasses and flowers entered the house. The two greeted each other and the lady carefully unwrapped the shawl that she covered her load with, presenting a variety of grasses and flowers. It was the 11th of September, Ethiopian New Year, and the visit was part of *Atete*, a women's ritual. My mother sat gracefully on a stool wearing her hand-made cotton dress and layers of beads around her neck. The *kinche*, a dish made with a special type of wheat, ghee and spices, was ready to be served.

My mother received four varieties of grass from her visitor and explained to me how each of them were used. The traditional fifth type of grass was missing. The place where this variety was always collected had been converted to a flower farm.

This little story transmits how I feel about agrobiodiversity. It shows how culture is at the centre of agrobiodiversity protection. The variety of spices that our mothers put in their ghee, the grass and the flower species that the visitor brought: they are all central to our culture. The grasses do not grow in degraded land, so a healthy ecosystem is another critical factor for agricultural biodiversity to thrive.

My total ignorance about the uses of these grasses symbolises the erosion of knowledge about our agrobiodiversity. We see this all over Africa: the present generation understands and appreciates little of the richness and diversity of crops, animals, vegetables and nutrition, or how to handle our seeds and food.

The biggest concern for me is Africa's agriculture policies. As farmers, we have been told time and again that we are backward, ignorant, lazy and corrupt. We are pressured to relinquish large tracts of land to companies; orient agriculture to the market; use plenty of agricultural chemicals; become profit-driven entrepreneurs; forget our seeds and depend on external supplies. But I am convinced that this path will lead us to further loss of our agricultural biodiversity.

I think there is a better way to feed Africa while still maintaining our cultural practices in harmony with nature. We can produce healthy food in plentiful amounts through agro-ecological practices, while reviving our ecosystems, ensuring that traditional ecological knowledge passes on to the next generation, linking farmers with consumers and keeping our seeds in the hands of farmers.

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A better way to feed Africa



In the Ecuadorian provinces of Bolívar, Chimborazo and Cotopaxi, family farmers are building new capacities to conserve and use the biodiversity on their farmland. They are gaining greater access to and control over their biological resources, increasing their resilience and food sovereignty. The key: individual farmers who are passionate about plants and seeds.

Ross Mary Borja, Pedro Oyarzún, Sonia Zambrano, Francisco Lema and Efraín Pallo

Agrobiodiversity enables rural family farmers to cope with the dynamics and shocks that are inherent in farming, especially weather and market fluctuations and pests. For villages in high altitude and risk-prone environments, such as the Ecuadorian Highland Andes, this is especially important. In the words of farmer Julio Guamo from Naubug village in Chimborazo, *“With agrobiodiversity we can produce many different crops. If one does not succeed, others survive, so we don’t lose everything and are able to eat in difficult times.”*

Nevertheless, numerous studies in our region showed that on-farm genetic resources have been in sharp decline over the last half-century. Something had to be done.

Farmers as custodians of seeds

Despite owning just 20% of the land and water resources dedicated to agriculture in Ecuador, smallholder family farms provide more than 70% of the country’s staple products. Farmers have historically conserved these traditional seeds and the knowledge about how to use them that form the basis of this food production. Smallholder family farmers are the largest supplier of seeds of both improved and local varieties

for the majority of Andean crops. “Improved” seed varieties have never constituted more than 1-2% of planting material in Ecuador.

Since the 1960s, agricultural policies that favoured monocultures and export-led production have neglected smallholder management of genetic resources and weakened the role of the state in improving knowledge and organisation among small farmer systems. Undoubtedly, Ecuador’s current farmer seed system is one of the most conspicuous forms of social self-organisation, encompassing an extensive network of actors, traditions and institutions that has vigorously resisted the influence of external actors and agricultural policies.

Recently, there has been more political and scientific recognition of local biodiversity as a critical element for maintaining resilient and dynamic agricultural systems. For instance, a recent ministerial decree recognises the potential of smallholder family farmers to produce and market potato seeds. The Bill of Agrobiodiversity and Seeds, currently subject to heated debate in the National Assembly, also recognises farmers’ seeds and the need to strengthen the informal system.

Action research on agrobiodiversity Despite these positive trends, smallholder management of agrobiodiversity is at great risk, as we found in the communities in the central highland provinces of Bolivar, Chimborazo and Cotopaxi between 2007 and 2012.

To assess the state of these communities’ on-farm agrobiodiversity and locally run seed systems, we worked with farming communities to document and share their knowledge about genetic resources and the functions in their lives, as well as on knowledge and practices tied to the management, availability, access and control of seeds.

In addition to conducting approximately 800 surveys with farmers in more than 30 communities, we carried out participatory assessments using a variety of tools

for community management of agro-biodiversity. Timelines, transects, focus groups, mapping of farms, and lists of agro-biodiversity were accompanied by a method called Participatory Four Cell Analysis (see also p. 40). This entails in-depth discussion on the destinations of specific crops, their sale, terms of trade, and family consumption, revealing the relevance and importance of particular crops.

We motivated the farmers to start a dialogue about their genetic resources, because it is often felt that only when things are expressed and said, they exist. The main objective of this participatory process was therefore to make *visible* to the community the role and function of their seeds, and to recognise those individuals with outstanding knowledge and capacity to conserve biodiversity.

Disappearing varieties Our findings showed that, despite their high nutritional values and historic importance for food security, Andean roots and tubers such as *mashua* (*Tropaeolum tuberosum*), *oca* (*Oxalis tuberosa*), *jícama* (*Pachyrhizus erosus*) and *melloco* (*Ullucus tuberosus*) have become infrequent. According to the farmers, several factors have contributed to the decline of these traditional crops. They include the expansion of monoculture planting and market-driven agriculture, which commonly emphasise the cultivation of “European” vegetables. Farmers also mentioned changes in traditional weather patterns, which have increased the risk of crop failure and, as a consequence, the loss of seeds.

The results of our research, some of them summarised in the table, illustrate the systematic loss of community knowledge and control of their biological resources. However, the table also shows that there are farmers who are passionate about managing plants and seeds. These individual leaders hold tremendous value for the transmission of knowledge and the enhancement of socio-technical innovations.

Farmer responses about lost varieties, sources of native seeds, and forms of community-level exchange for five Andean crops. Research in Bolivar, Chimborazo and Cotopaxi, EkoRural 2010.

Crops	How many varieties have disappeared in the past 5 years?	Where do you get your native seeds?	Do you exchange, buy, and sell your seeds? To whom?	Do others recognise you as a seed producer?	Do you recognise other farmers as seed keepers or providers?
Potato (n=50)	90% - 1 75% - 2-4 > 50% - + 3	> 63% - don't have 24% - community	66% - family 12% - others 1% - neighbour	18% yes	30% yes
Maize (n=10)	100% - don't know	80% - don't have 20% - market	40% - nobody 40% - neighbours 20% - family/relatives	20% yes	60% yes
Melloco (n=7)	43% - don't know 56% - 1-3	100% - don't have		14% yes	14% yes
Chocho (n=7)	85% don't know	71% - don't have	57% - nobody 30% - friends	0% yes	30% yes
Quinoa (n=21)	43% - 1 57% - don't know	90% - no	50% - family and relatives 33% don't share	9% yes	9% yes

n = number of farmers

“It was crucial to make the role and function of the seeds visible to the community”

New initiatives Following this analysis, we strengthened farmers’ awareness of, and control over, their biological resources. For example, we enabled community members to visualise the multiple relationships between farming families and their biological resources and seeds and their livelihood priorities. We assisted local farmer leaders with conducting experimental learning activities with other farmers, seed circulation, botany, and genetics, by using field days, tours, and farmer-to-farmer exchanges. As a result of this combination of research and action, communities are now more aware and better equipped to start building control over their biological resources.

Recently, communities have started to (re)construct, strengthen and expand their own seed banks. For each seed that farmers receive from the bank, they return two after their harvest. This is a multipurpose support fund: it protects the seed varieties and generates products for continued circulation. A number of pilot banks are now operating with good results. This success is arousing curiosity among other neighbouring communities, who are in the process of setting up their own exchange systems and seed banks. We also identified highly innovative families and worked to build them into a support network of like-minded peers. Through research organisations, they accessed germplasm stored in gene banks, especially to recover lost potato varieties.

