COTTON BRIEFINGS 2011
Organic by Choice

COTTON FOR THE 21ST CENTURY
A collection of briefings and additional resources
ACKNOWLEDGEMENTS

Much of the information provided in the Briefings is taken from Textile Exchange’s Farm Engagement Team own research and findings.

Editor: Liesl Truscott; Textile Exchange

Production Editing: Ashley Gill, LaRhea Pepper; Textile Exchange

Specialist Editing: Ashley Currin (Certification), Anne Gillespie (Industry Integrity); Textile Exchange

Further contributions were provided by: Tobias Bandel; Soils and More, Jesse Last; Root Capital, Didier Perreon; L’agence Bio Française (French Organic Agency), Ian Christoplos; Danish Institute for International Studies, Jimmy Wedel; Texas Organic Cotton Marketing Cooperative.

MEET THE FARM ENGAGEMENT TEAM

Textile Exchange’s Farm Engagement Team is headquartered in the USA with staff located in five countries across five continents.

**Africa**

Silvere Tovignan  
Regional Director Africa, Benin  
Silvere@TextileExchange.org

**United Kingdom**

Doraliz Aranda  
Business Development Manager  
Doraliz@TextileExchange.org

**India**

Prabha Nagarajan  
Regional Director India, Chennai  
Prabha@TextileExchange.org

**United States of America**

Ashley Currin  
Supply Chain Specialist, California  
ACurrin@TextileExchange.org

**Latin America**

Alfonso Lizarraga  
Regional Director Latin America, Peru  
Alfonso@TextileExchange.org

LaRhea Pepper  
Co-Founding Partner & Senior Director, Texas  
LaRhea@TextileExchange.org

Jose Santisteban  
Research Manager, Peru  
Jose@TextileExchange.org

Please visit us soon at:  
www.TextileExchange.org/FarmHub
INTRODUCTION

Welcome to our first series of ‘Cotton Briefings’; a compilation of short articles prepared by the Farm Engagement team, with additional input from expert organisations and esteemed colleagues. Cotton Briefings grew out of our ambition to highlight a number of key issues and opportunities for the organic cotton sector within the Farm & Fiber Report this year - but our list of highlights got too long to fit easily within our annual reporting of organic fiber production! So we decided to create a separate report instead.

Over the past year the Farm Engagement Team has worked hard to better understand one of the on-going concerns for farmers, stakeholders and indeed civil society: the direct and indirect costs of cotton production. And whilst there are some definite savings in farm inputs there are also financial investments involved in ‘going organic’ -especially during the ‘in-conversion’ phase. Externalities (or the indirect costs borne elsewhere) of conventional cotton production e.g. farmer health issues, soil and water degradation, and so on, is another area we have been interested in and these remain difficult to calculate accurately. We believe it is essential now, and these costs must be part of any organisations accounting. Costs of fertiliser and other fossil fuel associated inputs now means farmers must find methods of production that do not depend heavily on these inputs. Sustainability is, of course, as much about the economics as it is about the environment. So we decided to bring these ‘burning issues’ together in one document, to share what we have found with colleagues in the industry.

This document provides background to issues in cotton production; challenges, opportunities, benefits and solutions for organic cotton; some new, others ongoing. We have added additional reading to many of the Briefings for you to explore and provided a number of resource links as well. It is written for the interested stakeholder wanting to get enough information to understand the complexity of the issues at hand - without being overwhelmed - and, we hope, start thinking for themselves, on how to be part of a collective solution.

We think organic agriculture contains the attributes the world needs for cotton fiber production in the 21st Century. Within these briefings we hope you find inspiration too!

Liesl Truscott
Director - Farm Engagement
Textile Exchange

COVER PAGE IMAGE: COURTESY JAMES VREELAND, NATURTEX PERU
WHAT IS THIS DOCUMENT FOR?

This document is a compilation of briefings and resources; it provides background to issues and challenges in cotton growing, and promotes organic solutions. The information within this document compliment the 2010 Farm & Fiber Report but can be read as stand-alone to further your understanding of the cotton industry or as an aid to help you interpret parts of the Farm & Fiber Report. We hope you find it useful.

WHAT IS INSIDE?

ORGANIC COTTON: AN INTRODUCTION
This short read provides a concise yet comprehensive introduction to organic cotton; where it’s produced and how much, benefits to farmers, certification standards, and market appetite - giving you a snapshot of the world of organic cotton. The Briefings following provide further analysis and a closer look at topical issues within the Sector.

BRIEFINGS

BRIEFING 1: WHAT IS ORGANIC COTTON PRODUCTION?
A brief overview of what it means to produce cotton organically; explaining the social as well as environmental components to organic production.

BRIEFING 2: BENEFITS OF ORGANIC COTTON
This introduction to the benefits of organic provides a comparative to conventional cotton production.

BRIEFING 3: OVERVIEW OF ISSUES AND SOLUTIONS
A summary of existing issues and challenges for the cotton sector along with solutions offered by organic.

BRIEFING 4: PESTICIDES AND GENETIC MODIFICATION - WHERE IS CONVENTIONAL HEADING?
A snapshot of current issues and developments related to pesticide use and genetic modification in conventional cotton production.

BRIEFING 5: COST OF PRODUCTION - FACTORING EXTERNALITIES
A summary of costs and benefits of organic cotton production and how this is measured. Along with a deeper look at the indirect costs and externalities.

BRIEFING 6: IS ORGANIC COTTON MORE THAN A COMMODITY?
A brief overview of pricing mechanisms and business and value chain models reflecting best practice in organic cotton trade.
BRIEFING 7: SEEDS; A SUMMARY OF CRITICAL ISSUES
Access to high-quality, non-GM seeds are among the highest priorities for organic farmers. Take a quick journey through the evolution of cotton seed and a closer look at the situation in India.

BRIEFING 8: PROGRESSING INDUSTRY INTEGRITY
We have come a long way in addressing issues of integrity in organic cotton production. Here is a quick overview of the progress made so far.

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A report from Soil & More on how they are working to combat climate change and soil erosion by transforming agricultural biomass to high quality compost.

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A closer look at how agricultural extension services are moving away from prescriptive ‘knowledge-transfer’ towards a more ‘knowledge-sharing’ or ‘knowledge-exchange’ approach to extension service provision.

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BRIEFING 12: BARRIERS TO GROWING ORGANIC COTTON IN DEVELOPED COUNTRIES
A comparative exploration of the barriers to organic cotton production in Australia and the success factors behind the Texas Organic Cotton Co-Operative.

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RESOURCE 2: INDICATORS OF SUSTAINABLE DEVELOPMENT
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RESOURCE 5: TEXTILE EXCHANGE REPORTS & RESOURCES
ORGANIC COTTON: AN INTRODUCTION

Historically, organic cotton began as the initiative of social entrepreneurs, farmers and NGOs responding to problems of misuse and overuse of pesticides and to social problems caused by production practices, low prices and farmer debt. Since the 1980s there has been a steady increase in the availability of certified organic cotton textiles. Around five years ago, organic cotton production started to expand significantly but still only made up 0.1 percent of total global cotton fiber production. Five years later organic cotton now represents 1.1 percent of global production. This is a growth of over 500 percent since 2005! Now organic cotton is an integral part of CSR strategies for many brands and retailers globally not to mention firmly established in the market as an ethical fashion choice for aware consumers.

What is Organic Cotton? Organic cotton is cotton that is produced, and certified, according to organic agriculture standards. Organic agricultural practices may vary slightly from country to country but common to all is the prohibition of the use of toxic and persistent synthetic agrichemicals (pesticides and fertilizers) and genetically modified seeds. Organic cotton is generally grown as part of a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic cotton production combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved.

If cotton is to be sold as organic, it requires a third party certification from independent, accredited certification agencies. These kind of certification procedures lead to additional costs, but ensure the integrity of the standard compliance and thereby justify a price premium for the farmer and also in the final market. Further in the processing chain, care must be taken not only to separate organic cotton from conventional cotton, but also to ensure environmentally-friendly processing. However, organic cotton can also be processed conventionally and the textile end-product can be sold as made from organic cotton.

Organic Cotton Certification: The benefits of organic cotton are undermined if there is any chance that a product being sold as ‘organic’ is not truly from organically farmed fiber; then not only does the seller face legal and public relations risk, but there are no benefits going to the organic farmers. Certification is mutually beneficial for everyone involved in an organic cotton supply chain to ensure integrity in their processing and labeling.

Organic Farm Standards: The national laws governing organic production are EEC organic Regulation 834/2007, USDA NOP and JAS.

Processing Certification: Processing standards are when a 3rd party verifies the inputs and outputs of a facility to ensure the organic cotton content and proper handling while turning cotton fiber into clothing.

Fiber claims: These refer to the organic fiber content of your product and track the flow from
the farm through to the finished product. These claims may be backed up through the OE 100 Standard or OE Blended Standard or proper tracking of the organic fiber flow. This standard does not establish criteria for substances used during processing, or deal with quality or social issues.

**Product claims:** These refer to how the product was manufactured or processed, as well as the origin of the fiber. Standards such as the Global Organic Textile Standard (GOTS) stipulate that chemical inputs, dyestuffs and auxiliaries must meet certain environmental and toxicological criteria.

There are additional standards for textile processing that do not require the use of organic fiber, but can be used in conjunction with the OE standards or GOTS. For example, the EU Flower eco-label for textiles and Oeko-Tex 100 have guidelines that are controlled by independent testing organizations to ensure low levels of chemical residues in end-products.

**Sustainable attributes:** Organic farming aims to create self-stabilizing agro-ecosystems with the help of suitable crop rotations, mixed cropping systems, choice of adapted varieties, and application of organic fertilizers and manures. Thus the organic production system tries to minimize external inputs and to make use of farm-own resources (e.g. green manures, biomass, organic fertilizers, botanical preparations). As a result of these combined production practices organic agriculture strives to realize the following ecological and socio-economic benefits:

- Less soil and water contamination;
- Increase of soil fertility and biodiversity;
- Less health hazards for farmers and consumers;
- Contribution to the mitigation of climate change by avoiding energy intensive mineral fertilizers and therefore minimizing the emission of the green house gas N20 from fields and increase of soil organic matter contents;
- Increase of farmers’ income due to organic premiums and reduced input costs;
- Reduced vulnerability of farmers’ livelihoods:
  - by avoiding debts for the purchase of external inputs;
  - by diversifying the farm through crop rotation and intercropping

**Quality:** The quality of organic cotton varies to the same extent that the quality of conventional cotton will vary (which in turn is likely to affect price). Cotton fiber quality (organic or otherwise) has several influencing factors. One of the primary factors is weather. The quality of cotton will also depend upon the cotton species/variety, location and growing conditions, environmental and climatic variables, and the expertise and resources of the growers.

**Fiber length:** Fiber length is determined not only by the variety, but also by the amount of ‘heat-units’ - (the degree of temperature) - so the more heat units - the longer the staple. Weather also impacts micronaire (i.e. the maturity and fineness).

