Photo: F. Bachmann

Impact Assessment - Organic Cotton in Jalalabad Oblast, Kyrgyzstan

January 2010

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in collaboration with

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Abbreviations

BCP	BioCotton Project
BioService	BioService Foundation
CDE	Centre for Development and Environment, University of Bern
FT	Fair trade
FU	Farmer Union
OF / CF	Organic farmers / conventional farmers
VBI	Village bio inspector

Contents

I. EXECUTIVE SUMMARY

The impact assessment was conducted in Jalalabad Oblast, Southern Kyrgyzstan between June and October 2009. The comparative study covers small scale farmers in seven villages in three different production zones. A sample of 44 certified organic farmers and 33 conventional farmers was interviewed. Additionally, focus group discussions and a validation workshop with representatives of different stakeholder groups were held. The main objective of the study was to assess the economic, social and environmental impacts of organic cotton production in Jalalabad Oblast.

Characteristics of farm households and production system
In 2008, conventional farmers cultivated 0.52 ha of cotton on average. This value is lower for organic cotton (0.44 ha) as a result of crop rotation, a requirement in organic farming which is met by all organic farmers. In organic farming soil fertility is managed by the use of manure (100% of organic farmers) and compost (73% of organic farmers), while conventional farmers use mineral fertilisers and manure.

Cotton is the most important cash crop for the majority of the interviewed farmers. However, quite a number of conventional farmers have stopped cultivating cotton in 2007 or 2008 due to an unfavourable development of input costs and cotton price, and because the cultivation of wheat was strongly promoted and supported in the course of the global food crisis.

Only few households fully depend on farming (5 organic, 1 conventional). For both production types the average household income consists of 53% income from farming activities (organic farmers having a higher share of income from livestock while conventional farmers from cotton), and 47% of income from off-farm activities such as salaries, pension, own businesses and remittances.

Organic farmers' motivation
Certified organic farmers are proud of being organic and in general assess their decision to convert positively. Their main reasons for conversion were economic reasons such as higher price for organic cotton, lower costs for inputs, the marketing support provided by the project and the easier access to credits and pre-financing.

Impacts of organic farming
The approach selected for this study (rapid assessment by questionnaire) does not allow a detailed quantitative assessment of economic impacts of organic farming, as many farmers do not have records on what they spend on inputs for different crops, the amount of labour or the revenue they get from specific crops. More detailed quantitative data is expected to result from the comparative analysis initiated by the BioCotton Project in June 2009.

Nevertheless, the quantitative data presented here shows a trend towards a positive economic impact which is strongly backed up by qualitative data showing that organic farmers clearly perceive an economic benefit from organic cotton. The main factors are the higher price paid for organic cotton, the additional benefits such as the cotton oil and animal feed (cake), and lower production costs as less external inputs are required. The majority of respondents use part of the 'extra money' earned with organic cotton for food consumption, which is supposed to result in an improved nutritional status.

The majority of organic farmers observe increasing cotton yields after an initial decrease during the first two years of conversion, which they understand as a result of using manure, crop rotation, and the related improvement of soils. 95% of organic farmers reported an improvement of soil fertility and 88% better water holding capacity of soils compared to before conversion.

A positive impact of organic farming on soil quality and water holding capacity is reported by a huge majority of organic farmers, while at the same time conventional farmers complain about deteriorating soil quality.

The workload of organic farmers is higher as organic farming requires more manual work, e.g. applying manure, weeding, etc. In general, manual work is women's work. Thus, women more strongly perceive increasing workload since conversion to organic farming. This development is aggravated by widespread male labour migration which also results in more work and responsibility for women, both for organic and conventional farmers. 64% of female respondents face increasing workload compared to some years ago.

Improvement of health is the second most important positive change reported by organic farmers and is widely explained with not using chemicals and consuming clean organic cotton oil and organic food in general.

The BioCotton project has a positive influence on cooperation among farmers (not only between organic farmers) and strengthens the sense of community.