Nevertheless, such efforts in the use and conservation of biodiversity will be at risk without new economic models that recognise the value of local food products. If there is no demand for local food, there will be no use for local seeds. In the last four years we have also encouraged a crucial complementary process that connects urban citizens directly with rural producers so that they can access fresh, healthy local food. This stimulates farmers to continue growing a variety of crops using agro-ecological practices, reconnecting the cultural and political aspects of food. Already, we see that this is having a very positive impact on health, the environment and the local economy.

Slowly but steadily building change We started small with short, inspiring experiences, which have enabled community members and organisations to become active stakeholders with vested interests in the process. These processes

take time to implement, but once they become embedded in the community structure they are ultimately much more sustainable.

The result has been a slow but steady counter-movement against the continued loss of biodiversity in these communities. Several actors, including non-governmental organisations, universities, research institutes and local governments have begun to promote discussion on the value and relevance of conserving and utilising native biodiversity. Urban organisations are actively involved in the discussion on the new laws of food sovereignty, agrobiodiversity and seeds, among others. Both the community members and ourselves feel that this experience needs to be continued and expanded to new crops and territories.

For us, the key factor of success has been to work with (rather than against) local experiences. Everywhere, even under the most difficult conditions of hardship and social marginalisation, there are always families that are capable of defending and advancing their own on-farm biodiversity. We find great hope and inspiration in these families. The challenge is in finding ways to strengthen their knowledge and to build linkages with other like-minded people to stand firm against the ongoing threats and mass-marketing of industrial agriculture and industrial foods.

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Even under hardship, there are always families that are capable of defending their on-farm biodiversity.
Photo: Kaat van Ongeval (EkoRural)



What if we change?

The problem with today's world is that most people are afraid of diversity, and this is also true for food. This leads people to limit themselves to a very narrow spectrum of food choices. There are simply too many people who are afraid of eating snails, playing with a spider or even getting their hands dirty in the garden. Add to this the expensive commercial advertisements for fast and industrially-processed food and you understand how we have created a food system where 70% of the planet's resources are used to feed 30% of the population. Not to mention the tons of food wasted on a daily basis under current production and consumption patterns.

This food system is exploiting the ignorance and apathy of consumers, while maintaining an old-fashioned and almost decadent image of the farmer. Fast profit is the major driver for mainstream agriculture, and frozen dinners, synthetic biology and big machinery seem to be the only ways to achieve success. This might sound exaggerated, however the sad truth today is that only 6% of European farmers are under the age of 35. Farming and rural lifestyles are not attractive to young people, and for those who do want to start farming, accessing land and starting a farm is a huge challenge.

But this is changing! Since the economic crisis hit home in 2008, a new mentality is emerging. More and more people understand that business as usual is not an option anymore. Agriculture and its role in shaping landscapes, cultures and diets in everyday life is now more widely recognised and



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appreciated. There are more and more people who wish to enjoy their food in a conscious, responsible and ethical manner. There is a new role and co-responsibility for everyone involved in the food supply chain, from producers, transformers, traders and chefs, to the final consumer.

The advent of alternative systems for producing, distributing and appreciating food creates opportunities for everyone. In this rapidly transforming field of food, new technologies and social networking are enabling farmers and companies to operate responsibly, offering services that deliver advantages to the land and social benefits for everyone, connecting food with agriculture and the land with the plate. Knowledge, creativity, aesthetics, talent, time, credibility, even Facebook "likes" become the new currency in this new economy, which might prove very powerful in restoring and conserving the world's eroding agrobiodiversity.

How to break through the glass house: **A personal reflection**

While there are examples of practices that successfully support biodiversity in agriculture, and even good international agreements, these practices are not spreading far and wide. There seem to be invisible walls, ceilings and floors that limit the spread of sustainable agro-biodiverse practices and their adoption into mainstream policies, practice and culture. What is stopping us from opening the doors and windows of this “glass house”?

Michael B. Commons

Five years ago, the land behind our house was nearly entirely devoid of topsoil and almost nothing would grow there. My wife’s parents, who are farmers, didn’t think it was even worth trying to grow anything on this poor soil, and preferred to use their other land which was much more fertile. From organic farmers in our network I had learned the value of using land close to the house, or as they call it, the “supermarket behind my house”. At that time, I was professionally supporting organic farming and its benefits. If I could start from one of the worst situations and get to a wonderful fertile farm – this would be a good story to tell.

My first significant act was to cover the soil with the rice straw that many people in our area burn after harvesting. This and this alone was enough to change the conditions drastically. A few months later, the soil was softer, moister and there was more life. Weeds started to appear where before there were none. At first, I didn’t like the dominant weed growing, but then I observed that its roots had many nitrogen-providing rhizobium nodules and the plant was basically an effective soil cover. I realised that this plant, which I didn’t plant at all, was doing quite a lot for my soil and

my garden. I could go on describing other steps, but that is a longer story. My experience shows that even if we do very little we can still help nature along in the right direction in a big way.

In my ten years of supporting organic agriculture, I have seen many successful examples where farmers have revitalised their soil and environment and are producing better quality crops. Initially organic farming is more work, but once nature takes over and the soil and agro-ecology work their magic, there is very little a farmer needs to do besides being present, learning from the farm, and occasionally doing some tweaking.

Why is not everyone doing it?

As an American living in Thailand, I stick out, and being a foreigner people expect and accept that I will do some strange things – like investing time and effort in the backyard on which everyone had given up hope. For others, particularly in the village environment, social pressures often make it difficult to try something new. Even though thousands of organic farmers around the world were strong enough to go forward in spite of being told they would fail, they are still a minority and their way of thinking has not yet transformed the dominant village culture. I see a



This multilayer organic orchard in Mae Tha, Chiang Mai, Thailand, produces mangoes, longan, pineapples and *Tupistra albiflora*. This perennial produces delicious flowering stalks in the forest shade.

Photos: Michael Commons

global set of norms that appear to go against the practices and principles that support biodiversity, making it even more difficult for people to change their ways. Even though there are other reasons that biodiverse forms of agriculture are not taking off, for me the invisible barrier of the “glass house” is present in these cultural and social norms that influence how we see and act in the world, largely unconsciously.

Norms and barriers A first such norm is the emphasis on a very structured and organised cleanliness that has emerged. It also is referred to as “sanitary”, meaning free from any sort of insects, animals (aside from pets), and micro-organisms. Weedicides, fungicides, pesticides, GMO varieties: they all work in this direction. If a biodiverse “jungle” in someone’s garden or farm is considered bad and a sterile orderly environment is good, we will have an inherent adversity to biodiversity.

A second norm is an expectation of instant results. Let’s take the example of pesticides for instance, or in the Thai language, “insect killing medicine”. Someone who expects and appreciates quick results may not be impressed with slower acting herbal pesticides, let alone with helping a healthy ecosystem to re-establish a balance.

Thirdly, there seems to be a loss of value and respect for one’s own knowledge and responsibility, and an increase in value and respect for knowledge from outside “experts” and recognised authorities. If some sort of accreditation or label establishes that GM foods or a small amount of pesticide residue is safe to eat, it is good enough. On the other hand, many question whether using aged manure as fertilizer is safe – even though this fertilizer has been used longer than anything else. Rather than to depend only on the global knowledge of “experts”, the traditional and cultural knowledge passed on by one’s ancestors can be a great

starting point, as is exchanging knowledge with one’s neighbours.

I have also observed a **norm of increasing specialisation** in response to globalised trade networks. The dominant mantra is that the secret to success is to specialise, producing one thing very efficiently for the global market. Taken to its maximum this may lead to areas that are not only free of agricultural biodiversity but to huge agro-bio-uniform industrial plantations that are free of small-scale farmers as well.

Finally, there is the **mantra of money**. While it is recognised by most that there are universal goods, like peace, biodiversity and environmental health, these goods do not show on one’s balance sheet of growth until they generate dollars. With such a mantra of money, agro-biodiversity is only likely to receive more general support when it can be shown to support economic development. This really limits the number of options and paths to take.

How to change such norms? My only idea is to expose others to alternatives and new interpretations. This is effectively what pioneering organic farmers have done. While changing societal norms does not normally come quickly or easily, this process may also be fun. I see this with many of my organic farmer friends. Having continued and succeeded in spite of many telling them that they were crazy, they no longer fear failure, and thus they get to play and experiment and learn every day. I look forward to seeing new manifestations of agrobiodiversity, such as “agrobiodiversity meets shopping centre” or “agrobiodiversity meets parking lot”. These may sound like crazy concepts now but this could just be the limitation of our imagination.