**Comparing conventional cotton to organic cotton:** since geography and weather have such a
significant impact on quality, when comparing fiber from the same geographic area quality is very similar. However, when comparing fiber from different growing regions (e.g. Egyptian cotton with Indian cotton or African cotton or Turkish cotton) there can be differences but this is the same for conventional as well as organic.

**Yield:** In terms of yield this will in part be influenced by a farmer’s knowledge, resources and access to support via extension services. Since many organic ‘projects’ are in resource poor areas (where organic starts off as ‘default’ rather than ‘design’) composting, rotation planting and other important organic techniques need time to get established this will certainly impact quality and yield. However, for mature, established organic cotton farming systems, that have been using sound organic production principles, research shows that yields (volume) of organic can be higher than their conventional counterparts.

**How quality is determined:** The quality of the cotton fiber is determined by three factors; the color of ginned cotton, purity (the absence of foreign matter) and quality of the ginning process, and the length of fibers. For cotton textiles, whilst it is fundamentally important that quality of the original fiber is good, quality issues can also arise during the spinning, knitting and dying phases of textile production.

**End use:** In general, end use is the same as ‘non-organic’ cotton. Textile products popularly available in organic cotton include: baby and children's wear, men and women’s wear, intimate wear/underwear, sportswear, bathroom and bedroom products (sheets, towels, nightwear and so on). Organic cotton can also be found in health and personal hygiene products (facial care, feminine hygiene and baby diapers, etc).

As fashion designers (and students) become more aware of environmental sustainability, social issues in textile production and implications for the textile industry, more exciting and fashionable products emerge. ‘Ethical’ or ‘sustainable’ textile production is now seen as part of innovative design criteria and of growing importance to the consumer.

**Availability:** Organic cotton is currently grown in 23 countries. Most production is taking place in India, Syria, China, Turkey, Texas USA, Tanzania and Uganda; although countries in West Africa, Latin America and the Middle East are also well-established organic cotton producers. Some organic cotton producers are also certified to fairtrade standards (where possible); particularly in West Africa and Central - South East Asia.

**Market:** Organic cotton, whilst a niche market in many respects is a growing concern for consumers - particularly the ‘ethical shopper’. Markets tend to be more concentrated in the UK, Europe, the US, Canada, Japan and Australia but expanding into emerging economies such as India. The global market share has gone from a little over 1 Billion USD to around 4.3 Billion USD in 2009. Organic cotton clothing and other products can be found in the high street, department stores, and online. A number of Brands have 100 percent organic cotton products or they may be blending with organic cotton yarn as they build capacity. There are also a growing number of designers/brands building entire collections using organic cotton and other sustainable
materials or are on planned expansion strategies. Retailers/brands are also use ‘ethical shopping websites’ to reach out to consumers wishing to purchase organic cotton products but not sure where to look or are not conveniently close to an outlet.

References:


2. **For more information on Organic Cotton certification** see http://organicexchange.org/oecms/Certification.html

   - **Global Organic Textile Standard:** www.global-standard.org
   - **Organic Exchange 100 and Blended standards:** www.organicexchange.org
   - **USDA National Organic Program:** www.ams.usda.gov/nop
   - **European Economic Community Organic Standard, EEC 2092/91:** www.organic-europe.net/europe_eu/eu-regulation-2092-91.asp


5. **FAO (Natural Resources and Environment Department):** Comparative Analysis of organic and non-organic farming systems: A critical assessment of farm profitability. June 2009

   - **Greenpeace:** Picking Cotton; The choice between organic and genetically-engineered cotton for farmers in South India. GRL-TN 03/2010

   - **Texas Organic Cotton Marketing Coop:** Own research

   - **UNCTAD (United Nations Conference on Trade and Development). Policy Briefing:** Sustaining African Agriculture Organic Production, February 2009

“Financing generally is an affliction across most supply chains, and it’s no longer a case of business as usual. It does seem odd that doing things in a cleaner and better way should actually end up costing more. The answer is that a trading system that worked 200 years ago has evolved to what we face today - simply about the speed at which money needs to be transacted, gearing debt to facilitate cash flow is the norm, and in my estimation completely unsustainable. But such is the scale of this practice that any shift in approach is going to be laughed at. Bottom line is we have to trade organic differently - completely differently. My thought is to start by securing the value of the fiber through the supply chain and stabilize it completely. This should be a joint initiative between retailer and the department of trade or agriculture.”

Hugo Lemon, Woolworths, South Africa
BRIEFING 1:
WHAT IS ORGANIC COTTON PRODUCTION?

Background There are over 20 million cotton producers in the world, located in more than 120 countries, representing 2.5 percent of arable land. Most of the world’s cotton farmers are ‘small-scale’, living in developing countries, growing cotton for cash on their own small plots of land (under 2 ha) or contracted to work for larger landowners. Cotton is usually grown as a monoculture (i.e. as a single crop), especially in the United States, China, Australia and Brazil. As a general rule the more developed the nation the more mechanised the mode of production, and the less employment it provides in rural communities. Cotton, particularly as a monoculture, uses significant amounts of pesticides, fertilisers, fossil fuels and water. Approximately 43 percent of the world’s cotton is genetically modified.

Organic cotton production is knowledge-intensive rather than resource-intensive (so less dependent on fossil fuels and synthetic chemicals). Genetic engineering is not permitted. Organic agriculture relies on an understanding of ecology to maximise crop yield and crop quality, whilst building and maintaining the agro-ecological balance of the farm system; the soil fertility, the bug life, the soil moisture levels, etc. This investment in the ecology of the farm system in turn contributes to the efficiency - and quality - of crop production. The knowledge intensity lies in understanding the balance; i.e. the balance of nutrients in the soil, the balance of microbes to control pest outbreaks, and so on.

The International Federation of Organic Agriculture Movement (IFOAM) defines organic agriculture as follows:

“Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved.” - IFOAM

Organic agriculture is proven to be highly suitable for small scale farming in developing countries. Providing farmers work cooperatively to achieve economies of scale and supportive trade relationships are formed, organic agriculture improves livelihoods on most levels: human health, food security, income diversification, gender equality (organic agriculture is more attractive to women and more acceptable in some cultures for women to be involved). Organic agriculture, when carried out ‘by design and not by default’, can produce higher yields (in some cases), can generate higher incomes, and provides investment opportunities for the growers - particularly when farmers form ‘producer groups’, and have access to responsible value chains (see Briefing 6). Organic cotton production can help farmers break the poverty cycle. Environmentally, cotton grown organically or agro-ecologically (see glossary in main report) when carried out ‘by design and not by default’ protects the topsoil, retains moisture in the soil, helps maintain biodiversity, and helps carbon sequestration (see Resource 2; further benefits of organic).
BRIEFING 2:
THE BENEFITS OF ORGANIC COTTON

Economic development for rural communities

Issue: Most of the world’s cotton comes from China, India and America. Cotton is also a significant crop for farmers in Africa, Latin America, Australia, parts of Europe and Central Asia. Cotton has a chequered history as one of the main crops along with tobacco and sugar to be tied up in the slave trade in the 18th century. It is a crop that continues to be controversial in many ways but also continues to be in high demand world over; cotton remains a fiber of choice despite the rise of man-made textiles such as polyester. Conventional cotton is sold as an export commodity (similar to minerals, grain and oil) on the world cotton market; this means the farmers producing the cotton are effectively ‘invisible’ and the place of origin sometimes impossible to track. However, ninety nine percent of the world’s cotton farmers own very small plots of land (less than 10 hectares), with many owning no more than a couple of hectares. Small scale producers are subject to the rise and fall of the market price and also to the impact of subsidies paid in some countries but not others. The volatility of the market and dependence on one crop - mono cropping - can result in highly vulnerable economic situations for many of the world’s poorest communities.

Benefits of organic: Organic cotton farmers make up only a small number (approximately 275,000) of the world’s 100 million cotton producers and are predominantly found in 23 countries: including India, Turkey, Syria, Egypt, parts of Latin America, both west and southern Africa, the United States, China and Central Asia (Kyrgyzstan and Tajikistan). Farmers growing cotton organically have chosen to remove synthetic agrichemicals from their farms and from their lives - but also see organic as a positive way to improve financially. Organic cotton farmers benefit from the principles of organic agriculture as defined by IFOAM, The International Federation of Organic Agriculture Movements: The principles of health, ecology, fairness and care. Ideally, organic farmers work within value chains that support this philosophy. Organic cotton farmers tend to get paid more for their crop of certified organic cotton via an ‘organic premium’ (an agreed percent above conventional). Economic support often comes in a package arrangement (either by the company wanting the organic cotton and/or support through financial providers or NGOs) offering pre-payment for inputs, guaranteed buying, prices and investment in training and the skills required to organise and meet certification standards. Organic cotton farmers are potentially less vulnerable to the market falls - although obviously not completely immune. These ‘investments’ by those further down the value chain usually come with an expectation that quality, security of supply etc will in return be given. Further, organic cotton farmers are more likely to diversify their income by growing other marketable crops such as sesame and groundnuts, since organic farming encourages the growing of a range of crops for soil and pest management, rather than conventional methods of mono cropping. These other crops also tend to build up food security and any surplus makes its way into local markets. Organic means less vulnerability to the swings in the market, access to food, and if positioned within the right value chains an ‘organic premium’ and other benefits brings in enough cash to satisfy farmers, boost the local economy and contribute to stronger, more stable communities.
Agri-chemical use and storage

Issue: According to Pesticide Action Network (PAN), mainstream cotton production practices consume around 11 percent of the world’s agrochemicals (including pesticides, synthetic fertilisers, defoliants etc). Cotton covers 2.5 percent of the world’s cultivated land yet uses 16 percent of the world’s insecticides (i.e. the chemicals targeting bugs), more than any other single major crop. The circumstances leading to heavy dependency on some of agriculture’s most toxic chemicals (some of them banned in developed countries) by the world’s poorest, often illiterate farmers makes conventional cotton farming a moral issue as well as a health and safety one. Pesticides are hazardous and a risk to human health and safety if not stored and handled competently. Farmers, especially illiterate ones, do not always understand the risks of exposure, or consequently the implications of storing chemicals unsecured.

Genetically modified (GM) cotton seeds have been produced with the objective of reducing the need for pesticides. In theory, this sounds attractive, since it should result in less need to use dangerous - and expensive - insecticides. However, some studies are showing that over time the ability of the genetically modified crop to ward off pests (both primary and secondary) is reducing (See: Washington University in St. Louis (2011, February 7). New findings in India’s Bt cotton controversy: Good for the field, bad for the farm?). Further, the cost of the GM seed is often too high for cash-poor farmers to afford, leading to the arrangement of loans to buy the seed. Now that infestations of pests are occurring, farmers continue to use pesticides and are spending even more on inputs. An added negative with GM is the necessity to buy new seeds each year since they are bred infertile, patented and cannot be saved for future planting. Debt trapped farmers see no way out and are reportedly taking their own lives. At least 200,000 Indian cotton farmers have ended their lives in this way since 1997 (extrapolated from Indian Govt statistics).