Access to credits, markets and services

The official governmental side provides very little support to farmers. Joining the organic cotton project thus is a way to get access to support services (seed provision, training, marketing, etc.) as well as to credits. 84% of organic farmers have access to credits if needed, compared to 58% of conventional farmers. The micro-finance institute *Agrokreditplus*, with which BioCotton Project collaborates, provides credits for agricultural activities on the basis of social collateral. This implies credits on good terms and little paperwork. The majority of all credits taken by organic farmers in 2008 was used for agricultural activities, while conventional farmers tend to use more credits for off-farm activities. The easy access to credits is a major reason why organic farmers are able to increase their number of livestock, as they are much less forced to sell animals in times of urgent need of cash - in contrast to conventional farmers, who usually have to sell livestock in emergencies.

Market access for selling cotton has improved in the view of 78% of organic farmers as a result of the BioCotton project which organises collection of organic cotton from the villages and delivering to the ginnery as well as marketing and export.

82% of organic farmers perceive that their access to support services (training, extension, etc.) has improved compared to the time before conversion, while a big number of conventional farmers hardly have access to any support services.

Institutional sustainability

The two newly built organisations BioService and Farmer Union which are supposed to maintain and further develop the organic (cotton) commodity chain after the phasing out of the bio cotton project are not yet self-financing. Donor support will be necessary beyond the initially planned year 2010, also because of a shift of strategy from growth to consolidation decided upon in spring 2009.

BioService generally is in a position to fulfil its tasks and provide the necessary services. The Farmer Union however, is little known by its basis, the organic farmers.

II. INTRODUCTION

This impact assessment study was planned and conducted in 2009 by Felicitas Bachmann (CDE) in collaboration with Alisher Amanbaev (TES Centre, Osh) and his team.

1 Context

1.1 Cotton production in Kyrgyzstan

Cotton growing has a long tradition in southern Kyrgyzstan and for a long time it was one of the main cash crops in the region. After the collapse of the Soviet Union in 1992, the area used for cotton fell by over 70%; living standards and the level of employment have dropped accordingly (BCP Flyer 2004).

1.2 BioCotton Project

The project started in 2004 with 58 farmers producing organic cotton in conversion. In the following years growth rates regarding number of contracted farmers and surface area of organic production were impressive, but slowed down since 2008. In 2009, the number of organic farmers as well as the surface area of organic cotton decreased.

	Total organic land (ha)	Organic cotton (ha)	Total number of organic farmers	Certified organic farmers
2006	372	144	446	?
2007	747	263	648	?
2008	1103	442	845	247
2009	1198	312	765	420

Source: compiled from ICS

In spring 2009, the steering committee decided to switch the project strategy from growth to consolidation, i.e. not actively recruiting new farmers anymore and only accepting those who are wiling to join without a prime on the first year cotton in conversion.

Farmer groups

The currently 765 organic farmers are organised in 71 farmer groups with 5-25 members each. Farmer groups have the following functions:

- self-control regarding compliance with rules regarding organic farming;
- social collateral for credits (from *Agrokreditplus*) with mutual liability;
- joint delivering of cotton;
- information dissemination, experience exchange and learning from each other;
- saving fund for internal loans;
- Each group is represented by 1 farmer in the general assembly of the Farmer Union.

1.3 Decrease in conventional cotton production

Currently, the production of conventional cotton is decreasing, as quite a number of farmers have stopped producing cotton in 2007 or 2008, some even before. Reasons for this are the unfavourable development of input costs and cotton price on international markets, and the promotion of cultivation of wheat and other cereals by the government and the World Bank in the course of the international food crisis. Whether this trend will be reversed, will last for longer or will even increase is not foreseeable at the moment and depends on many different factors.