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From barren land to biodiverse home gardens

Changing climate patterns and the associated ill-effects are inherently severe in the Federated States of Micronesia and are perhaps the most pressing challenge facing the nation as it seeks to nourish its people. Decreased rainfall and rising sea levels are disturbing the traditional taro patches, low-lying forestry systems and other ecosystems. In Yap, one of Micronesia's states, combining traditional farming and scientific insights has brought fresh promise for biodiverse and sustainable food production systems.

Murukesan Krishnapillai and Robert Gavenda

The population of the fourteen remote low-lying atolls of Yap has relied on traditional subsistence agriculture since ancient times. Central to their lifestyle were a range of traditional biodiverse food production systems that provided sustainable food production in the widely differing ecosystems of these tiny atoll islets. These systems included productive agroforests, intermittent tree gardens, kitchen and backyard gardens, raised-bed farming and wetland taro patches. These systems maintained their own soil fertility, crop protection and high cultivar diversity, providing the island communities with a variety of foods that made them among the most self-sufficient and well-nourished people in the region. However, the situation has changed over the last few decades as the effects of changing climate patterns have begun engulfing these tiny island ecosystems.

A dismal picture Today, these atoll communities are among the most economically and environmentally vulnerable groups in the region. Environmental, economic and social hardships have forced communities to migrate to Yap Proper, Yap's main island, in search of better livelihood opportunities – particularly after the devastation caused by

typhoon Sudal in 2004. Upon moving to Yap Proper with dreams of improving their living conditions, these environmental immigrants often faced a lack of jobs and an unfamiliar and challenging environmental setting. Many of them relocated to Gargey settlement, a piece of previously uninhabited barren land on Yap Proper, provided to them by the government.

Atoll communities had no choice but to move to this “safe haven”, but this bought its own problems. To increase their self-reliance and insure their families against risk, they attempted to recreate their traditional farming systems, using the plants and seeds they had brought with them from the atolls. However, it was not easy to establish food crops on the predominantly volcanic red soils whose fertility had been depleted by the years of slash-and-burn and shifting cultivation practiced by the early settlers. Much of the soil in and around Gargey settlement was degraded and depleted of nutrients and biota.

Cultivating success Since 2006, the Co-operative Research and Extension of the College of Micronesia-FSM, with financial assistance from the United States Department of Agriculture from 2006-2012, has been providing a comprehensive outreach assistance programme to the displaced atoll communities. The Gargey inhabitants received



Today, farmers in Gargey settlement manage hugely biodiverse agroforests and backyard gardens.

Photo: Murukesan Krishnapillai

training in volcanic soil management and a spectrum of small-scale food production methods. Providing hands-on training and workshops, facilitating group discussions, connecting farmers with each other, and distributing seeds and supplies, we placed a strong emphasis on establishing, promoting and disseminating traditional food crop systems by integrating scientific knowledge.

The most important strategy for managing these degraded volcanic red soils and bringing back the soil biota was to build up nutritious topsoil using composted chicken manure, plant-derived compost and mulch. We encouraged farmers to add lime to the soil, which increased the soil pH and reduced aluminium toxicity, while providing the calcium that the plants needed. As the highly alkaline atoll soils are different from the highly acidic upland soils of Gargey settlement, the resettled farmers needed different management strategies than they had practiced in their traditional systems. Improving the soil was the first step for farmers to bring back the biodiverse farms they had left behind.

To complement their traditional knowledge in establishing small-scale vegetable gardens and food production systems in their new environment, we demonstrated different composting methods and small farm methods based on modern scientific principles. These

methods included small plot intensive farming (SPIN), micro-gardens, raised beds, container home gardening, agroforestry and integrated farming with livestock. Broadening local indigenous knowledge on soil management and food production by incorporating scientific knowledge was essential given the physical and chemical properties of the volcanic red soils. Much emphasis was placed on synthesising traditional knowledge and modern science.

From barren land to biodiverse home gardens

After several crop cycles we noticed that traditional and science-based knowledge, along with human ingenuity, had helped the communities to successfully re-establish biodiverse home gardens. Sustainable practices such as mulching the soil and agroforestry have increased the climate resilience of these smallholder systems. Today, these home gardens have become sustainable food production systems containing a mixture of traditional root crops, fruit and nut trees and vegetables.

Despite the different soil conditions and management at Gargey settlement, most of the original crops from the atolls are cultivated using adapted traditional practices. An assessment of crops in the landscape of Gargey settlement after nine years of human habitation revealed a significant development of agricultural biodiversity. The settlement today harbours 55 households from seven atoll islets in an area of approximately one square kilometre. In this area, the Gargey community grows about 40 different food crops and over 100 different varieties/cultivars, including fourteen varieties of taro (swamp taro, Honolulu taro and sweet taro), seven types of banana, seven varieties of yam and three varieties of cassava. Over 90% of the crops currently established in the settlement originate from the atolls or Yap Proper, which were brought along, exchanged, bought or otherwise shared among farmers.

The home gardens of Gargey settlement vary from small backyard gardens containing a few vegetables to large agroforestry plots with many species. Individually, some of these home gardens may not be true repositories of agrobiodiversity in the scientific sense, but collectively across Gargey settlement they provide a significant overall diversity of traditional root crop varieties and cultivars, fruit trees and vegetables. Over the years, the Gargey community has developed an intimate knowledge of useful plant characteristics (especially of staple crops like taro, cassava and yam), such as their ability to grow in volcanic red soil, their susceptibility to pests and diseases, nutrient requirements, and their ability to serve as ornamental plants in ceremonies.

Cultural and socio-economic factors have profoundly influenced crop diversity. Families engage in food production for subsistence, but these home gardens,

multifunctional agro-ecosystems, are also important social and cultural spaces where knowledge related to agricultural practices is transmitted. A return to home gardens modelled on traditional systems holds a particular cultural and social significance for the displaced population, as they have been able to re-establish the multifaceted benefits that traditional agro-ecosystems have provided them with for millennia.

Ever since the atoll communities began migrating, the settlement has become a multi-ethnic centre of cultural diversity endowed with unique cultures which have brought a rich diversity of crops with them. Even though they originate from different atoll islets, the displaced communities live in harmony in the Gargey settlement. At present there is not a shortage of land on Yap Proper, although amended cultivable fields with improved soil conditions are limited. The community also faces the challenges of extreme weather conditions and limited government support.

Expanding success Following the successful habitation of Gargey settlement, two other locations on Yap Proper are currently being settled by migrating neighbouring atoll communities. Our extension programme's success with Gargey community has enabled us to provide similar outreach

The diversity of crops cultivated by the displaced communities provides food security in an urgent situation. Photo: Murukesan Krishnapillai



The most important step in reviving biodiversity was bringing back the soil biota. Photo: Murukesan Krishnapillai

assistance to these new immigrants. We are expanding our programme and experimenting with biochar-based soil remediation, testing the effect of biochar on Yap's degraded volcanic soils.

Against the backdrop of the International Year of Family Farming, it is pertinent to raise the profile of displaced family farmers. The experience of Gargey settlement shows that there are solutions that ensure nutrition and food security, improve livelihoods, protect the environment, enhance crop diversity and promote sustainable development in a rural setting. The solutions offered at Gargey were well accepted by the communities because they built on their traditional practices. In addition, these interventions help communities achieve their short term needs of food security in an urgent situation, while building a lasting and environmentally favourable solution.

We continue to promote the wide participation in food production and restoration of agrobiodiversity, of farmers and scientists working together. Our outreach and education efforts can be easily replicated in other locations in the western Pacific Islands where degraded red soils are predominant. This increases the importance of this agricultural intervention for other threatened island communities. This said, the uniqueness of each island must be at the forefront of any adaptive strategy.

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As this issue of *Farming Matters* illustrates so impressively, the world is witnessing an explosion of popular initiatives and experiences to use, save and develop agrobiodiversity. At GRAIN we also see this happening. Seed saving projects, seed festivals, community seed initiatives and exchange networks are mushrooming everywhere. This is both extremely encouraging and dearly needed.

We can't count on governments to help us with the tremendous task of keeping biodiversity alive. They tend to move in the opposite direction as they facilitate the corporate takeover of seed and animal breeding, and promote industrial farming. Some 20 years ago, many of us were excited when the Convention on Biological Diversity, the Biosafety Protocol and the International Seed Treaty were signed. But none of them have contributed much to keeping diversity alive in the fields. The Seed Treaty is now almost exclusively focused on gene banks, and mostly serves corporate plant breeders. The Convention on Biological Diversity became a tool for governments to turn biodiversity into a commodity under the banner of access and benefit sharing. And governments use the Biosafety Protocol to adopt biosafety laws that permit rather than prohibit GMOs.