Benefits of organic: Organic agriculture does not allow the use of pesticides. Nor does it allow synthetic fertiliser and other agrichemicals used in conventional growing such as defoliants, growth regulators and so on. Organic production relies on natural, biological and physical or manual techniques for pest control, soil health, and for meeting other agronomic requirements. Organic requires special skills and knowledge to be held by the farmer, and a degree of manual labour to be carried out. Bugs need monitoring, soil needs composting, and weeds need pulling. Low tech farming methods, traditional and sometimes cultural-specific ways of farming are often the best. Organic production is proven to be more resilient to climatic extremes. Where chemical based techniques are ‘lonely’ requiring an individual (usually a male) to be out spraying crops in isolation, organic field work calls on team effort and is reportedly more agreeable to women. Thus organic brings a gender balance to the farming profile and the economic decision-making within a household. Debt cycles are not reported by organic farmers and there have been no reported suicides.
Food security

**Issue:** It is fair to say that modern large-scale farming methods have resulted in spectacular increases in productivity over the years: more cereals and animals per hectare, more meat and milk per animal, more food output per person employed. Yet at what cost? Hunger persists and food poverty continues to plague the world’s poor. The majority of the chronically hungry are small farmers in developing countries who produce much of what they eat, are often too poor to invest in their farms, and are marginalized from product markets. The conventional wisdom is that, in order to double food supply, efforts need to be redoubled to modernize agriculture. Such a strategy has been successful in the past. But there are doubts about the capacity of such systems to reduce food poverty. The great technological progress in the past half-century has not led to major reductions in hunger and poverty in developing countries (United Nations) and recent research suggests yields are declining in places. Conventionally, cotton is grown primarily in a monoculture. This method does not encourage or even allow for much production of food crops. Border crops, fruit trees, native food species tend to be removed if they take up ‘valuable’ commercial cotton growing space.

* Agriculture needs to move from resource-intensive practices to knowledge-intensive practices.*

**Benefits of organic:** Organic cotton production improves food security since it requires the planting of rotational and other farm system crops - which include a good number of food crops such as beans, pulses, grains, rice and nuts. Crop rotation, intercropping and other crop diversification techniques are necessary for maintaining soil fertility, and controlling pests. Further, organic farm systems make for less economic dependency on just one crop. The food crops can be channelled into the local market and contribute to the food needs of the local community. Higher value cash crops, such as organic sesame, cashew, mango, chilli and soy, are being further utilized for export by well organised Producer Groups and may even be more lucrative than the organic cotton. These alternative markets and strategies for spreading financial risks and opportunities all contribute to better food availability and cash for topping up food security.

Arguably, the most sustainable choice for agricultural development and food security is to increase total farm productivity in situ, in the developing countries that are the most in need of greater food supplies. According to the United Nations, attention must focus on the extent to which farmers can improve food production and raise incomes with low cost, locally-available technologies and inputs, and this is particularly important as fuel and agro-chemical prices increase. Agricultural development must be achieved without causing further environmental damage and economic development will depend in part on the extent of a farmers’ ability to trade.
Environmental impact

**Issue:** Cotton is grown in rainfed (dryland) conditions as well as irrigated systems. When irrigation is utilized, water use is intensive in order to leverage a higher yield per hectare. In these systems, cotton uses a lot of water. Growing cotton on irrigated land, in particular, consumes large amounts of water. As well as causing local water shortages, irrigation can lead to environmental damage and in some cases ecological catastrophes. Agrochemicals exacerbate this problem; in excess they damage the soil which in turn leads to lower water retention.

Conventional cotton production can be hard on the soil, and depletes minerals. Sterility of the land is a concern for farmers of cotton grown as a monoculture. Nitrogen synthetic fertilizers are a major contributor to increased N₂O emissions, which are 300 times more potent than CO₂ as greenhouse gas, which is ominous for global warming as synthetic fertilizer use is forecast to increase roughly 2.5 times by the middle of the century. Conventional production often destroys biodiversity due to high synthetic agrochemical use, monoculture and GM seed usage.

**Benefits of organic:** With organic, farms are treated as systems, not as monocultures. The farm system requires a balance of organic inputs, nitrogen-fixing plants and trap crops. As a result organic soil has higher water retention and is more resilient to depletion of essential micro-elements. Organic builds the soil and mitigates erosion which helps water retention. Healthy soil does not need such levels of agrochemicals and can reportedly produce higher yields.

Organic production promotes biodiversity; since the ‘organic system’ takes advantage of natural vegetation and native border crops. Plant biodiversity in turn encourages insect diversity which can actually keep bug and pest outbreaks at bay. There tends to be less removal of native vegetation; which is important for maintaining the web of life and the variety of local species. Organic agriculture reduces energy requirements for production systems by 25 to 50 percent compared to conventional chemical-based agriculture. Carbon is sequestered through an increase of soil organic matter content; reducing Greenhouse Gases through their sequestration in soil has even greater potential to mitigate climate change. See Briefing 9 for further insight.

Left: Preparing a worm bed
**BRIEFING 3: OVERVIEW OF ISSUES AND SOLUTIONS**

The table below gives a summary of existing issues and challenges for the cotton sector; divided into on-farm challenges, supply chain and marketplace. Solutions have been provided in terms of the ‘organic alternative’. Coverage of issues is mostly focussed on ‘farm’ but there is some coverage of business to business and marketplace. Textile Exchange supports work carried out by other organisations to relieve environmental and social impacts associated with conventional agriculture. See Resource 3 for a brief introduction to the organisations we work with /alongside.

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<td><strong>On-farm</strong></td>
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<td><strong>On-farm</strong></td>
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<td>Climate change</td>
<td>Relates to fossil fuel use, land clearing, monoculture and agrichemicals.</td>
<td>Organic agriculture (esp. low-tillage) responds to and mitigates against climate change. Organic agriculture reduces energy requirements for production systems by 25 to 50 percent compared to conventional chemical-based agriculture. Reducing GHGs through their sequestration in soil has even greater potential to mitigate climate change. Carbon is sequestered through an increase of soil organic matter content.</td>
<td>FAO (2008). Low Greenhouse Gas Agriculture. ftp://ftp.fao.org/docrep/fao/010/ai781e/ai781e00.pdf</td>
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<td>Commission on Climate Change and Development: The Human Dimension of Climate Adaptation (2009)</td>
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<td>Water consumption and contamination</td>
<td>Consumption: Growing of cotton on irrigated land consumes large amounts of water. As well as causing local water shortages, irrigation can lead to environmental damage and in some cases catastrophes. Agrochemicals damage the soil which turns into lower water retention.</td>
<td>Organic agriculture (when carried out properly) retains moisture in humus layer - reducing need for water. Organic soil has higher water retention (up to 30%).</td>
<td>UNESCO-IHE (2005). The water footprint of cotton consumption. <a href="http://www.waterfootprint.org/Reports/Report18.pdf">http://www.waterfootprint.org/Reports/Report18.pdf</a></td>
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<td></td>
<td>R&amp;D going into GM seed development - means less money / attention on improving non-GM seed. This leads to a dependency on a small number of patented brands/company monopolies.</td>
<td>A strong organic sector will require access to organic or non-GM seed. Some countries such as Turkey and Egypt 'seed save' from year to year, other countries such as India rely on hybrid non-GM seed procurement annually.</td>
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<tr>
<td>GM cotton</td>
<td>GM cotton makes up 43% of the worlds cotton. GM cotton is found in at least 10 cotton growing countries now - and trialled in others. The lobby promoted GM (supported by multinational agrichemical suppliers) is very powerful yet long-term benefits are yet to be confirmed.</td>
<td>Organic production does not permit the use of GMO. Some countries are GM-free (e.g. European Union, Turkey, Syria, Egypt) which is a good starting point for transition to organic. There is a strong resistance to GM amongst the populations in many countries and a public call for improved labelling.</td>
<td>Greenpeace: Picking Cotton; The choice between organic and genetically-engineered cotton for farmers in South India (2010). GRL-TN 03/2010 Textile Exchange (2009) Making Informed Choices - GMO. <a href="http://organicexchange.org/oeCMS/images/stories/documents/GMO.pdf">http://organicexchange.org/oeCMS/images/stories/documents/GMO.pdf</a></td>
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<tr>
<td></td>
<td>‘Contamination’ issues are double-edged: (1) if organic cotton is contaminated by GM, organic certification is lost. (2) Due to patent on GM seed if organic (or non-GM) cotton is found to contain GM, farmer can be accused of ‘breach of patent’.</td>
<td>Preventing contamination of organic cotton, by GM, preserves non-GM seed varieties.</td>
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<td></td>
<td>Evidence now of secondary pest attack and pests exhibiting resistance to GM (i.e. Bt) cotton. Research in India and China.</td>
<td>Risk management - if GM fails farmers require alternatives. Seed banks of organic and range of seed varieties critical.</td>
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<tr>
<td>On-farm</td>
<td>Includes issues and challenges faced by farmers (before the farm gate).</td>
<td>Organic agriculture does not permit the use of synthetic pesticides.</td>
<td>On-farm</td>
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<td>Aldicarb, parathion, and methamidopho, three of the most acutely hazardous insecticides to human health as determined by the World Health Organization, rank in the top ten most commonly used in cotton production. All but one of the remaining seven most commonly used are classified as moderately to highly hazardous.</td>
<td></td>
<td>PAN UK(2006). My Sustainable T-shirt. <a href="http://www.pan-uk.org/Projects/Cotton/Resources/downloads/mst.htm">http://www.pan-uk.org/Projects/Cotton/Resources/downloads/mst.htm</a></td>
</tr>
<tr>
<td>Fossil fuels</td>
<td>Rising cost of fossil fuels affecting costs of farm machinery, fertilizers, and other resource-intensive farming activities. Nitrogen synthetic fertilizers are a major contributor to increased N2O emissions, which are 300 times more potent than CO2 as greenhouse gas, which is ominous for global warming.</td>
<td>Organic is knowledge-intensive (i.e. requires special skills and knowledge of farming techniques). Knowledge is renewable - resources based on oil are not renewable, expensive and unequally available to farmers worldwide.</td>
<td>FAO (2008). Low Greenhouse Gas Agriculture. ftp://ftp.fao.org/docrep/fao/010/ai781e/ai781e00.pdf</td>
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<tr>
<td>On-farm</td>
<td>Includes issues and challenges faced by farmers (before the farm gate).</td>
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Wildlife Conservation Society:

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<tbody>
<tr>
<td>On-farm</td>
<td>Includes issues and challenges faced by farmers (before the farm gate).</td>
<td>Higher price for organic, in combination with income security via longer term contracts or partnerships to help farmers plan ahead and invest in farm businesses; help rural communities help themselves through trade.</td>
<td>University of Greenwich, Natural Resources Institute: Agricultural Extension, Advisory Services and Innovation</td>
</tr>
<tr>
<td>Building farmers’ capacities</td>
<td>Too many cotton farmers are trapped in poverty, debt cycles, and committing due to high cost of farm inputs and low profits. Indicators of ‘development’ show the lowest scores in rural areas.</td>
<td></td>
<td>Organic &amp; Fairtrade Competency Centre, Helvetas: Organic Business Guide, 2010</td>
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<td>FAO: The market for organic and fair-trade cotton fibre and cotton fibre products, Study prepared in the framework of FAO project GCP/RAF/404/GER, 2009</td>
</tr>
<tr>
<td>Farmer suicides</td>
<td>200,000 Indian farmers have ended their lives since 1997. At least 17,368 Indian farmers killed themselves in 2009, the worst figure for farm suicides in six years, according to data of the National Crime Records Bureau (NCRB). Investigates reported the following as reasons for suicides: There was little credit available. What was available was very costly. There was no advice on how best to conduct agriculture operations. Income through farming was not enough to meet even the minimum needs of a farming family. Support systems like free health facilities from the government were virtually non-existent and withdrawal of government support.</td>
<td>No reported suicides on organic cotton farms.</td>
<td>IFPRI: Bt Cotton and farmer suicides in India <a href="http://www.ifpri.org/publication/bt-cotton-and-farmer-suicides-india">http://www.ifpri.org/publication/bt-cotton-and-farmer-suicides-india</a></td>
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<td>Vandana Shiva <a href="http://www.voltairenet.org/article159305.html">http://www.voltairenet.org/article159305.html</a></td>
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<td>Mott Macdonald India Agri Impact Assessment -II (Agrocel) ’More from the Cotton Fields’, 2007 (example of study into suicides - amongst other things - on Agrocel organic farms.</td>
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<tr>
<td>On-farm</td>
<td>Includes issues and challenges faced by farmers (before the farm gate).</td>
<td>Organic cotton farmers are more likely to work co-operatively, observing labour issues and</td>
<td>Environmental Justice Foundation: Slave Nation - State Sponsored Forced Child Labour in</td>
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<td>Labour issues are found in cotton growing in some areas - as with most agriculture in</td>
<td>democratic rights. They tend to have more money available for their children's education.</td>
<td>Uzbekistan's Cotton Fields (among other reports)</td>
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<td></td>
<td>poor rural areas. Issues include terms and conditions for seasonal and contract</td>
<td>Organic - fairtrade observes labour conditions and encourages spending on community needs</td>
<td>Textile Exchange: Assessing Sustainability Report 2010 (available online)</td>
</tr>
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<td></td>
<td>workers. Child labour and bonded labour in Uzbekistan are under the spotlight.</td>
<td>such as schooling for children.</td>
<td></td>
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<tr>
<td>Labour standards on the farms</td>
<td></td>
<td></td>
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<tr>
<td>Farmer/ community food</td>
<td>Not favoured since dependence on one crop.</td>
<td>Favours food security through rotation, intercrops and other 'system' crops (less</td>
<td>Salem Y. Lakhal et al. (2009) Comparing conventional and certified organic cotton supply</td>
</tr>
<tr>
<td>security</td>
<td></td>
<td>dependence on just one crop). High-value crops (sesame) may be sold as export and</td>
<td>chains.</td>
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<td></td>
<td></td>
<td>crops such as legumes, cereals and pulses enter domestic markets.</td>
<td><a href="http://www.organiccotton.org/oc/Library/library.php">http://www.organiccotton.org/oc/Library/library.php</a></td>
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<td></td>
<td></td>
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<td>PAN: Fibre, Food &amp; Beauty <a href="http://www.pan-uk.org/food/fibre-food-beauty">http://www.pan-uk.org/food/fibre-food-beauty</a></td>
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<td>Textile Exchange: Crop Diversification Baseline and Follow up Reports, 2009 &amp; 2010</td>
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<tr>
<td>Business to business</td>
<td>Includes issues and challenges faced by / between actors within the cotton value chain (buying and selling)</td>
<td></td>
<td>Business to business</td>
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<tr>
<td>In-country subsidies and export policies</td>
<td>In-country subsidies are designed to protect the agricultural sector (within the country). Current procedure does not usually support ‘more sustainable’ production; it simply creates a less-equal playing field for countries (inevitably poorer ones) to compete in the ‘free market’.</td>
<td>Organic cotton value chains can help improve rural economies through trade (not aid) solutions.</td>
<td>Fairtrade Foundation: The Great Cotton Stitch-up. A Fairtrade Report November 2010</td>
</tr>
<tr>
<td>Managing market cycles (supply and demand)</td>
<td>The knee-jerk reaction to the peaks and troughs of supply and demand (and associated price volatility) means the market sets the price. This can lead to vulnerability (for both buyers and sellers)</td>
<td>Longer-term, committed value chains can decouple their business from the market and base it on their own predicted business growth. Allowing all parties to plan and produce/buy accordingly.</td>
<td>Organic &amp; Fairtrade Competency Centre, Helvetas: Organic Business Guide, 2010</td>
</tr>
<tr>
<td>ISSUES</td>
<td>DESCRIPTION OF ISSUE</td>
<td>ORGANIC COTTON SOLUTION</td>
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<tr>
<td>Business to customer/consumer</td>
<td>Faced by retailers and brands in the marketplace (focus here is exclusively on customer understanding and response to some of the issues above)</td>
<td>Business to customer/consumer</td>
<td></td>
</tr>
<tr>
<td>Traceability/place of origin</td>
<td>Exposes such as child labour, forced labour, and environmentally damaging practices are affecting reputation and consumer choice.</td>
<td>Organic cotton can be traced back to the producer. Connecting consumer to place of origin and the farmer story builds a more meaningful experience. Organic cotton (especially if coupled with strong social criteria) tends to form part of a more 'ethical' value chain BUT this is by no means guaranteed.</td>
<td>Textile Exchange &quot;Meet the Farmer&quot; online Ethical Trade Initiative <a href="http://www.ethicaltrade.org/">http://www.ethicaltrade.org/</a> Historic Futures - Track and Trace <a href="http://www.historicfutures.com/country-of-origin">http://www.historicfutures.com/country-of-origin</a></td>
</tr>
<tr>
<td>Risk management</td>
<td>Exposure by the media can cause severe damage to a companies reputation if the issue relates to your business e.g. Child labour in cotton fields - and you are doing nothing to address it.</td>
<td>Organic cotton provides the right message and should be part of a risk/opportunity/CSR strategy.</td>
<td>Ethical Trade Initiative <a href="http://www.ethicaltrade.org/">http://www.ethicaltrade.org/</a></td>
</tr>
<tr>
<td>Responsible profit-making</td>
<td>Short term approaches to business and ‘profit at all costs’ revered in the 80s - 90s does not fit with business in the 21st century</td>
<td>Organic cotton is an integral part of a more responsible/sustainable textile strategy.</td>
<td>Textile Exchange: Market Report (annual publication)</td>
</tr>
<tr>
<td>Educating/influencing consumers</td>
<td>Issues such as climate change, human rights, and poverty alleviation through trade - are affecting business (trade and CSR) and consumer behaviour.</td>
<td>Labelling, cause-related marketing, etc provide opportunities for consumer education.</td>
<td>Textile Exchange: Market Report (annual publication) Forum for the future: Fashion futures <a href="http://www.forumforthefuture.org/projects/fashion-futures">http://www.forumforthefuture.org/projects/fashion-futures</a></td>
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</table>
Cotton has a dark history of being the biggest recipient of agrichemicals. The agrichemicals used in cotton include pesticides from the organophosphate and organochlorine families (such as DDT a development of wartime chemical weapons). A number of them are World Health Organisation (WHO) class I for example: aldicarb, methamidophos and monocrotophos (now withdrawn from the US market). These chemicals can cause neurological damage and/or are carcinogenic (Environmental Justice Foundation).

At one stage cotton accounted for the use of 15 percent of the world’s pesticides and 25 percent of the world’s insecticides. Over recent years we have seen a commendable reduction in the amount of pesticides applied to cotton fields; with overall pesticide use down to 6.8 percent and insecticide use to 15.7 percent (The Expert Panel on Social, Environmental and Economic Performance of Cotton Production; ICAC 2008). There are positive examples of better ‘integrated pest management’ i.e. the use of biological, physical and other alternatives to chemical application. Reasons behind the decrease in use of pesticide is the recognition that these highly toxic chemicals are dangerous to human health, animals, fish, micro-organisms, soil, and waterways. In addition, pests develop resistance and this may render the use of a particular product ineffective.

However, pesticide use in cotton-growing - and the high toxicity of many pesticides still in use - continue to be significant; continuing to cause contamination to soil and water, and the risk of human exposure. Particularly in developing countries where the risk to human health and safety is exacerbated by farmers, and their families, lack of understanding of the toxic nature of these agrichemicals coupled with little or no training in, or administration of, protective equipment.

There has recently been an increase in the adoption of genetically engineered cotton (GM) developed to address the high pesticide use (and pest resistance) in cotton. GM cotton has been released into, and adopted by, an increasing number of countries over the past 10 years: the US, Brazil, India, China, South Africa, Australia, Argentina, Mexico, and Columbia and recently in Benin, West Africa. The two types of GM cotton do different things. Herbicide resistant cotton includes a gene which allows the cotton to be sprayed with particular herbicides without dying. The insecticide resistant GM cotton contains two genes that kill particular insects; other insects however are not affected by the GM cotton. The genes have been taken from a soil bacterium called Bacillus thuringiensis or Bt for short. The Bt gene specifically kills lepidopteran insects such as Bollworms and Budworms. An earlier version of the GM cotton only contained one Bt gene. As Bt II contains two Bt genes it is often referred to as double Bt gene cotton.

Research by Monsanto, one of the biggest GM seed production companies, is beginning to show that whilst GM cotton initially provided resistance to pest attack (and higher yields as a result) after 3-5 years secondary pests step in, resistance is reduced and yields begin to fall. What’s most worrying is that the use of pesticide (on top of the investment in GM) begins to rise again.

GM lobbyists have tried to promote Bt cotton in India as a huge success story that has cut insecticide use and boosted productivity. Now Keshav Kranthi, a leading Indian entomologist and...
acting director of India’s Central Institute of Cotton Research (CICR) has told the Indian government that the rapid adoption of GM cotton by farmers across the country has coincided with the rise of hitherto unknown insect pests, increased pesticide applications by farmers, and declining cotton productivity over the past three years. Pesticide applications on Bt cotton has increased; overtaking those on conventional/non-GM cotton. Further, the recent findings of research in China (also undertaken by GM supporters) showed that seven years after the commercialization of Bt cotton there, the expenditure on pesticides by Bt cotton farmers was more or less the same as for conventional/non-GM growers, despite the extra expenditure the Bt farmers were making on GM seeds in order to reduce (supposedly) their need to spray (GMwatch 2010).

However hard we might all try to look at genetic engineering ‘objectively’ it is difficult to remove emotive responses to the product. Whether one is optimistic about the potential benefits such as ‘ability to feed the world’, ‘drought-resistant’, ‘lood resistant’, or ‘pest resistant’ or whether one is doubtful of GM capabilities and inclined to opt for the precautionary principle when it comes to ‘playing with nature’, or concerned about loss of biodiversity, or questioning the motivation of companies with monopolies on seed (GM or otherwise) - it is probably too early to tell if GM is going to be the panacea against pests that we are looking for... and whether greater yields of cotton will indeed be a long term benefit.

“GMO seeds are a very important topic. In our project, we are focusing on finding solutions to meet the farmers’ needs. Our goal is to make them not dependent on traders without knowing the exact origin of the supplies. Farmers deserve to be independent; furthermore clients deserve traceability, reliability and compliance with international regulations and standards.