So far organic cotton production is only little affected by this trend, although some organic farmers also have stopped producing cotton or reduced the surface area under cotton. The

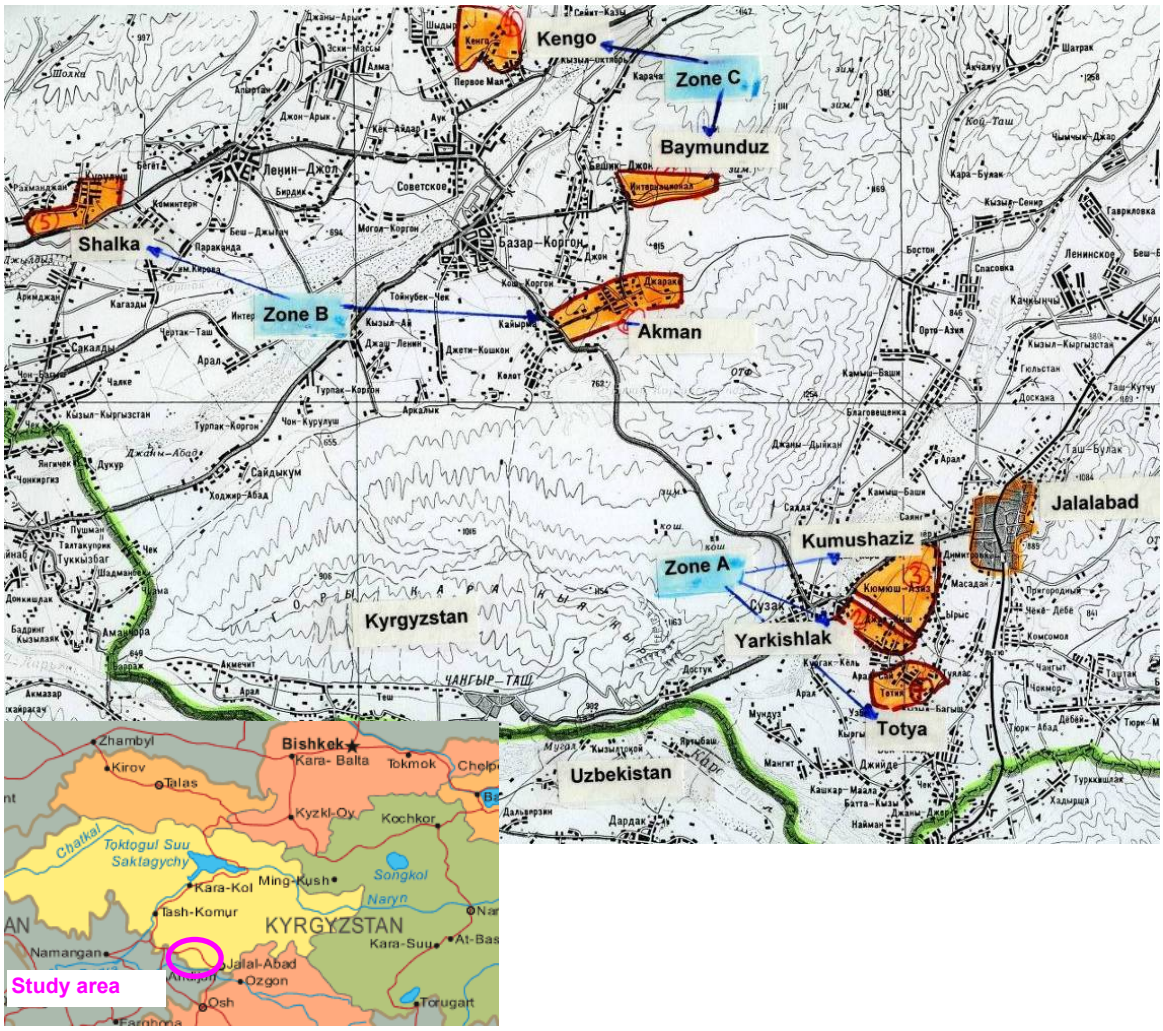
lower quantity of conventional cotton currently results in a quite favourable price as factories need to have a certain volume to be able to produce. On the other hand, costs for cotton processing at ginneries are increasing.