All of these agreements talk about the rights of farmers and indigenous communities, but these were never implemented, and never will be. Instead, in many parts of the world, governments are now pushing restrictive seed legislation that gives intellectual property rights to corporations while outlawing farmers' traditional role in maintaining diversity on the farm.

Peasants are keeping agrobiodiversity alive, but their survival is under threat from the rapid expansion of industrial farming. Driven by the powerful food and agro-fuel industries, the world is turning over its fertile farmlands to grow commodities that don't feed people. In the past fifty years the amount of land dedicated to just four crops – soybeans, oil palm, rapeseed and sugarcane – has tripled. They now use an extra 140 million hectares of fields and forests where small farmers used to live. This amounts to just a bit less than all the farmland in the entire European Union.

We can only save agrobiodiversity if we save peasant farming. Global farmer movements such as La Via Campesina are trying to do precisely that by advocating food sovereignty. Food sovereignty promotes the use of agro-ecology, biodiversity, local markets and indigenous knowledge. It pushes for agrarian reform, fights against the industrial food system and global trade and puts local food producers centre stage again.

Unless we all join and win the battle against the industrial food system and for food sovereignty, local agrobiodiversity initiatives won't stand a chance of surviving. At most, they will become isolated pockets of interesting experiments in a world of uniformity, controlled by corporations.

The team at **GRAIN**, a small international non-profit organisation that works to support small farmers and social movements in their struggles for community-controlled and biodiversity-based food systems. Visit www.grain.org or e-mail: grain@grain.org



No agrobiodiversity without peasants



Seeds or grains:
**Breaking
the
dichotomy**

Increasingly, seeds are the domain of professional seed breeders, agribusiness and policy makers. They decide what makes a good variety and they establish legislation that excludes other varieties. Despite this, farmer organisations and social movements in Paraíba, Brazil, have managed to strengthen decentralised farmer-driven seed selection and distribution systems and public seed policies. They may well be opening the way for another seed regime.

Paulo Petersen, Luciano Silveira, Emanuel Dias, Amaury Santos and Fernando Fleury Curado

Historically, crops have always adjusted to their natural and cultural environments. The outcome is the rich bio-cultural heritage that is agrobiodiversity. This process was disrupted when maximising yields became the major guiding principle in crop improvement. According to the dominant view, modern, agro-industrial technologies are needed to create and maintain the necessary environmental conditions for a crop to realise its full genetic potential.

Seed policy The Brazilian federal government and the state of Paraíba launched several programmes in accordance with this agronomic view, promoting varieties that respond well to intensive agrochemical application. Family farmers were encouraged to replace their wide array of local varieties of e.g. beans, corn, cassava and peanuts with a few so-called “improved” varieties. As these varieties spread, agrobiodiversity declined.

This agricultural approach, or paradigm, was further institutionalised as new regulations defined a “seed”. According to Brazil’s Seed Law, varieties can only be commercialised if they are recognised by research institutes and agricultural commissions in the Ministry of Agriculture, which are strongly influenced by the economic interests of seed breeding companies. The country’s Cultivars Law sets stability, uniformity and homogeneity requirements on seeds in order for them to be registered as protected varieties.

There are various problems with this development. Local varieties carry high genetic variability, which is exactly what makes them so resilient to environmental stress. But these are no longer considered to be “seeds” and are called “grains” instead. In addition, farmers have to use protected varieties in order to benefit from various support programmes, creating another huge disincentive for the use of indigenous varieties.

The seed-grain dichotomy has become an arena of struggle for agro-ecological farming. Agro-ecological production favours the use of ecological capital above external inputs, in which locally adapted varieties play a key role. Also, contrary to the State’s seed policies, agro-ecology supports the creation of an increasingly autonomous agriculture, free from the workings of input markets and the agribusinesses that control them. The Paraíba Semi-arid Articulation (ASA-PB), a coalition of civil society organisations, has challenged this dichotomy by mobilising farmers and movements around “seeds of passion”: local varieties that, in contrast to the seeds distributed by public programmes, are environmentally as well as culturally grounded.

Struggling against invisibility

Practices that use and conserve agrobiodiversity in the Brazilian semi-arid region are an important livelihood strategy for family farmers. Although these practices take place everywhere, they remain largely invisible, deemed “irrelevant” by dominant ideological and economic forces. This is why identifying and enhancing the visibility of these practices was a crucial first step.

ASA-PB started this process in 1996. In collaboration with the local farmers’ union, they carried out a participatory appraisal with farmers to identify local bean varieties in the municipalities of Solânea and Remígio. They found 67 varieties of beans with different characteristics including resistance to droughts and pests, taste and acceptance in the market. They also identified farmer-driven mechanisms that enhance diversity and seed security. For example, farmers store their seeds and exchange them with other families, allowing for the free circulation of genetic material and of the knowledge associated with each variety in the communities. In another example, local church-based organisations established seed banks in

“Local organisations can and should play a leading role in the maintenance of the rich bio-cultural heritage embodied in local varieties”

the drylands of Paraíba in the 1970s. These proved highly effective in times of drought, when crops failed and farmers’ own seed stocks were depleted. The bank lends seeds to the farmers which the farmers return, with a small percentage increase, after the harvest. For the organisations within ASA-PB, understanding these practices was essential for enhancing their visibility and scaling them up.

The local seed banks formed an important entry point for a new seed security system. ASA-PB established the Seeds Network, a knowledge exchange platform on seed practices and agrobiodiversity conservation. This network links 230 seed banks in 61 municipalities, covering 6,500 family farms in Paraíba. During one of the network meetings, Joaquim de Santana, a farmers’ union representative coined the term “seeds of passion”. “*Seeds of passion are those that are good,*



Dialogue with policy makers on the results of research conducted with Embrapa Tabuleiros Costeiros. Photo: Adriana Galvão Freire

that adapt to our reality,” he said. “And people are only passionate about what is significant.”

Seed network politics The Seeds Network formed a space for critical policy analysis and the promotion of alternatives. A drought in 1993 triggered a protest where ASA-PB and other social movements challenged the state’s measures that were based on the notion of “tackling the effects of drought”. ASA-PB and others instead proposed “living with the semi-arid”.

As a response, the national government launched a seed banks policy. The state created its own seed network, which consisted of existing community seed banks, and supported the stocking of these banks. This donation of seeds provided an impetus for communities to construct new seed banks. However, the banks were replenished with conventional rather than local seeds. After the drought of 1998/99, local seed banks were again refilled with conventional seeds, after which new protests followed. ASA-PB persuaded the government of Paraíba to acquire local farmer seeds for the following year. The initiative then stumbled against a legislative barrier: local seeds were not recognised as seeds and therefore could not be distributed officially by the state through the seed bank network. The government bypassed this by acquiring the seeds as “grains”, transferring them to ASA-PB who then distributed them through their seed bank mediators. In 2002 a law in Paraíba enabled direct transfers. When local varieties became formally recognised by the national government in 2003, largely the result of

pressure by the National Articulation for Agro-ecology, the door was opened to more progressive innovations in the government seed programme.

One of the strategies of the Lula da Silva government to eliminate hunger was the Food Acquisition Programme. In 2003, as part of this programme, the government and organisations connected to ASA-PB helped farmers to produce and distribute indigenous varieties that are free from transgenic contamination. Seeds were directly purchased from, and distributed to, farmers.

This experience confirms that local organisations can and should play a leading role in the maintenance of the rich bio-cultural heritage embodied in local varieties. The state can play a supportive role in strengthening collective action by redistributing and regulating the diversity of local varieties, something which is for the common good of agriculture. Despite the successes achieved by the programme in Paraíba and some other states, most government seed programmes continue to be biased towards the conventional paradigm. They argue that improved seeds have been scientifically proven to work under semi-arid conditions and that initiatives such as those by ASA-PB, while desirable, cannot be scaled up to reach all the farmers who are in need of seeds. This has led ASA-PB to recognise the necessity of engaging with science.

Tuning into a different language

To prove that local use, management and conservation practices are effective and viable, the Seed Network

entered into a partnership with Embrapa, the government's most influential agricultural research agency. This helped them gain both acceptance in academia and legitimacy among officials involved in seed programmes.