With 25 years experience in developing, manufacturing, and selling organic products, we now see GMO as a threat to the populations and the industry, worldwide. At our level and with our resources we have decided to support the farmers, and we will present our results once proven significant.

In any case, the organic community needs to reinforce their position and involve experts, government agencies, to preserve good organic agricultural practices.”

Didier Perreol, CEO Ekibio Group, Vice President of the French Organic Agency (L’agence Bio Française)
Is cotton grown organically more financially rewarding for growers than growing cotton conventionally? Most researchers agree the profit margin is indeed greater since expensive pesticides are not needed and economically significant ‘premiums’ are usually paid for the cotton. However, to do organic agriculture well farmers need to be well trained and well organized. Further, the costs of organising certification internal control systems and the cost of certification itself must be added to the farm input costs of producing cotton organically.

Researchers, sector bodies, NGOs, and other stakeholders will give different costing scenarios depending on the criteria used for evaluation. And whilst there has been some research into cost analyses of different methods; evidence in terms of economic data is difficult to collect and even harder to work into comparative studies. Even more complicated is accounting for the indirect impacts and longer term social and environmental costs and benefits (for farming communities). Yet it’s these expenses that contribute significantly to longer term sustainable economic improvements. These ‘externalities’ are inevitably much more challenging to account for and thus address. (Comparative Analysis of organic and non-organic farming systems: A critical assessment of farm profitability. FAO, June 2009).

Much depends on social, geographical and temporal variations; whether the externalities are accounted for; and how reward is measured. Variations in growing conditions include:

- climate and weather patterns,
- farmer experience and management skills
- support available (financial, technical and other extension services)
- market conditions
- farmers’ degree of participation in the value chain
- government support, domestic and export policy
- the cost of water contamination, soil erosion and soil fertility
- health and safety (including acute and chronic illness)
- food availability
- debt and financial dependency, investment opportunities

Overall, evidence from various studies favours the argument that organic (over conventional) is more ‘profitable’ for the small scale farmer situated in a developing country- even if lower yields are reported - because of the lower cost of inputs and/or an organic ‘premium’ being paid. Research also shows that organic comes out the winner in less favourable growing conditions such as dry and drought-prone environments. In these cases, yields are usually higher when growing organically. Once you look into the cost-benefits a little further one begins to see why ‘organic’, especially for smallholder farmers in developing countries, is a better option. The indirect and longer term social and environmental benefits (for farming communities) of organic growing - such as food self sufficiency, income diversification and healthier populations, indicate that encouraging and building the market for organic makes much sense from a global sustainability perspective.
The future of farming: The currently predominant agricultural practices continue to cause environmental harm, which places a considerable economic burden on society, whereas sustainable farming practices are neither supported consequently, nor remunerated for the public goods they deliver (IFOAM).

Due to increasing scarcity of fossil fuels and fresh water, expanding population, and rising costs of farm inputs it is almost certain that within the next 5 to 10 years sustainable agricultural practices (i.e. using less energy, water, and agrichemicals) will provide more cost effective food and fiber. “We cannot afford anything else than becoming more sustainable in an environment with growing demand and shrinking resources”. Tobias Bandel, see Briefing 9.

For organic cotton farming to continue to flourish and succeed both farming and commercial support is necessary. Priorities recognised include: access to organic ‘field’ knowledge and knowledge exchange, support for managing internal control systems, teaching and tools for building business capacity, and the opportunity for farmers to connect to stable and equitable value chains and rewarding markets.
‘Cost of production’ does not usually account for or build in indirect non-financial costs (or benefits) that are more complex to define and financially allow for upfront. These costs are sometimes called externalities. They are often costs borne by society. They could be environmental, social, indirect, longer term or are in some other way difficult to put a monetary value on. The table below summarises costs and benefits and compares organic with conventional. Of course some generalisation has been made and this table is an indicator rather than a hard and fast rule. The table focuses on variable costs and does not include fixed costs. Some cost areas may have both positive and negative impacts.

<table>
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<tr>
<th>COST AREA</th>
<th>ORGANIC +IVE</th>
<th>ORGANIC -IVE</th>
<th>CONVENTIONAL +IVE</th>
<th>CONVENTIONAL -IVE</th>
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<tr>
<td>Seeds</td>
<td>-Seed/species biodiversity</td>
<td>-Maintaining quality</td>
<td>-Reliable supply/quality</td>
<td>-Treated / GMO seed patency</td>
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<td>-Traditional/native breeds</td>
<td>-Access &amp; distribution</td>
<td>-Higher yields/ (claimed by some)</td>
<td>-Expensive - debt/even suicide</td>
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<td></td>
<td>-Seed saving opportunities</td>
<td>-Not priority for seed companies</td>
<td>-GMO some report higher yields</td>
<td>-GMO benefit not conclusive</td>
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<td></td>
<td>-No GMO</td>
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<td></td>
<td>-Increasingly GMO is problematic: e.g. secondary pest attacks</td>
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<td>Farm inputs (fertilisers,</td>
<td>-Farm based/ produced (biological)</td>
<td>-Requires high level of skill/ know-how and farm management</td>
<td>-Often less skill required</td>
<td>-Expensive - leading to debt/even suicide</td>
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<td>pesticides, defoliants,</td>
<td>-Low tech (traps, scouting)</td>
<td></td>
<td>-Low manual labour</td>
<td>-Destroys ‘friendly’ bugs leading to secondary pest attack</td>
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<td>etc)</td>
<td>-Traditional methods</td>
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<td></td>
<td>-Pesticides - health hazards - acute and chronic / both farmers and community</td>
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<td></td>
<td>-Local business spin -off</td>
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<td>(storage), spray drift</td>
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<td>-Low expense</td>
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<td>-Run-off/ contamination/ ground water contamination</td>
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<td>-Less health risks</td>
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<td>-More manual labour</td>
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<tr>
<td>Farm system crops</td>
<td>-Soil fertility and condition</td>
<td>-Further farming skills required</td>
<td>-Usually monoculture. Some rotation usually due to following market for</td>
<td>-Monoculture: lower food supply from farms/ or less safe due to pesticide residue</td>
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<td></td>
<td>-Moisture retention</td>
<td>-More work /labour required</td>
<td>higher priced crops (i.e not necessarily for soil and farm needs). Less skill.</td>
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<tr>
<td></td>
<td>-Pest traps</td>
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<td>Less work</td>
<td>-Dependency on income from one crop (cotton)</td>
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<td>-Food crops/ food security</td>
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<td>-Sterility of soil - need to increase fertilizer inputs</td>
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<td>-Food sovereignty</td>
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<td></td>
<td>-Income diversification</td>
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<td></td>
<td>-Community benefits - access to safe food, trade, local markets</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>-Border crops - biodiversity, reduced soil erosion</td>
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© Textile Exchange 2010
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<tr>
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<th>CONVENTIONAL +IVE</th>
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</table>
| Water     | -Less moisture loss  
-Less use of irrigation  
-Organic cotton reported to be less 'thirsty' / more resistant to drought  
-Lower water footprint | -Low water supply will still stress organic crops if conditions particularly bad  
-Lower yield - in bad conditions | -Irrigation - more reliable water supply | -Irrigation expensive  
-Contamination of waterways by chemicals used (see inputs)  
-Higher water footprint  
-Seeds/crop more dependent on water for good yields  
-Local water shortages |
| Labour    | -Building local farm skills / knowledge  
-Interdependence  
-More jobs - more employment - more settled communities  
-More family involvement - women tend to look after other crops  
-Interdependence | -Higher manual labour required at times of the year (may be seen as a disadvantage / and expense) | -Relatively low levels of labour (low cost of employees) | -Isolated and lonely work (especially spraying agrichemicals) |
| Energy/fuel | -Low fossil fuel usage (developing countries)  
-Less dependency on machines (can be good in regions with no reliable electricity etc)  
-Less upfront costs and associated expenses (repair, running, etc)  
-Lower carbon footprint | -Tasks requires more labour  
-Tasks may take longer to do | -Easier work (when machines / equipment operating properly)  
-Quicker work (as above) | -Dependent on expensive machines and equipment  
-Expensive and dwindling supply of carbon-based resources  
-Lack of expertise to repair when broken down  
-Higher carbon footprint |
| Training  | -Building skills and capacity on low impact more environmentally responsible farming techniques | -Cost of building skills - organic techniques, farm management  
-Need for extension services | -Some training (such as integrated pest management - leading to less resource intensive agriculture) | -Some training expenses |
<table>
<thead>
<tr>
<th>COST AREA</th>
<th>ORGANIC +IVE</th>
<th>ORGANIC -IVE</th>
<th>CONVENTIONAL +IVE</th>
<th>CONVENTIONAL -IVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certification</td>
<td>- Higher value product</td>
<td>- Cost of setting up and administering Internal Control Systems: bookkeeping, Internal audit, external inspection</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>- Traceability of product</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Contribution to a more ethical supply chain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post harvest</td>
<td>- Higher profit margin?</td>
<td>- Higher than conventional due to higher quality standards set by organic exporters</td>
<td>- Commodity crop: less investment by farm group</td>
<td>- More vulnerable to ebbs and flows of commodity market - Less control of profit</td>
</tr>
<tr>
<td></td>
<td>- Greater control of profit?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Investment by PG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conversion to</td>
<td>- Eventually all the benefits of organic</td>
<td>- Three years to convert farm</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>organic</td>
<td>- Increased income after investment years</td>
<td>- Two years to register farmer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For further reading on comparative studies:

- Daniel Anand RAJ et al. Case Study on organic versus conventional cotton in Karimnagar, Andhra Pradesh, India.
- FAO (Natural Resources and Environment Department), June 2009, Comparative Analysis of organic and non-organic farming systems: A critical assessment of farm profitability.
- Salem Y. Lakhal et al., 2009, Comparing conventional and certified organic cotton supply chains.
There is no formalised mechanism for arriving at a price for organic cotton. The rule-of-thumb is to take the commodity price (this is usually the price quoted in the country of origin on the commodity market at a set time) and add a percentage increase (often called a ‘premium’). This percentage can range from 5 to 50 percent depending on a number of factors; such as market conditions, arrangements between supply chain players, and product quality. The premium is supposed to cover cost of production (for farmers), investment in farming operations, organic certification, and training and extension services. It’s also meant to be enough for broader socio-economic development of the community - schooling, health and housing. We call it a fair price because it is more likely to reflect the cost of production and viability of the business.

Depending on the business model, trade transactions can take place between a number of different actors within the supply chain. For example, some brands, retailers or manufacturers (usually the ones ultimately in charge of the fiber contract) have buying teams or sub-contractors who are responsible for purchasing the cotton fiber on behalf of the company from cotton traders or other intermediaries (sometimes the intermediary will be the ginner or spinner i.e. the initial buyer of the seed cotton). In these cases, whilst the certificate of the cotton is traceable, the end-customer (e.g. brand or retailer) will not necessarily know who grew it or details of production. It’s also not necessarily clear who is benefiting from the ‘price premium’ and by how much. This model may have many players or middlemen in the chain. The ‘deal’ between players will depend almost fully on market conditions at the time, or the urgency of the grower to sell his cotton.