Currently it is difficult to say, how exactly this development influences the organic cotton sector. But as organic cotton is closely linked to the conventional sector, it will not be unaffected.

1.4 Study area

The study covers three regions (rayon), **Suzak**, **Bazar-Korgon** and **Nooken** Rayon in **Jalalabad Oblast**. The map shows the location of the 7 villages, where interviews were conducted and indicates the respective production zone (for details see 1.5).

Figure 1: Map of the study area



During the pre-study conducted by Alisher Amanbaev (TES Centre Osh), a characterisation of the study area, as well as a typology of farm households was made in collaboration with BioService staff. The most important results are presented in the following.

1.5 Production zones and farm typology

Each of the three Rayon - **Suzak**, **Bazar Korgon** and **Nooken** - , includes 'intensive areas' where cotton production used to be and still is very important, and 'mountainous areas', where cotton was and is less important. These areas are briefly characterised as follows:

Intensive areas	**Mountainous areas**
• plain • more pests • soil quality is medium • better access to agro-machinery, mineral fertilizers, agro-chemicals (herbicides and pesticides) • More opportunities for off-farm income • bordering zone with Uzbekistan	• hilly area • remoteness from center and infrastructure • high soil fertility • usage of organic fertilizers well known (traditionally) • technically less equipped (lack of agro-machinery) • highly dependent on agriculture • higher crop diversification

BCP considers mountainous areas to be favourable as a project intervention zone due to good soil fertility and farmers being experienced in the use of organic fertiliser.

1.5.1 Three distinctive production zones

The project area can be differentiated into three distinctive production zones, all of which are included in the study.

Production zone A (intensive)

This zone comprises of the **intensive areas** of **Suzak rayon**, where 90% of farmers produce cotton. Vegetable and rice growing is also very well developed. The majority of farmers belong to the Uzbek ethnic group; many refuse taking credits for religious reasons and values.

Besides the general characteristics of intensive areas (see above) the following applies:

- Traditional cotton production area
- Close to center and main markets
- Vegetable and rice growing is well developed
- The majority are ethnic Uzbek
- Due to religious values, farmers partly refuse to take credits
- Small plots (0.07ha per family member[1])

Production zone B (intensive)

This zone includes the **intensive areas** of **Bazar Korgon** and **Nooken,** i.e. traditional cotton growing areas. Remoteness from Jalalabad and good access to ginneries is typical for this zone. Bordering with Uzbekistan implies easy access to cheap inputs (fertilizers) and good opportunities for small businesses.

Besides the general characteristics of intensive areas (see above) the following applies:

- Traditional cotton production area
- Distance to the oblast center is bigger than in Zone A
- High number of ginneries
- Bigger land plots compared to zone A (0.15 – 0.20 ha per family member)

[1] This is the amount of land allocated during the agricultural land reform 1992-94. The former Kolkhoz land has been distributed among local farmer families according to the number of family members born till 1994. In Southern Kyrgyzstan, where Kolkozh used to have smaller land funds, farmers got smaller plots than in Northern Kyrgyzstan.

Production zone C (mountainous)
The zone covers the **mountainous areas** of **Bazar Korgon** and **Nooken.** Cotton production is less important here because the access to markets, ginneries and inputs is worse. Zone C is outside the traditional cotton growing area. Livestock economy is more prominent.

Besides the general characteristics of mountainous areas (see above) the following applies:

- higher crop diversity
- less opportunities for off-farm activities; highly dependent on agricultural income
- bigger land plots compared to zone A (0.15 – 0.20 ha per family member)
- Ethnic Kyrgyz majority
- no local market; poor access to markets

Table 1: Villages included in the study

		Total umber of project villages	Villages included in the study
Zone A	Suzak – intensive	5	Kumushaziz, Yarkishlak, Totya
Zone B	Bazar Korgon – intensive	4	Akman, Shalka
	Nooken – intensive	5	
Zone C	Bazar Korgon – mountainous	4	Baymunduz, Kengo
	Nooken – mountainous	5	

1.5.2 Farm types in the different production zones

In all three zones minor structural differences exist between organic and conventional farms. Main differences between production zones concern land size, crops, access to irrigation, importance of livestock economy, ethnic group, and the role of women in farm management.