All of the organisations that are part of the Seed Network were involved in the research that followed, which sought to compare the performance of local and conventional varieties. The research team used participatory methods to determine which varieties to compare, which locations to use for testing and how the interaction between farmers and researchers should be structured. Together with farmers, they identified performance parameters. These included grain quality, plant health, the amount of straw a plant produces, and the effect of intercropping with other crops.

Local varieties outperformed conventional varieties in all regions and in each of the three years that the experiment lasted. Conventional varieties only yielded better in highly fertile soils with plenty of rainfall, which are exceptional conditions for family farmers in semi-arid regions. The varieties that performed best in a certain area usually originate from there. Local varieties were also found to produce more biomass, which is highly valued as animal feed, especially in the erratic climate of the region. Finally, research showed that the seed storage facilities constructed by farmers,

often using only local materials and no pesticides, performed well.

Although the research confirmed what farmers already knew, local practices are now scientifically recognised. Moreover, much was learnt, both content-wise and methodologically, from the interaction between farmers and researchers. This contributed a great deal to the struggle to increase the visibility of "seeds of passion".

So far our experience in Paraíba demonstrates the importance of social mobilisation in enhancing the capacity for collective action in rural communities. It also shows that the state can play an important role in supporting civil society organisations and networks in the construction of seed security systems. Such systems allow family farmers in semi-arid regions to build their own food and nutrition strategies and increase their resilience to climatic change. The struggle may well open the way for another seed regime; one that is grounded in the reality of family farmers.

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Seeds of passion: gaining scientific legitimacy and historical recognition. Photo: AS-PTA





Mountain farming is family farming: A contribution from mountain areas to the International Year of Family Farming 2014

S. Wymann von Dach, R. Romeo, A. Vita, M. Wurzinger and T. Kohler (eds.), 2013. FAO, CDE, BOKU. 100 pages.

Family farming is the main type of land use in mountain areas around the world. Yet mountain farming is rapidly transforming everywhere, due to population pressure, out-migration, urban encroachment, mining expansion and increasing claims on land for conservation. A testament to the diversity and commonality of mountain farming, this report provides a collection of case studies from mountain areas across the world. It aims to raise awareness about mountain family farming and to encourage appropriate support for mountain areas. This report highlights opportunities for mountain family farmers to continue to develop organic farming practices, strengthen local and regional co-operation and seize niche marketing opportunities.

More on agrobiodiversity

The conservation of agrobiodiversity begs the questions, what have we lost and what have we saved? The Food and Agriculture Organization's (FAO) publication, "The second report on the state of the world's plant genetic resources for food and agriculture" (2010) provides an impression of some trends in conservation and the use of plant genetic resources worldwide.

Family farmers have long understood the benefits of sustaining biodiversity, while scientists and policy makers are increasingly acknowledging the roles played by farmers. "Community biodiversity management promoting resilience and the conservation of plant genetic resources" (2013) presents some history and experiences from organisations supporting farmers and farming communities with *in-situ* management of biological resources. This book is part of a comprehensive series published by Bioversity International in association with Earthscan entitled "Issues in agricultural biodiversity". This series deals with

many issues, from legislation on access and benefit sharing of genetic resources to crops' wild relatives.

Many individuals and organisations are actively supporting the conservation of agrobiodiversity and helping family farmers to retain traditional practices and knowledge. The International Institute for Environment and Development (IIED) website on Biocultural Heritage provides tools, and shares research and review policies on indigenous people's knowledge, practices and biological resources. A report published by The European Learning Network on Functional Agrobiodiversity (ELN-FAB), "Functional agrobiodiversity nature serving Europe's farmers" (2012), offers insights into European agricultural and biodiversity policies as well as some practical ways for farmers to increase their on-farm biodiversity. A recent report released by the Gaia Foundation and the Ecumenical Advocacy Alliance entitled "Seeds for life – scaling up agrobiodiversity" (2013), proposes urgent actions to re-



vive seed diversity in the face of numerous threats. The Gaia Foundation's website also features two films, "Seeds of freedom" (2012), which charts the history of seeds from traditional farming to the global food system and "Seeds of sovereignty" (2013), which journeys to Africa to see how farming communities and organisations are resurrecting traditional seed diversity.



Reclaiming food security

M. Carolan, 2013. Routledge. 196 pages.

This book presents a critique of the dominant directions taken by public policy in the name of food security. He argues that food should not be treated in the same way as any other commodity and *genuine food security* should be firmly aligned with principles of food sovereignty, wellbeing, equity and ecological sustainability. He examines the history of pursuing increased agricultural production (at all costs), trade liberalisation, global market integration and increased marketing and why these approaches have failed to deliver food security. The author urges that we move towards a renewed conceptualisation of food security that embraces freedom for people and nations to lead happy, healthy and long lives.



Scaling-up agroecological approaches: what, why and how?

S. Parmentier, 2014. Oxfam-Solidarity. 92 pages.

Agro-ecology is a science, a social movement and a broad set of agricultural approaches. Scaling up agro-ecology requires a systematic search for combinations of techniques and strategies that fit specific ecological, social and political contexts. This discussion paper aims to support civil society and government actors by providing evidence of the centrality of agro-ecological approaches for sustainable agriculture. The author also highlights the challenges (along with specific actions) to scaling up agro-ecological approaches. These include breaking down ideological barriers, supporting farmer-to-farmer networks, creating supportive policy environments, empowering women and democratising the policy making process.

Smallholders, food security and the environment

International Fund for Agricultural Development (IFAD), 2013.
54 pages.

This easy-to-read overview of family farming gets right to the point: smallholders form a vital part of the global agricultural community. This is one of the three key messages of the report. In Asia and sub-Saharan Africa smallholders are responsible for supplying 80% of local food. Yet they are often relegated to infertile soils, and face threats from large-scale land grabs and policies that are biased against them.

The second message is that smallholder productivity depends on well-functioning ecosystems. Historically the two

have always supported each other and understanding of these interactions and practices to strengthen them have been continuously refined. The authors argue that intensification needs to focus on strengthening the natural processes responsible for ecosystem services such as pest control, nutrient cycling, and water retention.

This requires a redefinition of the relationship between agriculture and the environment; the report's final key message. An array of sustainable agriculture intensification approaches already exist: conservation agriculture, agroforestry and integrated pest management. Sustainable intensification also requires the removal of policy bar-

riers, more research and better provision of information to smallholders.

What the report lacks is a reflection on the wealth of farmers' own experiences: the practices they have devised, which include some of those mentioned above, and cases where farmers themselves have managed to transform research and policies to strengthen food security and the environment. Such examples could offer an important contribution to the authors' call "to facilitate sustainable, autonomous smallholder livelihoods adapted to local conditions and to enable smallholders to develop their own futures."



Reviving the Ankole Longhorns of Uganda

Ankole Longhorn cattle can survive in extremely harsh, dry conditions such as those in sub-Saharan Africa – which is becoming drier and hotter. In a context where herders are strongly encouraged to keep exotic and hybrid cattle, the innovative LIFE approach led Ugandan herders to revalue the Longhorns for their economic and cultural value.

Elizabeth Katushabe

Ankole Longhorns are one of the oldest indigenous cattle breeds of Uganda. They have striking, long, large-diameter horns, which assist their blood circulation and help keep them cool during hot temperatures. They are renowned for their hardiness, which allows them to forage on poor quality vegetation and live off limited amounts of water. Their keepers, the Bahima, are an ethnic pastoral group of the Ankole people who reside in an area stretching from the South West to the North East of Uganda.

Extinction and loss Uganda is at risk of losing the valuable Ankole Longhorn species. There are two major reasons for this. Since the mid 1990s, Ugandan government programmes have promoted

indiscriminate cross-breeding of Ankole Longhorn cows with other exotic cattle. Exotic breeds such as Frisian cows produce more milk and need less land to graze on. But this breeding programme, if continued, will lead to the extinction of the indigenous breed. In addition, increased human population – among other factors – has reduced the grazing land available for Bahima herders. Many of them have been forced to sell off a significant portion of their Longhorn cattle and switch to grazing smaller herds of exotic and hybrid breeds. And the impact is clear. The government estimated the exotic and crossbred cattle population in 2006 at 17.3%, compared to 4.4% in 1997.

Along with the loss of the Ankole Longhorns, cultural traditions and indigenous knowledge about animal breeding are also disappearing. For instance, el-



Milking the Ankole Longhorn cattle. Photo: Ilse Köhler-Rollefson

ders told us about medicinal herbs they used to treat cows with birthing problems or infections or specific ways of selecting the cows that would produce more milk.