An increasingly attractive option is a value chain model which allows the brand/retailer or the manufacturer to develop a closer and longer-term business relationship with the producer group. Agreements and contractual conditions will be made earlier in the cotton cycle to the mutual benefit and satisfaction of both parties. Benefits to the producers might include pre-financing (for biological inputs, etc), guaranteed price and guaranteed purchase of product. Some benefits are mutually rewarding such as skills-building for growers that improves yields and/or quality of product. Benefits to the brand/buyer include security of supply, a pre-determined price (which helps plan and calculate costs), closer understanding of their supply chain (which helps identify/manage risks earlier), consumer respect and better reputation. With more established ‘partnerships’ we are also seeing profit-sharing, board representation, and shared investment in community projects such as schools, health centres, infrastructure, and support of local entrepreneurship. The beauty of this sort of economic development is that it’s based on ‘trade not aid’ and usually involves more autonomy for the producers and a more equitable distribution of influence.
“The issue of organic producers seeing diminished ROI [return on investment] when conventional prices skyrocket, is familiar to us in the coffee industry. We have found that at least in part, such temptations to abandon organic can be mitigated somewhat when farmers develop a longer-run view that values stability - yet another reason to strengthen supply chains via connecting committed buyers and producer groups.” Jesse Last, Lending and Strategy Associate, Root Capital (in response to the high cotton commodity prices currently on offer).
BRIEFING 7: SEEDS; A SUMMARY OF CRITICAL ISSUES

The origin, domestication and commercial cultivation of cotton has a fascinating history, and the way this has played out has had far reaching impacts even today on economies, livelihoods of farmers and bio diversity.

Four species of the genus Gossypium contribute to the world’s single largest fiber. G. Arboreum, G. Herbaceum, G. Barbadense and G. Hirsutum; belonging to the Malvaceae family. G. Arboreum is found mostly in India, South East Asia and China and G. Herbaceum is found mostly in Africa and Arabia and some parts of northern India and Iraq. Both are easy to hybridise. These two are known as the ‘Old World Species’.

G. Barbadense and G. Hirsutum are ‘New World Species’, with the former being indigenous to South America and the latter from Guatemala extending to Mesoamerica (Smith and Cotheran). With the assistance of human transfer, seeds were planted beyond their native regions; stimulating agronomic improvements and inter-specific changes.

Though Old World cottons are still grown in some areas of Africa and Asia, New World cottons have virtually displaced them. G. Hirsutum cultivars are today the dominant species, having spread to over 45 countries and account for about 90 percent of the annual crop. One negative outcome of longer duration G. Hirsutum cultivars was the increased pest attacks, particularly by the American bollworm, or the Bacillus Thuringensis, resulting in cotton earning the dubious reputation as the single largest user of pesticides.

This situation reached alarming proportions in the mid-nineties and posed a grave threat to the environment, farm economy, and cotton farmers’ lives - stimulating two major responses. One was the adoption of organic methods of cotton farming by conscientious farmers who believed that holistic, earth-friendly responses could reverse the trend of the indiscriminate use of chemical pesticides. The other was the agrichemical industry’s response to develop Genetically Modified (GM) seeds. Many cotton growing countries have rapidly adopted and intensified GM cotton production since its commercial introduction in the late 1990s. A rough estimate is that 49 percent of cotton worldwide is genetically modified (2009); with USA close to 93 percent, China 68 percent, Australia 95 percent, and India about 87 percent in 2009.

This high adoption of GM seeds in cotton has resulted in unique problems for the organic cotton sector, a few of which can be briefly examined, taking India as a case study.

A closer look at India: Seeds are governed by the Seed Act of India, 2004. The production and supply of seeds is done by the public and private sector. The opening up of the economy in the early nineties and India’s 3rd Amendment to its Patent Act in 2005 has allowed patents for seeds, and created a situation where the importance and dominance of the public sector and state seed supplies has diminished. This has paved the way for the private sector to take more control of seed supply.

For organic cotton producers, this role transition has resulted in a crisis of availability of
their primary input, i.e. non-GM seeds. While the desired input is organic seeds, non-chemically treated/non-GM seeds are permitted in the organic system. With the promotion of GM technology by the Government, and aggressive marketing by the GM seed lobby and the industry, most seed companies produce what the majority of the markets seem to want, i.e. GM seeds.

The Indian cotton seed market is one of the most vibrant in the country; reportedly estimated at more than 1000 crores of rupees (one crore equals 10 lakhs of rupees, one lakh is 100,000 rupees; one USD is approximately 47 Indian rupees). The gradual replacement of open pollinating varieties by hybrids and particularly GM hybrids, and the predominant role of big multinational companies have resulted in the marginalisation and disappearance of smaller, local seed players who could cater to the organic sector.

The implications of this for the cotton farmer in India are enormous. Since the beginning of time the control over seeds by the farmer (or ‘seed sovereignty’) has been one of the definitive marks of his identity. “Beej” (seed) evoked many emotions and formed the basis of ritual, hope and celebration. The march of time and commercially-prioritized technology poses a threat to agricultural traditions of centuries, and ironically in an era of the patent regime, make seed saving a criminal act punishable under Intellectual Property (IP) law.

For organic cotton producers in India, the situation poses both a threat and an opportunity. The way to overcome the threat of lack of input is for organic cotton producer groups to join forces. Identify and tap into the innovation and knowledge banks available; e.g. the Central Institutes of Cotton Research. Access the germplasm of varieties suitable for organic production from the gene banks of these Institutes and Agricultural universities. Pooling resources and acting immediately are critical to security in seed supply for organic production.

It is heartening to note that some Producer Groups such as BioRe, Chetna, Pratibha (and others such as Mahima and Organic Farms with the support of Cotton Connect) are making a promising start on the road to self sufficiency. The Government of India has also taken note of this situation and is making an effort to support the cause through special fund allotments for production of non-GM seeds and increased public sector participation in seed production and dissemination. Specific plans are being made within the new Fiber Policy.

In the words of Dr T.P. Rajendran, eminent cotton scientist and one of the pioneering figures of organic cotton in India, “Everyone thinks that the principal thing to the cotton plant is the fiber, but to the farmer it is the seed and the fiber and in the order of nature, to the plant, it is the seed. The lint is not the essential. Now that is a truth that cannot be denied or defied.”
BRIEFING 8: PROGRESSING INDUSTRY INTEGRITY

The dynamic growth of the organic cotton sector brought with it a number of issues that need resolution. For the organic cotton business, a core of truth and integrity is vital to its continued existence. Around three years ago the rumblings of “all is not well” were first heard. They were loud enough for committed stakeholders such as ICCO, Solidaridad, Textile Exchange and IFOAM to decide that concerted action to address the issues was needed. A consortium of these bodies was formed with the express intention of addressing these wide ranging and complex issues.

The Consortium agreed that the exercise was to be a constructive one, and that India would be a starting point, with lessons learnt taken to other regions. A preliminary study completed in 2009, followed by another one in 2010, and the reports were discussed with key stakeholders at BioFach Nuremberg, in February 2010. The problems that needed to be addressed were a combination of short term and long term factors covering a wide range of issues. The objective of the report was to provide a better understanding of the cross cutting challenges for organic integrity through inquiry and dialogue with key stakeholders. It identified critical areas of concern and gaps; outlined current developments in the Indian context already underway, and pointed out potential areas of intervention and cooperation by the various stakeholders.

Some of the gaps and concerns identified were:

- Shortage of seeds and inputs for organic production
- Lack of advance orders and long term and secure commitments for organic from buyers and retailers that would result in good planning at farmgate level
- Timing and methodology of GM contamination
- The requirement for more advanced training and technical knowledge for production of bio inputs by farmgroups
- Inadequate ICS or internal Control systems and poor staff/farmer ratios
- Poor prices for organic with some brands and buyers demanding organic at a very marginal price difference from conventional, resulting in a compromise in standards.
- Issues in Certification and Accreditation such as lack of transparency, yield estimates being inaccurate, lack of fiduciary relationships between overseas and Indian certifying bodies, lack of a common platform of CBs and approvals for parallel production.

Above all, the report emphasised that Integrity needs to be the concern of all players in the value chain and cannot be expected to be the responsibility of a few.

The next major step was holding a meeting of key stakeholders in Indore, India in May 2010. The participants represented a cross section of the industry, including people from producer groups, non profits such as Centre for Sustainable Agriculture, and notably five certification bodies, including NOCA, Ecocert, Onecert, IMO and Control Union Certifications. Cotton projects included bioRe, Chetna, Samrudhi, Mahima, Zameen, Arvind Mills, Ecofarms, Super Spinning Mills, and Agrocel. One seed company representative from Mahabeej also attended.
The meeting was productive and highly interactive. Key issues in integrity were identified, and three main immediate action plans were identified. They were:

• to form a Cotton Producers Forum
• to hold a training session for producer groups on seed development and GM Identification in consultation with the Central Institute of Cotton Research
• and to form a Certifiers Forum to enable third party certifiers to have constructive dialogue

In addition the Consortium met with the Agricultural Products Export Development Authority (APEDA), a body of the Ministry of Commerce, also responsible for accreditation of third party Certification in India. We were assured that many concrete steps were being taken by the Government of India with regard to tightening Group Certification, including the introduction of Tracenet, an online track and trace system for organic production, a reduction in group size to a maximum of 500 farmers per ICS group and stricter surveillance of deviations from norms. These measures have since been implemented in India.

The Consortium will continue to actively follow up these issues and stakeholders will continue their efforts in this area.
According to the latest United Nation’s Food & Agriculture Organization (FAO) reports, on a worldwide average the area of arable land per capita shrank from 4307 m$^2$ per person in 1961 to 2137 m$^2$ in 2007. The reason is simple: due to non-sustainable farming practices such as over fertilization of mineral fertilizers and related soil erosion, annually about 12 million hectares of arable land are lost globally while the world population tripled in the last 100 years.

Taking into consideration deforestation and land-use-change due to the expansion of agricultural land, the agriculture sector contributes up to 30 percent of global greenhouse gas emissions. Apart from the animal husbandry based methane emissions, the majority of these emissions are related to soil, biomass and fertilizer management. Alongside its impact on climate change, the agricultural sector consumes about 70 percent of the world’s available water, is still one of the largest employers worldwide and, most importantly, is the only sustainable provider of food.

Collecting agricultural biomass and transforming it to high quality compost is the mission of Soil & More International, a company with subsidiaries in Egypt, Ethiopia, India, Mexico, Netherlands and South Africa. This not only minimizes green waste going to landfill, but also contributes to sustainable soil fertility and improved water holding capacity through organic matter enriched soil management as well as greenhouse gas emission reduction. At its facilities, which are operated with local partners, Soil & More produces over 240,000 metric tonnes of compost annually and reduces about 200,000 metric tonnes of CO$_2$e (Carbon dioxide equivalent) per year through methane avoidance during the composting process. Applying the compost to the fields, further carbons are sequestered and due to the enhanced soil structure up to 40 percent water is saved.
“The model is highly scalable, from small scale farmers in India, Kenya and Central America where Soil & More strategically cooperates with Fairtrade, Oxfam and Rainforest Alliance up to large scale projects in cooperation with municipalities such as Cape Town and corporates such as Dole, Sekem, and Unilever.