Table 2: Farm types according to production zone

Farm type	Farm size	Main crops	Irrigation	Livestock	Gender	Ethnic group
Zone A – Suzak intensive						
Organic	Small land holdings Predominantly irrigated land	Grains (wheat, maize); vegetable production Crop rotation	Location close to main channel; no big problems High groundwater level	High numbers of livestock	Men more active in farm management	Uzbek
Conventional		Rice; grains (wheat, maize); vegetable production; some cotton seed production		Less animals than other types; mainly fattening due to lack of pasture		
Zone B – Bazar Korgon intensive						
Organic	Bigger land size; equal distribution irrigated – non-irrigated; land renting common	Cotton traditionally dominant (mono-crop); vegetable production becoming more developed Organic: Crop rotation	In summer difficulties in irrigating	Well developed animal breeding Closely located to pastures	Equality between sexes in farm management	Kyrgyz majority
Conventional						
Zone B - Nooken intensive						
Organic	Biggest land size Land renting less common	Cotton traditionally dominant (mono-crop); early crops and watermelon becoming more developed Organic: Crop rotation	Bad access to irrigation Using wells for irrigation	Developed animal breeding for milk production	Women more active in farm management	Kyrgyz
Conventional	Biggest land size Land renting very common					
Zone C - Bazar Korgon mountainous						
Organic	Bigger land sizes	Grains and oil plants; advanced gardening and haymaking; forest utilization Organic: Crop rotation	Good access to irrigation water	Livestock economy dominant	Equality between sexes in farm management	Kyrgyz majority
Conventional						

2 Objectives, approach and methods

2.1 Objectives

The purpose of the impact assessment is to capture and analyse the impact of the BCP implemented by Helvetas in Jalalabat oblast of Kyrgyzstan in order to establish evidence on the effects of the project (accountability), and to extract lessons learnt for future project steering and design of new projects (organisational learning).

The main objective of the impact assessment is to establish and analyse the project's **impact on the livelihoods of the involved farmers**. This includes:

a) the economic impact for the farm households of producing organic cotton and rotation crops;

b) the social impact of the project;

c) perceptions on the environmental and health impact.

2.2 Approach

The impact assessment is based on a comparison between organic and conventional farms. The impact is established in two ways (Figure 2):

1) comparison of certified organic farmers with a control group of conventional farms (system comparison);

2) comparison of the organic farmers' situation before project start and the actual situation, set against the general development of the situation of the control group.