Are exotic cows really better?

In the short term, there seem to be many benefits to exotic and hybrid cows: they need less land to graze on, produce a lot of milk and meat and thus bring in more income. However, this is only the case when conditions are favourable, for these exotics and hybrids have poor resistance to harsh environments and climatic stresses such as those that Uganda has experienced in recent years. For example, they are prone to going blind when bushes and sharp grasses prick their eyes as they graze, and muddy and flooded land easily makes them ill. They get weak and stressed when temperatures increase above 33° C and walking during droughts tires them easily. During a long dry spell from August 2010 to March 2011 and during floods at the end of 2011, many Frisian and hybrid cattle died – while the Ankole Longhorn cattle endured.

Herders who switched to Frisian cows had to cut down trees and bushes to create grazing land, started using a lot of antibiotics and acaricides and sprayed

the foreign breeds with dangerous chemicals. This makes the exotic cattle an expensive herd to manage, and has resulted in the loss of much habitat for biodiversity. In comparison, the sustainable grazing practices of the Longhorn actually increase species diversity and maintain the ecosystem structure. They keep vegetation cover, which contributes to the reduction of fires, drought and flooding. In addition, scientists have proven that Ankole milk and meat are healthier and more nutritious than the products from the exotic and hybrid breeds. The local population prefer their taste.

In the long term, exotic breeds have caused great financial stress to relatively poor herders and are threatening biodiversity.

Giving LIFE In 2009-2010, the Pastoral and Environmental Network in the Horn of Africa (PENHA) Uganda and the League for Pastoral Peoples and Endogenous Development (LPP) mobilised Ankole Longhorn cattle keepers in Uganda to document the significance of their cattle. For this they used the LIFE approach, developed by Local Livestock for the Empowerment of Rural People (LIFE) Network, with the aim of promoting the conservation of indigenous breeds among their traditional keepers,



Churning butter: a tasty and nutritious benefit of the Ankole cows. Photo: Ilse Köhler-Rollefson

by drawing on their knowledge, concepts and priorities, The LIFE approach treats breeds as a product of social networks that operate according to certain rules.

Using informal inquiries, interviews and discussions, conversations and scientific and anthropological studies, and working with traditional story tellers, community elders and local experts, the Bahima communities recorded what they know about Ankole Longhorn cattle. For example they recorded how their great-grandparents carried out selective breeding and other valuable practices that have kept the Ankole Longhorns around for centuries. In doing so the herders realised the value of their breed and their own value as custodians of this breed.

After documenting their knowledge, the Bahima herders started to share it with the rest of the world, realising they wanted to protect their heritage. They were proud of contributing to the conservation of this breed and local biodiversity. The knowledge they documented is now being used in advocacy campaigns for the conservation and protection of the Ankole Longhorns and being disseminated to other farmers, through radio programmes for instance.

Wide appreciation for Ankole Longhorns

The impact of sharing this knowledge is tremendous. Learning from the Bahima experience, many other herders are considering shifting back to breeding the treasure they were almost bringing to extinction. Many Bahima people, including my uncle Mzee Kyomukuku Yokaana, regret selling off their indigenous breeds and have vowed to go back to rearing Ankole Longhorns. They have realised that their indigenous breed is a form of insurance against extreme weather conditions. The work of the Bahima has also inspired other communities to embrace this breed, which was traditionally kept by the Bahima.

Several associations of Bahima herders, such as the Ankole Longhorn Cattle Cow Conservation Association and Cow Protection Conservancy Uganda, are recruiting people and sensitising them to the importance of this indigenous breed. Having a pastoralist background himself, the President of Uganda initiated one of these associations. He called upon herders to save the indigenous breed from extinction by doing what our ancestors used to do: selective breeding so that they produce more milk and thus can compete with the Frisian breeds. The Chairman of this association, Nayebare Kyamuzigita, says *“the main reasons the President is encouraging us to save our breed is because they are more adapted and resistant to the harsh conditions of Uganda, because their by-products like the horns have a lot of value, and because their beauty makes them a tourist attraction. Even the President sees that it is not cost effective to keep exotic cows.”*

Plans are underway to create special niche markets for Longhorn milk and meat. At present there are no separate market channels for Longhorn products, which are collected and marketed with other dairy and meat products.

Elizabeth Katushabe with her cattle.

Photo: Barigye



Learning from LIFE In many places around the world, introduced breeds and varieties are promoted with the promise of high yields. But when a community reflects on their past and their opportunities, they are likely to see that high yields may not compensate for the high costs of external inputs such as extra medicines, for the loss of taste and nutritional value, or that of the cultural value associated with the crop or breed. The LIFE Approach encourages owners to appreciate their breeds, continue *in situ* breeding, and lobby for their rights as the keepers of these precious animal genetic resources.

Yet some challenges remain. Government policy still forces the pastoralists to leave their livelihood and

promotes the modernisation of agriculture, while rich investors, national parks and oil companies threaten the land on which the Bahima and the Ankole Longhorn cattle depend. Such land issues endanger the biodiversity benefits that the Bahima and their traditional cattle provide. For this reason, it is important for us herders and our supporters to keep lobbying for our rights and for the significance of our indigenous breeds.

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The many uses of the Ankole Longhorn cattle

Socio-cultural uses

Our status is rated by the number and beauty of the cattle we possess. The Longhorn cattle function as dowry, are used to strengthen friendship and resolve conflicts and for cleansing sins. Their hides are used for making clothes, mats and bedding, their horns are used for making beads, trumpets and violins. Their urine is used for cleaning containers for churning milk and keeping yogurt. Their tasty milk has a high fat content and the tender meat is low in cholesterol. Ghee is served as a special sauce and the Bahima used to make bread and gravy from its blood.

Economic uses

Our cattle live long lives and rarely fall ill. They are resistant to hunger and drought and are a source of income as they produce good dung for biogas. Their maintenance costs us little: they survive on only grass and water under any conditions and can be owned and managed even by poor herders. Income from selling cattle allows us to pay for our children's school fees.

Agricultural uses

Dung is used as manure for grass and plantations.

Medicinal uses

A mixture of Ankole Longhorn milk and urine is used to treat stomach pains, fever and coughs. Dung is used for making casts for broken bones,

for treating measles and stopping the lactation of women who have lost a baby. The horns are used to make a medicine for reducing pain and for giving enemas. The boiled hooves are a source of calcium and can be used to reduce joint pains.

Ankole cattle at the homestead of a pastoralist in Kiruhura District. Photo: Evelyn Mathias



All over the world we can find positive experiences where family farmers are working to maintain agricultural biodiversity, or are benefitting from it. Here are a four cases where farmers are making a conscious effort to conserve and market diverse crops.

Nepal

Participatory analysis for agrobiodiversity

While the government of Nepal is promoting improved and hybrid seeds, in 1998 the Nepalese NGO Local Initiatives for Biodiversity Research and Development (LI-BIRD) developed a method called “Participatory Four Cell analysis”, which enables communities to assess the status of their agricultural biodiversity. It visualises the amount of crop diversity available in a community and the varieties that might be at risk of being lost. The four cell analysis consists of a matrix, with one axis mapping the number of farmers planting a specified variety and the other the size of the area in which the crop is grown. This method has gained worldwide recognition. It provides a basis for communities to manage their biodiversity, including seed production, expansion of areas planted with local varieties, breed purification, and processing and marketing of traditional and local food items. LI-BIRD has worked with over 11,000 farming households across

Nepal, who are now managing their agrobiodiversity better as a result. This generates social, economic and environmental benefits. For example, local aromatic rice varieties such as *Tilki* and *Kalonuniya* were about to disappear, but thanks to community seed selection and enhancement, they have become commonly grown varieties and people are now selling them at premium prices.