Independent of whom we work with, our overall target remains to assist small-, medium- and large-scale farmers to make their agricultural business case more sustainable which means to us cost effective in the long-term - encompassing all dimensions of sustainability, providing a competitive advantage for true organic farming” says Tobias Bandel, co-founder and managing partner of Soil & More International.

“We are convinced that in 5 to 10 years from now, sustainable agricultural practices will provide more cost effective food products and other commodities than goods produced by conventional farming systems. We cannot afford anything else than becoming more sustainable in an environment with growing demand and shrinking resources.”

Visit: Soil and More http://www.soilandmore.nl/
‘Agricultural extension’ describes the services that provide rural people with the access to knowledge and information they need to increase productivity and sustainability of their production systems and improve their quality of life and livelihoods. It includes, but is not limited to, the transfer of knowledge generated by agricultural research. It has helped countries move towards meeting food needs, conserving natural resources and developing human and social capital.

Different players see extension as having different objectives, ranging from overtly political rural campaigning, through commercial promotion of specific commodity production, to the social aims of promoting and implementing poverty-reducing programmes.

Not surprisingly, this lack of clear purpose, along with other factors (see below), has been seen as contributing to very variable results in terms of adoption of recommended practices, increased productivity or impact on rural poverty. Many are questioning whether national extension services in their traditional form are appropriate and sustainable given the high costs of maintaining these services and the general decline in funding for them.

Other factors with a detrimental effect on the performance of extension services include:

- Top-down blanket recommendations, as opposed to more narrowly targeted recommendations or ‘baskets of options’
- Lack of flexibility and failure to cater for local requirements
- Technologies that are not suitable for the resource-poor
- Failure to link recommendations to market realities.

The meaning of the term ‘extension’ has changed over time (Swanson, 2008) and is moving away from the dominant emphasis on technology transfer (reflected, for example, in the training and visit approach) towards a much broader concept that includes developing the skills and management capacities of farming families (through the farmer field school approach, for example) and the learning capacity of both farmers and extension organisations.

Extension has been recently defined as “systems that facilitate the access of farmers, their organizations and other market actors to knowledge, information and technologies; facilitate their interaction with partners in research, education, agribusiness, and other relevant institutions; and assist them to develop their own technical, organizational and management skills and practices” (Christoplos, 2010).

Some would give greater and more explicit emphasis to the importance of a multidirectional flow of information that potentially influences research programmes and agendas (for example, from farmers to extension agencies and researchers), as opposed to the unidirectional flow embodied in traditional research and extension systems. This kind of process may be better
described as ‘innovation’ rather than ‘extension’. Experience suggests that actors in agricultural innovation systems must be in closer contact with their clients if systems are to be demand-led and that poor farmers must be better represented and more actively involved if their needs are to be met.

In recent years more attention has been paid to the capacity of extension organisations, particularly those in the public sector, regarding, for instance, their incentive systems, learning capacity, range of expertise (including marketing and farmer facilitation) and relationships with other related stakeholders, such as research organisations, non-government organisations (NGOs) and agricultural service providers in the private sector.

“Advisory services are starting to respond more effectively to the needs of farmers and other value chain actors as they adapt to market demands. Despite significant progress in analysing and understanding how to respond to markets, sustainable enhancement of the capacities of the rural poor to benefit from markets will require a more focused and consistent approach”

Ian Christoplos, Danish Institute for International Studies

Further reading:


Global Forum for Rural Advisory Services (GFRAS) www.g-fras.org

Mobilizing the potential of rural and agricultural extension by Ian Christoplos, 2010 for the FAO and GFRAS. http://www.g-fras.org/fileadmin/UserFiles/GFRAS-documents/Mobilizing_the_potential_of_extension.pdf

Agricultural Extension, Advisory Services and Innovation prepared by the Natural Resources Institute, University of Greenwich, UK. http://www.nri.org/docs/d4581-agricultural-extension.pdf
BRIEFING 11: COTTON... A SMALLHOLDER CROP

Most of the world’s cotton is grown by ‘small scale’ farmers. So what does it mean to be a small scale farmer and what are the implications for ‘sustainable development’? The Centre for Learning on Sustainable Agriculture (Ileia) based in the Netherlands gives us some insight:

Almost a billion and a half people around the world make their living from small-scale farming. This number is so large that productive, sustainable small scale farming holds a key to reducing poverty, increasing economic growth, and improving environmental conditions. It is important to understand the potentials and constraints of small-scale farming, to see where the opportunities for improvement are. While there is so much diversity in farms and the conditions of farming, this is no simple task.

In spite of the diversity of small-scale farmers around the world, they do share some common features. They are small (though this is a relative term depending on the region) and usually family-based, with the farmers considering the farm to be more than simply a business. Also, they generally suffer from a lower social and political status than their larger-scale or more commercial counterparts. In spite of their small size, these farms have an important role to play in terms of their contribution to alleviating poverty, to producing for local food systems, and to environmental and other services.

Agricultural production forms a major livelihood activity of 40 percent of the world’s population, and occupies 40 percent of the total land area. It plays a role in both rural and urban areas, but for rural people, farming is especially important, making up 86 percent of rural livelihoods worldwide.

In developing countries as a whole, 3 billion people (out of a total population of 5.4 billion) currently live in rural areas, most of whom (2.5 billion) are involved in agriculture. Of these, 1 billion are small-scale farmers of small (less than 2 hectares) and marginal (less than 1 hectare) farms. More than half are women. Rural women produce between 60 and 80 percent of the food in most developing countries. The remaining 1.5 billion include farm labourers, migrant workers, herders, fishers, artisans and indigenous peoples who depend on agriculture and natural resources for their livelihoods. In contrast, there are only 20 million farms in developing countries that rely on modern farm machines such as tractors (Pimbert, 2008).

In the developed world, farm sizes have changed in the opposite direction. In the second half of the 20th century, average farm sizes in industrial regions such as Europe and North America increased considerably, and there are now fewer small-scale family farms than larger-scale “factory” farms. Clearly, small-scale farms around the world are highly diverse. For example, they differ in size in terms of the farm and of the farmer household; they vary greatly because of their natural resource and climatic base; they have very different worldviews and strategies in their use of available resources and labour; and they also range from being subsistence-orientated to producing mostly for the market.
About ileia: The Centre for Learning on Sustainable Agriculture, ileia, promotes the exchange of information about small-scale farming all over the world. Through its flagship publication, “Farming Matters”, and also through other media, it informs policy makers, researchers, practitioners, educators and farmers, about sustainable, small-scale farming. It offers discussions, background to the news, opinions, research findings and practical examples of how small-scale farming contributes to providing food security, social justice, a healthy environment and development.

For further details: Ileia, Centre for learning on sustainable agriculture, the Netherlands, Learning AgriCultures - Insights from sustainable small-scale farming http://ileia.leisa.info/
Despite the enormous success of the Texas Organic Cotton Marketing Co-Operative (TOCMC) in the United States, and the increase in production of organic food, organic cotton production in the ‘developed world’ is unusual. So why is this the case? There are a number of reasons to do with a country’s established farming structures, infrastructure, extension services, agricultural ‘worldview’ and affluence.

If we take Australia (another affluent country and a big producer of cotton) and compare this with other cotton growing countries in the developing world we can see some obvious differences that are true for most Developed vs Less Developed Nations.

Australia has a long history as a cotton growing country and is one of the world’s top ten producers. The northern part of NSW is the biggest cotton ‘belt’ in Australia and cotton has been grown here as a monoculture on micro-levelled fields, with heavy use of fertiliser and irrigation for generations. The Australian cotton belt has experienced years of high pest infestation and trouble with pest resistance. Endosulphan and other toxic pesticides continue to be used in Australia and issues with pesticide run-off, ground water and surface water contamination are ongoing concerns. Rights to water, and water contamination, are significant concerns. Australia is a dry country and water scarcity, in-stream use and competition for water affect cotton growers.

So with so many issues facing conventional cotton growing why are Australians not turning to organic agriculture? The main reason is the ‘direct’ financial implications. Many of the benefits of organic for farmers in developing countries are not recognised in Australia (such as food security) and the environmental or social costs are still not part of the accounting. Organic cotton is relatively labour-intensive compared to conventional growing and the cost of labour in Australia is much higher than in developing countries. People tend to own large scathes of land in rural Australia and farming is highly mechanised. A full cost-benefit analysis may surprise conventional farmers but it’s easy to see how complicated and costly it would be to start-up an organic cotton project and employing the number of people to the extent it is possible in less-developed countries. In fact the challenges and barriers to produce organic cotton in Australia were put to the test 5 years ago with the first organic cotton grown in Narrabi NSW. But with no government support, organic proved too expensive for the one fledgling group to sustain.

Another significant issue is the lack of a textile manufacturing base; Australia cannot vertically integrate cotton growing and fabric production. The logistics and expense of sending the organic cotton off-shore to be processed means it’s simpler to import than to ship your own cotton off-shore then bring it back again as a finished product. Unfortunately, since the demand for organic textiles is growing ‘down under’; and Australians are keen to support local business whenever possible.
However, growing cotton in Australia, the way it currently is, and has been, for many years is proving to not be an option either. Some predict that the end to cotton cropping in Australia is nigh due to its ‘un-sustainability’ especially in a changing climate and even less predictable weather patterns.

So how have the Texas organic farmers succeeded? For a start the co-operative of growers have spent many years establishing their farming and business base and are committed to the cause. They have the knowledge and experience to grow cotton organically and made the transition years ago. The micro-climate enjoyed in this region is particularly favourable also which helps - hot dry summers keep bugs at bay and the cold snap at harvest prepares the cotton bolls for picking. The US also has a textile manufacturing base; much smaller than it used to be but in operation all the same. This means a product range can be ‘100% US made’ - it may be a niche market but it’s one the Texas organic farmers have famously filled.

“The reward I receive for producing organically is the satisfaction of doing something that most people think cannot be done. I believe in making this world a better place through fairness, honesty and integrity.” Jimmy Wedel, President, Texas Organic Cotton Marketing Cooperative.
PART 2: RESOURCES

“We believe that a farmer is not just a producer of organic cotton for us, but he is our partner in creating ecological, economic and sustainable agriculture.”

Niranjan Pattni, BioRe Tanzania

“We must manage our work with respect, justice and equity. Through knowledge exchange we value our ancient and modern knowledge.”

Patricia Flores,
IFOAM Regional Manager for Latin America and Caribe
RESOURCES 1: GETTING STARTED ON A BUSINESS CASE (FOR BRANDS/RETAILERS)

The following points will help you convince colleagues to include organic cotton as an essential part of your company’s sustainable textile business strategy:

• ‘Organic’ is an important part of a sustainable textile strategy. Whether your company (and your customer) is more concerned with the environmental impact of producing textiles or is interested in the ethics at stake; having organic cotton as at least part of your textile procurement will demonstrate a commitment to global sustainability.