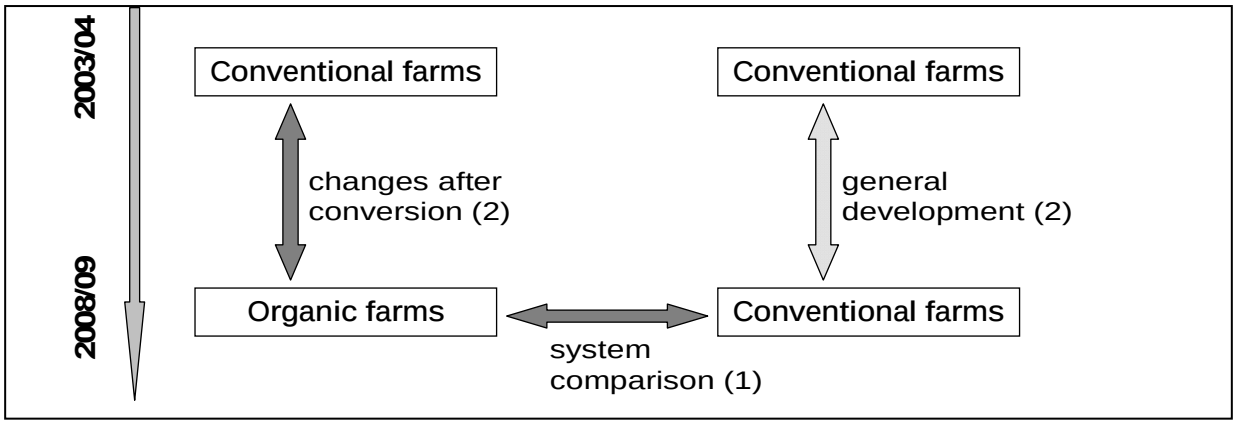


Figure 2: Establishing the impact of conversion to organic farming by (1) comparing the actual situation of organic and conventional farms and (2) comparing the changes since conversion with the general development.

The impact assessment considers quantitative aspects (agronomic and household data) as well as qualitative aspects (perceptions, attitudes, opinions).

The following methods were applied: questionnaire based interviews with a representative sample of certified organic farmers and a control group of conventional farmers; focus group discussions with different stakeholder groups as well as a validation workshop with representatives of different stakeholder groups.

2.3 Methods

2.3.1 Individual interviews

2.3.1.1 Questionnaire and interviews

Two different versions of a questionnaire were developed, one for organic and the other for conventional farmers; the questions are partly the same. After pre-testing with 3 organic and 3 conventional farmers, the questionnaires have been revised and improved. The interviews took approximately 45-90 minutes for organic and 30-60 minutes for conventional farmers. Where possible, the farm manager himself / herself was interviewed, or alternatively his wife (no case occurred where the respondent was the husband of a farm manager).

2.3.1.2 Selection of villages

During the pre-study, a detailed description and characterisation of the production zones was made and villages categorised accordingly. This served as a basis for selecting villages to be covered by the study.

Only organic farmers already being certified organic in 2008 were considered, as the production related information in the questionnaire covers the production year 2008, and a comparison between organic farmers and conventional farmers should be made, i.e. excluding in conversion farmers. The total number of organic farmers meeting this condition was 247.

The following criteria were used to select the villages to be included in the study:

1. The village has to be involved in the project for not less than 3 years → 18 villages
2. Exclusion of all villages, where 100% of farmers are involved in the project as no comparison group would be available. → 14 villages remaining
3. Sufficient number of bio farmers that produced certified organic in 2008. As the plan was to conduct at least 6 interviews per village, we selected those villages having the most certified bio farmers. This applied to exactly 6 villages having 7 - 14 certified bio farmers.
4. Finally, we found that the different production zones were equally represented by the selected six villages.

In the course of field work however, it became necessary to include an additional village, as the minimal required number of respondents was not met in several villages (see also 2.1.3).

Table 3: Interviews per village

Village	**No. of interviews per zone**	**No. of interviews**	
		organic	**conventional**
Kumushaziz	**Zone A**	5	4
Yarkishlak	organic: 14 / conventional: 11	6	4
Totya		3	3
Akman	**Zone B**	8	8
Shalka	organic: 14 / conventional: 14	6	6
Kengo	**Zone C**	8	0
Baymunduz	organic: 16 / conventional: 8	8	8
Total	**77**	**44 (=57%)**	**33 (=43%)**

2.3.1.3 Sampling

In the case of **organic farmers**, the ICS (internal control system) of BioCotton Project was used to retrieve for each of the selected villages a list with the names of all farmers who produced certified organic cotton in 2008. The lists contained 6 - 14 names per village. In villages with a higher number of certified bio farmers it was planned to conduct 8 interviews,

and 6 in the other three villages. **Random sampling** was applied, using a list of random numbers (created by www.random.org) to identify potential interviewees from the farmers list. In 2 villages the sample was identical with the total number of available certified bio farmers.