For more information contact Pitambar Shrestha or Sajal Sthapit at Local Initiatives for Biodiversity, Research and Development (LI-BIRD). Visit www.libird.org or e-mail: pitambar@libird.org or ssthapit@libird.org

Zimbabwe

The diversity wheel in motion

In Zimbabwe, support from IFAD, Oxfam Novib and its partners has encouraged farmers and NGOs to build on the experience of LI-BIRD in Nepal (see above). Community seed fairs are a valuable opportunity to exchange seeds and knowledge, and to take stock of the status of biodiversity in their communities. One way to do this is by using the “Diversity Wheel”, originating from the Four Cell Analysis in Nepal and further developed by the Zimbabwean Community Technology Development Trust. At a seed fair, a facilitator picks up one seed variety and ask the farmers present, “How many of you are growing this variety?” and “Is this variety grown on a large or small area of land?” A fifth cell was added to the original tool, referring to varieties

that a community lost. This prompts farmers to discuss why certain varieties are no longer being grown, or why they value a specific variety. It leads them to reflect on how to pro-actively ensure the conservation of varieties at risk. Once all the crops that farmers grow are placed on the Diversity Wheel the farmers find it easy to visualise how their food security and diet composition is evolving. The Diversity Wheel is a story of partnerships, where good ideas build on each other and travel across continents. It is also an example of a tool that puts the farmers firmly in the driver’s seat.



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Mozambique

The Maputo Earth Market

The Maputo Earth Market proves that markets and agrobiodiversity can support each other. Like its counterparts in Austria, India and the United States, Africa's first Earth Market taps from the rich, but often hidden, potential of local ecosystems and cultures. Traditional leafy vegetables, fruits, street food, fresh vegetables, liquors, jams and more are on display. In contrast to other urban market places, all the products are local, seasonal, organic or artisanal and all stalls are manned by small-scale family farmers. Farmers appreciate the market as it enables them to bypass intermediaries and sell their produce directly to consumers. Having a diverse range of seasonal and traditional vegetables and other foods is also valued by consumers. This encourages family farmers to plant a diversity of crops on their farm and maintain local varieties. The market is not merely a purchase point. It is also a meeting place for farmers and consumers. Farmers eagerly talk about

how they cultivate their crops. They explain how traditional foods are prepared or delve into the nutritious value of certain foods. In this way local food cultures are shared and maintained. The Maputo Earth Market is a collective effort for food sovereignty, introduced by Slow food, its local chapter Muteko Waho, Gruppo di Volontariato Civile, and the National Union of Mozambican Farmers.

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Chile

Certified biodiverse communities

In the Chiloé archipelago, located in the south of Chile, traditional agro-ecological production systems host a wide range of biodiversity and indigenous cultural cultivation practices. Communities have cultivated many different varieties of potato for generations, offering a range of adaptations to different socio-ecological conditions. The farming communities, the Centro de Educación y Tecnología and other institutions and organisations joined forces to get Chiloé recognised as a Globally Important Agricultural Heritage System (GIAHS) site by the Food and Agriculture Organization of the United Nations. In order to achieve tangible benefits from this label, the communities registered a brand called "Chiloé", based on this GIAHS recognition, to certify products on the basis of their geographical origin. This brand then

certifies that the products were cultivated in highly diverse agro-ecosystems, where indigenous agricultural practices play an important role. It does not focus so much on the produce itself, but emphasises regional recovery and resilience. Farmers benefit economically by selling their milk, cheese, native potatoes and fruits in the local market under this name, but are also developing rural tourism services. The experience in Chiloé demonstrates that a certification that builds on the biocultural heritage of rural communities can generate clear benefits, both economically and in terms of self-worth and recognition. The process promotes and enhances the communities' ancestral outlook on the conservation and use of biodiversity, particularly of their ancient potato varieties.

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A longer version of this article has been published in Spanish in LEISA Revista de Agroecología 29-4.





Cultivating biodiversity: Peasant women in India

In the Deccan region of India, over 60,000 women peasants are feeding their families, their culture and their pride with biodiverse farming practices. Their knowledge and successes have reached across national and institutional borders, and they have received recognition from around the world.

P.V. Satheesh

It is the year 2003 in Andhra Pradesh, India. A group of more than 50 peasant women were gathered in a thatch roofed hall in Didgi village, engaged in a video interface with a group of senior agricultural scientists. Samamma, who owns three acres of rainfed farmland and grows more than 18 varieties of crops, stood up and started explaining why she values biodiversity in her farming practices. Quickly a scientist on the other side of the video camera stopped her and said “No, no, please do not worry about biodiversity. It is we, the scientists, who should think of biodiversity, and we will recommend a seed for you to use.”

Still too often scientists believe that agricultural science and knowledge are exclusively their domain while peasant farmers, especially the women, are not to be included at all when discussing farming approaches. However, the women in the Deccan region have proved them wrong in so many ways.

Biodiverse farming systems The peasant women in Didgi village have developed highly biodiverse farming systems with common characteristics: they all farm on non-irrigated, not very fertile, fields of less than two acres; they are all non-chemical farmers; they all grow 12-23 varieties of

crops on their small plots; and none of them need to purchase any of their food from markets. The women of the Deccan region are the seed-keepers. They not only conserve seeds, but also decide on the mix and quantity of seeds to be planted at planting time. This is a win-win system: the women's way of farming supports biodiversity, and biodiversity supports their way of farming.

Why is biodiversity so important for these women? Why are they not content with growing just one or two commercial crops as advised by the Department of Agriculture? They have a clear preference for food crops such as Yellow Sorghum, which are totally discarded and discouraged by agricultural scientists as it only attracts a low price on the market. For dalit women Yellow Sorghum provides nutritious food and good fodder. It grows in dry soil, can be used in fencing and thatching and has many other qualities. All these factors, in addition, can be completely controlled by the women in spite of their low income levels. The reverence that peasant women show for such "orphaned crops" illustrates their special vision on food and farming.

More than food For women from vulnerable communities, sticking to peasant values and biodiversity in farming can mean the difference between life and death. Whereas farmer suicides have been widespread among Indian farmers who were crippled by debt as a result of their expensive and risky commodity and chemical based farming systems, there has not been a single suicide among peasant women farmers who continue to use low cost biodiverse farming principles.

Agrobiodiversity is a strong part of these communities' traditions, but it is also the only logical way for them to farm. They clearly understand that a biodi-



The women of the Deccan region are the seed-keepers, treasuring seeds more than money.

Photo: DDS

verse system is the best security they have against climate vagaries. Moreover, the crops they grow are indicative of their food culture, and the relationships between foods in the kitchen reflect relationships in the field. For instance, food made from sorghum is accompanied by food made from pigeon peas, and in the field sorghum and pigeon peas grow as companion crops. This unique "farm-to-kitchen" model is what has kept agrobiodiversity alive on their farms for centuries. Since women are the most important torchbearers of this food tradition, they are also the carriers of the agrobiodiversity tradition.

Biodiverse farms not only nurture physical life, but also moral, ecological and spiritual life. People in this region celebrate biodiversity through several religious festivals where heroes symbolise and bless biodiversity. *Englagatte Punnam*, for instance, is celebrated when the winter crops mature, by tying diverse crops on the

Reshaping food policy

In India, a select few species are promoted and supported as food crops by governmental institutions. A wide range of millet varieties, which traditionally have nourished many rural communities, are not among them. In 2013, for the first time in our history, the government recognised millet varieties as national food security grains by including them in the brand new National Food Security Act. After a decade long struggle by dalit peasant women, the Deccan Development Society and the Millet Network of India, millets are now firmly

entrenched in India's public food system. For us and for the women this was a great moment for rejoicing. They used radio and made short films to share their toils and successes. With grit and determination they have overcome their social, economic and gender marginalisation and reshaped national policy. Also, in 2013 as proponents of millet we were able to take the message of millets back to their African birthplace by initiating the Africa-India Millet Network and creating a new solidarity between the two continents.



During the Englagatte Punnam celebration, farmers exhibit the diversity from their fields on their homes. Photo: DDS

door of every home – as if the farmers are declaring, “*look at the diversity in my field!*” Women treasure these crops more than monetary wealth. Consequently, seeds are neither bought nor sold, but always exchanged.

Proud to share The Deccan Development Society (DDS), a grassroots NGO working with peasant women from socially and economically marginalised dalit communities, has facilitated the sharing of farmer knowledge for 25 years. Women from this region, especially those from lower socio-economic classes, have travelled abroad at least 100 times – from Peru to Cambodia – to share their experience and perspectives on farming with farmers, scientists and policy makers. They have met receptive audiences, both among male and female peasants and in international conference rooms. In 2003 they addressed the World Organic Congress in Victoria, Canada, where various people in the audience said they felt humbled by the women’s experiences.

Brimming with confidence, these women have started celebrating the Mobile Biodiversity Festival. Every year since 1998, they have travelled to over 50 villages during one month, discussing and celebrating ecological agriculture, control over seeds and organic markets in a way that expresses the deep relationships between farmers and soil, agriculture and environment. They have reached over 150,000 farmers in the region, showing them the richness of the traditional seeds and crops from the area. The Indian government has recognised these Biodiversity Festivals as the most important community cultural campaign on the issue.