• Participate in a growing market. Consumer spend reports show increase in spend in the organic sector. In fact the recent economic crisis revealed that those businesses with good reputational records including those selling organic and other ‘sustainable’ products fared the best. There is a growing customer base that wants your organic products.

• Build supply chains you can track. These days customers expect to know where things come from. It’s part of all good risk management portfolios. Organic cotton is fully traceable. Think of the ‘stories of origin’ you could begin to tell!

• Professional development for employees. Giving staff opportunities to exchange experiences with producers will not only act as a catalyst for employees to find out more about your business. But it will contribute to their personal development. This in turn builds company loyalty and maturity to a corporate culture.

• Attract talented graduates. Be the employer smart people want to work for. Most universities and business schools are graduating students with at least some sustainability literacy. The battle for talent is fierce and research shows that the ‘CSR’ webpage is second most popular after the employment terms and conditions.

• Participate in creating a low-carbon society. Growing cotton organically produces a smaller carbon footprint. An innovative, sustainable textile strategy will be essential to ‘future-proofing’ your organisation. Retailing organic cotton - and explaining why - teaches others to reduce their footprint too. The next generation will be expecting this of you.

• Be seen as a leader by your peers. Demonstrate leadership and vision; be recognised as a progressive company. Show you are prepared as an organisation to face the challenges of today. Remember ‘risk’ = hazard + outrage! Yes within the cotton industry there exists child labour, pesticide poisoning, death by suicide, poverty traps. Be prepared to talk about it and enter dialogue with others in society so you can be part of the solution.

• Build a ‘good’ reputation. Whether you call it ‘Corporate Social Responsibility’, responsible business or simply ‘doing good’ a company that is values driven usually provides a positive force in society. Organic ticks the box for ‘good’ whichever way you look at it.

• Build your customer base on ‘feel good factors’. Market research shows that if you do ‘good’ e.g. sell organic textiles, work against poverty in developing countries etc - even if they don’t end up buying your organic tee-shirt - customers will gravitate to your store anyway. Once again a good reputation is good for business.
RESOURCE 2: INDICATORS OF SUSTAINABLE DEVELOPMENT

Textile Exchange has been working with organic cotton producers for the past 3 years piloting and testing the use of ‘sustainability scorecards’. These scorecards are designed to ‘self-assess’ farmer understanding, perception and activities across a range of social, environmental and economic indicators of ‘sustainable development’ (see the Textile Exchange - Assessing Sustainability Report 2010 available on our website).

General findings include:

- **Sustainability strengths evident in most groups.** Farm groups from the three regions involved (Africa, India and Latin America) showed varying degrees of strength in areas of ‘sustainable development’.

- **Agronomic competency evident.** Farmers generally felt positive about their ability to farm effectively and tended to score well in the agronomic indicators. Highlights were biodiversity and soil fertility.

- **Food security and nutrition was generally good.** This could reveal something about the benefit of organic farming systems i.e. safe (non-sprayed) food, diversification in crops grown and opportunities to vary the family diet.

- **All regions are experiencing some environmental challenges.** There is significant concern about the use of natural resources such as water and energy, especially in Peru. These issues will without doubt relate to geographic and economic conditions generally and be experienced by other communities’ as well i.e. not just organic cotton farmers.

- **Social development was reported positively** e.g. for indicators of labour practices, decision-making and income distribution; perhaps indicating that organic cotton farmers are generally inclined to work closely together and be interested in the well-being of the whole community.

- **Access to health and education is an area of concern.** The lower scores by some groups for ‘investment in health’ typically reflect low levels of infrastructure and public investment in these countries - rather than an indicator of concern unique to organic cotton farmers.

- **Economic investment (including lack of prefinancing) is the biggest concern for organic cotton farmers;** especially when it comes to ownership and investment in value adding operations, certification, trade and crop diversification. Once again, these issues will in-part be deeply rooted in broader economic problems associated with life in developing countries.

**Expanding Sustainability Indicators to include other sustainable cotton initiatives...** Textile Exchange has now joined forces with a number of key organisations working to improve the sustainability of cotton production. The collaborative working group includes: Helvetas, Fairtrade US, Cotton Made in Africa, Better Cotton Initiative, CottonConnect and Textile Exchange. As a collaborative group of organisations we are in the early stages of designing and harmonising our Key Performance Indicators to be applied across all initiatives.
RESOURCE 3: COLLABORATION FOR GOOD

There are a growing number of agencies and organisations working to improve the sustainability of cotton production. Textile Exchange believes these initiatives should be seen as part of a collective and holistic ‘collaboration for good’ shifting the sector in the right direction. Whilst we at Textile Exchange see organic agriculture - particularly when coupled with fair trading principles - as the pinnacle of best practice when it comes to producing a ‘triple-bottom line’ (people, planet, profit) cotton product, we fully support and encourage all other organisations working to improve practices and build the knowledge-base to make the transition to organic. Textile Exchange is finding ways to work even more collaboratively with other organisations where synergies are strong. We believe that through strategic partnerships we can find ways to improve our impact: improve efficiencies; reduce confusion in the field and the marketplace; and ultimately maximise the benefits for cotton growers.

Below is a list of organisations working to improve the lives and environmental impact of cotton (alongside Textile Exchange). There are others and we encourage you to find out who they are, where they are, or contact us and we will help you on your path of discovery.

<table>
<thead>
<tr>
<th>ORGANISATION</th>
<th>COUNTRIES INVOLVED</th>
<th>PRIMARY FOCUS</th>
<th>WEBSITE</th>
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</thead>
<tbody>
<tr>
<td>Better Cotton Initiative</td>
<td>Brazil, India, Mali and Pakistan</td>
<td>BCI aim to make global cotton production better for the people who produce it, better for the environment and better for the sector’s future.</td>
<td><a href="http://www.bettercotton.org/">http://www.bettercotton.org/</a></td>
</tr>
<tr>
<td>Cotton Connect</td>
<td>India</td>
<td>To help retailers work sustainability through their cotton supply chain.</td>
<td><a href="http://www.cottonconnect.org/">http://www.cottonconnect.org/</a></td>
</tr>
<tr>
<td>IFOAM</td>
<td>Worldwide</td>
<td>The worldwide adoption of ecologically, socially and economically sound systems that are based on the principles of Organic Agriculture.</td>
<td><a href="http://www.ifoam.org">http://www.ifoam.org</a></td>
</tr>
<tr>
<td>Helvetas</td>
<td>Burkina Faso, Benin, Kyrgyzstan, Tajikistan.</td>
<td>Actively contribute to improving the living conditions of people disadvantaged economically, socially and politically, within the framework of human rights. Helvetas focuses its development interventions in rural and semi-</td>
<td><a href="http://www.helvetas.ch/wEnglish/index.asp">http://www.helvetas.ch/wEnglish/index.asp</a></td>
</tr>
<tr>
<td>ORGANISATION</td>
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<tr>
<td>ICCO</td>
<td>Worldwide</td>
<td>Supports projects that contribute to one of our three main programmes. 1) Basic social services. 2) Economic Development. 3) Working on democracy and peace.</td>
<td><a href="http://www.icco.nl/en/">http://www.icco.nl/en/</a></td>
</tr>
<tr>
<td>Solidaridad</td>
<td>Zambia, Benin, Senegal, India, Peru, China</td>
<td>To combat structural poverty and to promote peace and justice. A mission that sustainable economic development can go a long way towards fulfilling.</td>
<td><a href="http://www.solidaridadnetwork.org/">http://www.solidaridadnetwork.org/</a></td>
</tr>
<tr>
<td>Oikos</td>
<td>Zambia</td>
<td>Establish one organic movement and strengthen the organic voice in the Norwegian landscape of politics, economics and social life.</td>
<td><a href="http://www.oikos.no/">http://www.oikos.no/</a></td>
</tr>
</tbody>
</table>
RESOURCE 4:
FURTHER READING

Environmental Justice Foundation: White Gold - The True Cost of Cotton and The Deadly Chemicals in Cotton


Greenpeace: Picking Cotton; The choice between organic and genetically-engineered cotton for farmers in South India. GRL-TN 03/2010

IIED (Michel Pimbert): Towards food sovereignty; reclaiming autonomous food systems. 2010

IAASTD (International Assessment of Agricultural Knowledge, Science and Technology for Development): Agriculture at a Crossroads; Synthesis Report, 2009


Pesticide Action Network (UK). Organic cotton systems reduce poverty and food insecurity for African farm families, 2009


Pesticide Action Network (Germany). Organic Cotton empowering women By Jutta Hammer, in cooperation with Alexandra Baier, 2005


OTHER RESOURCES

Global Organic Community Platform; a shared online platform (hosted by Helvetas) offering organic cotton producers and stakeholders the opportunity to share and discuss topical issues for the sector. Join us now: http://www.organiccotton.org/
RESOURCE 5: TEXTILE EXCHANGE REPORTS & RESOURCES

Annual Farm & Fiber Report; An overview of global organic cotton fiber production, highlighting regional and country profiles, production, trends, and forecasts

Annual Market Report; An overview of organic cotton market growth, highlighting the biggest consumers, global organic cotton market demand, including trends and growth accelerators

Assessing Sustainability; A closer look at sustainable development in organic cotton farming using Key Performance Indicators (KPIs) Baseline Study 2009 and Follow-up Report 2010

A Snapshot of Crop Diversification in Organic Cotton Farms, Report 2010

Case studies of Best Practice Business Models; Portfolio of Case Studies featuring successful companies and organisations that promote strong ethical strategies, 2010 and ongoing

Engage; our Farm Engagement Monthly Bulletin available online or join our mailing list to receive by email

Farm Resource Directory; As interactive database of organisations and organic cotton stakeholders including producer groups, certifiers, financial providers, etc.

Farmer Toolkit; Compilation of Best Practice farm resources

Learning Journey; take our online learning journey and discover more about the benefits of organic cotton

Making Informed Choices; series of small booklets covering priority issues for the textile industry including pesticides, GMO, fairtrade, climate change, and eco-fibers

Meet the Farmer; online farmer visibility map locating organic cotton producer groups; including profile and production information

TEXTILE EXCHANGE REPORTS / RESOURCES FOR 2011:


Organic Cotton Classification Handbook (2011)

Visit www.TextileExchange.org/FarmHub
Through the work of Textile Exchange, and funding from our key partner ICCO, we now positively affect the lives of over 275,000 organic cotton farmers worldwide. Conservative estimates show that each farmer in the Global South has responsibility for a household of five people. This means that TE programs have directly and positively impacted the lives of over 1.4 million people in developing countries.

TE’s methodology is unique and innovative in many respects, including:

- Textile Exchange takes a global approach to developing markets. This is particularly effective given the global nature of cotton production and consumption.

- We build demand and supply simultaneously. Engaging with farmers through to brand and retailers to help increase responsible fiber production and enable suppliers to create short- and long-term production schedules. Our efforts culminate in consumer education, highlighting farmers and farming innovations, beautiful yarns and fabrics, and highly desirable products.

- Textile Exchange is unique in that we focus on the entire value chain, from seed procurement through to retail. We provide models and tools for collaborative planning, problem solving, product development, and point of purchase materials.