As the compilation of complete lists of **conventional farmers** of the selected villages was not feasible before field work started (little time, partly too large villages), it was planned to use pair wise sampling by asking interviewed bio farmers to identify 2 or 3 conventional farmers producing under comparable conditions (land size, area under cotton). However, when starting field work we found that it was very difficult to find conventional farmers for comparison because 1) quite a number of conventional farmers have stopped producing cotton in 2007 or 2008, in some cases even before; and 2) it is very difficult to find farmers if you can not make an appointment beforehand (farming activities in the fields, off-farm activities, labour migration, etc.).

Given this unforeseen problem and limited time available, we decided to be pragmatic and make a so-called **convenient sampling**[2], i.e. we interviewed those conventional farmers that we found, who have been cultivating cotton in 2008 (or at least in 2007), and who were willing to be interviewed.

2.3.1.4 Problems encountered

The following problems had to be dealt with:

- **Lack of conventional farmers**: this was surely the biggest problem we had to deal with, to find enough conventional farmers as a comparison group. It happened that in the last village to be interviewed all conventional farmers had stopped producing cotton already some years ago! That means there is no comparison group at all.
- **Different sample size for bio and conventional farmers**: mainly due to the fact that from the last village we have no comparison group (see above), the sample size for organic and conventional farmers varies considerably: 44 organic farmers and 33 conventional farmers.
- **Errors in lists of organic farmers**: a few errors were found in the lists of organic farmers, i.e. in two cases farmers were not yet certified and therefore had to be excluded. One person was found twice on the list and in yet another case, a certified farmer was not on the list.
- **Farmers stop producing cotton**: not all interviewed farmers produced cotton in 2008; some had stopped (mainly in zone A and B villages). But as no alternative interviewees were available we decided to still interview them. Therefore, in the case of 4 organic and 7 conventional farmers, production related numbers refer to 2007.
- **Include additional village**: in several small villages it was not possible to interview all people from the list. So we decided to include an additional village into the study in order to increase the total number of interviews and to have more equilibrated representation of the different production zones.

2.3.1.5 Statistical analysis of questionnaire data

The analysis of the interview data mainly focuses on a comparison between organic and conventional farmers. Regarding most of the questions, **sex disaggregated analysis is not viable,** as the **number of female farm mangers** within the organic and conventional samples (5 organic, 6 conventional female farm managers) is **too small**. On this basis no relevant statements can be made:

[2] **Convenience sampling** (sometimes known as **grab** or **opportunity sampling**) is a type of nonprobability sampling which involves the sample being drawn from that part of the population which is close to hand. That is, a sample population selected because it is readily available and convenient. The researcher using such a sample cannot scientifically make generalizations about the total population from this sample because it would not be representative enough. (http://en.wikipedia.org/wiki/Sampling_(statistics)#Convenience_sampling)

- Most analysis only makes sense if comparing organic against conventional farmers. The samples are too small to make sex disaggregated analysis.
- Although we have quite a number of female respondents (11 organic, 12 conventional), for most questions a comparison between male and female farm mangers (not respondents) would be necessary to attain a relevant result.

The only exception is the perception of changes regarding workload (see 5.4.3), as for this issue the sex of the respondent is more relevant than the sex of the farm manager.

2.3.2 Focus group and stakeholder discussions

During the 1st field visit (June 2009) discussions were held with the following stakeholders:

- Discussion and SWOT analysis with two representatives (manager and production manager) of the **BioService Foundation**.
- Discussion with representatives of the **BioCotton Project team** (project manager and his assistant).

During the 2nd field visit (September/October 2009), focus group discussions were held with:

- **Farmer groups**: 3 discussions in Baymunduz (29.9.09; 5 men, 2 women), Akman (29.9.09; 4 men, 5 women) and Kumushaziz (1.10.09; 5 women)
- **Village bio inspectors**: 2 discussions held at Helvetas office Jalalabad, with bio inspectors of Bazar-Korgon and Suzak (1.10.09; 7 men), and Nooken (2.10.09; 9 men, 1 woman)
- **Board members of the Farmer Union**: discussion held at Helvetas office Jalalabad (2.10.09; 5 men, 1 woman)

These discussions were very useful and valuable to a) verify and explain results from the analysis of the questionnaires, b) address issues, which can hardly be covered by a questionnaire. However, fewer people than expected and (sometimes not fully those targeted) participated in discussions held in the villages. This might be due to the fact that discussions have been organised on very short notice. Also, a certain 'tiredness of participation' was felt.