Worldwide recognition The Deccan peasant women, who were so easily dismissed by the scientists in 2003, are now receiving national and international recognition for their work on biodiversity. Anjamma for instance, a 55-year-old peasant woman who has never gone to school and cannot read and write, is now a member of the expert panel on agrobiodiversity in the state of Andhra Pradesh. Government officers, scientists, civil society activists and media regularly come to the region to look at the women’s farms and seeds. Their stories regularly appear in newspapers and on television channels.

Today, the region comprising of about 50,000 hectares of land is about to be recognised as an Agricultural Biodiversity Heritage Site by the Indian National Biodiversity Board – the first in the country. The international Convention on Biological Diversity (CBD) developed the concept to honour sites where biodiversity is practiced. The Heritage label gives the area and its biodiversity the same level of protection as national parks and offers special status, privileges and incentives to the farmers and their communities. The label

conveys a strong message that the Indian government supports marginalised family farmers and recognises their contribution to protecting biodiversity. When asked what the Heritage label means to them, the peasant woman Mahbatpur Swaroopa answers, “We are totally disinterested in any monetary benefits. It is the recognition that we cherish.”

The power of women The attention for their farms and perspectives has added tremendously to the women’s self esteem. Paramma, a farmer-seed keeper in Khasimput village, once demonstrated this confidence as she confronted government officials who had come to visit her: “Every month you get your salaries and fill your pockets with currency notes. But come to my home. I have filled it with seeds. Can you match me?”

Given their marginalisation in other spheres of life, the women feel that their practice and conservation of agrobiodiversity has bestowed them with a new stature in the country, in their communities and in their homes. Most of the peasant women in this area say that more often than not, they are consulted and play a key role in making choices for their family farm. Cheelamamidi Laxamma cultivates her three-acre farm with dozens of food crops along with her husband. When her husband was counselled that he should become progressive and plant some hybrid



The selection of seeds requires complex knowledge that is held by women like Basantppur Narsamma.

Photo: DDS

crops on the land, he – completely against the grain of his social culture – first wanted to consult his wife. When he did, she burst out: “Have you gone mad? Why do we need hybrid seeds and a monoculture? Are we not happy with what we are growing?” And he gave in. Sharp and alert women such as Laxamma enjoy far more respect from their husbands for the recognition they have gained in the community and beyond.

P.V. Satheesh is one of the founders of DDS and its General Secretary.

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A tireless promoter of natural farming and living

In memoriam, Dr. G. Nammalwar (1939-2013)



Dr G. Nammalwar, a great friend of farmers, passed away in Tamil Nadu, India, on December 30th, 2013. Dr Nammalwar worked for the cause of family

farmers all his life, and immensely contributed to popularising the concepts of ecological farming and natural living. In 1963, he began working as a scientist for a regional Agricultural Research Station. He felt strongly that research should be re-oriented, but his colleagues at the institute paid little attention to his ideas. Frustrated, he left the institute in 1969. Dr Nammalwar realised that in order to achieve optimal yields, farmers should rely as little as possible on external inputs. Influenced by Paulo Freire and Vinoba Bhave, he tirelessly promoted self-reliance through education since the 1970s. Over many years he actively engaged in many policy debates. He was an excellent communicator – with children, farmers, comrades, and a growing constituency of rural and urban citizens who had become aware of his work through his numerous publications. His passing away is a great loss to farmers in Tamil Nadu and to many others involved in ecological farming and the fight against destruction of the natural environment.



With the International Year of Family Farming in full swing, members of the AgriCultures Network are actively involved in a number of initiatives that strengthen family farmers and agro-ecology. Here are a few updates.

IED Afrique: Launch of IYFF and a new Observatory

Civil society in Senegal and the Food and Agriculture Organization (FAO) have jointly launched the International Year of Family Farming (IYFF) and created a new Fam-

ily Farming Observatory. At the event, which took place at the House of Culture Doutra Seck in Dakar, the National IYFF Steering Committee was officially established. Its co-ordination is in the hands of the National Council for Consultation and Rural Co-

operation. This was one of the outcomes of a seminar organised by IED Afrique and the AgriCultures Network in August 2013.

At the launch, which was facilitated by IED Afrique, a new institute was announced: the National Observatory of Family Farms in Senegal, led by ROPPA, the Network of Peasant Organisations and Producers in West Africa. The Observatory will serve as a tool to strengthen advocacy of farmers' organisations and producers' networks for policies that support family farming.



AS-PTA and AME: Global forum on family farming

Early March 2014, AgriCultures Network members Paulo Petersen of AS-PTA (Brazil) and KVS Prasad of AME Foundation (India) were among the speakers at the Global Forum on Family Farming, hosted by the Hungarian government. The

Global Forum contributed to the IYFF global dialogue on policies and programmes to support family farming. It addressed “building blocks and policy options in achieving family farming as a global priority in the agricultural, environmental and social policies”.

Paulo Petersen, director of AS-PTA, made a presentation under one of the central themes: family farming and the three dimensions of sustainability – social, environmental and economic aspects. KVS Prasad, director of the AME Foundation, made another contribution about strategies and activities in India for the IYFF. Other speakers include FAO director José Graziano da Silva, the Hungarian minister of rural development and Gerda Verburg, chair of the Committee on Food Security.

Parallel to the Conference ran the Expo, which provided family farmers from around the world with the opportunity to showcase their activities and demonstrate the potential and values of family farming to policy-makers and society at large.

ILEIA and IED Afrique: Amplifying agro-ecology

Joining forces, IED Afrique and ILEIA are working in a coalition with others to strengthen agro-ecological family farming in West Africa. Supporting this coalition through documentation and systematisation, the aim is to amplify agro-ecological solutions that can reverse soil degradation and increase productivity.

Solutions include farmer managed natural regeneration and a range of proven techniques to preserve water and stop erosion, such as *zai* holes and contour bunds. Through a solid farmer-to-farmer methodology, the

groups are spreading these practices from village to village, greening the Sahel. The coalition is analysing the factors and barriers to success for scaling up these practices. At the same time, they are conducting studies on policies that promote or hinder agro-ecology and food sovereignty in order to lobby for more favourable legislation.

Throughout 2014, IED Afrique and ILEIA will work together with this coalition to strengthen agro-ecological practice and policy. Partners include Sahel Eco (Mali), CIKOD (Ghana), ANSD (Burkina Faso), and US based Groundswell International and FoodFirst.



COLOPHON

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ileia

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A girl decorates a door with the biodiversity from the fields during the Engalatte Punnam festival in the Deccan region, India. Photo: DDS

The editors have taken every care to ensure that the contents of this magazine are as accurate as possible. The authors have ultimate responsibility, however, for the content of individual articles.

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“We can no longer afford blindness to the gift of abundance that nature gives us, the gift of biodiversity. We now need to work with biodiversity to produce more food and nutrition while using up less of the earth’s resources”

Vandana Shiva at the conference “Towards fair and sustainable food and agriculture systems”, Wageningen, the Netherlands, February 21st, 2014

“FARMERS’ CONTROL OVER THEIR PRODUCTION, ESPECIALLY THEIR SEEDS AND INDIGENOUS SPECIES OF LIVESTOCK AND FISH, SHOULD BE STRENGTHENED, AVOIDING THE VIOLATION OF THEIR RIGHTS OF USE”

Statement of the 5th Meeting of the Global Farmers’ Forum in Rome, February 17-18th, 2014

“TO SAVE TRADITIONAL TASTES AND PRODUCTS ALL OVER THE WORLD IS NOT ONLY ESSENTIAL FOR THE PRESERVATION OF BIODIVERSITY ON THE PLANET, BUT ALSO FOR OUR CULTURAL PATRIMONY AND SENSE OF IDENTITY”

Carlo Petrini, founder of the International Slow Food Movement, in Yes! Magazine, December 20th, 2013

“Meeting the pressure from globalised markets tends to favour ever more severe forms of monocultural cropping and stock rearing – even though the evidence now shows that this mines resilience out of our food system. It leaves it more vulnerable to external shocks that are only going to become progressively more severe”

HRH The Prince of Wales, in a video message at the Conference “Family farming: A dialogue towards more sustainable and resilient farming in Europe and the world”, Brussels, November 29th, 2013