2.3.3 Validation workshop with representatives of different stakeholders

On October 6, a final workshop was held at Helvetas office in Jalalabad with representatives of different stakeholder groups: BCP project staff, BioService Foundation, Board of Farmer Union, village bio inspectors, farmers and a representative of the Department of Agriculture.

The main objective of the workshop was sharing and discussing the preliminary results of the study with different stakeholders in order to verify and validate.

III. RESULTS

3 Characteristics of interviewed farmers

The following is a compilation of the characteristics of interviewed organic and conventional farmers.

3.1 Socio-economic characteristics

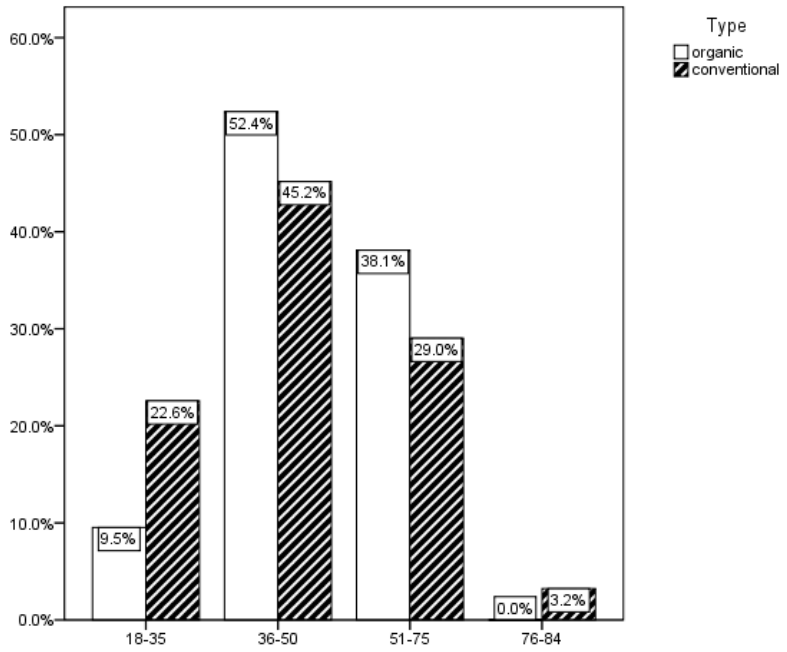
3.1.1 Ethnic group

In the zone A villages except from one respondent all are Uzbek, while in zone B and C villages all are Kyrgyz. Person Chi-Square test showed no significant association between ethnic group and production type.

Zone	Ethnic group		
	Kyrgyz	Uzbek	Turk
A	--	96%	4%
B	100%	--	--
C	100%	--	--

3.1.2 Age

Figure 3: Age of farm manager



Age farm manager	Mean
Organic	49
Conventional	46

90% of organic farmer managers are between 36 and 75 years old. A stronger representation of conventional farm managers is found in the youngest and oldest age categories.

Mean age for organic farmers was 49, whereas for conventional farmers 46. T-test showed that this mean difference was not statistically significant.

3.1.3 Sex

In both production types the majority of **farm managers** are male, 89% in the case of organic and 82% in the case of conventional farmers. Contrary to the low percentage of female organic farm managers in our sample, currently about 25% of the organic farm managers in the

bio cotton project are female. The reason for the low percentage of female organic farm managers in the sample is, that all farmers in our sample conversed to organic farming in the years 2004-06, which was at the beginning of the project, when mostly men joined. Several focus group discussions confirmed that if something new comes, it's usually the men who first get into touch with it, who show interest and experiment. When 'approved' by men, women more easily can join too.

The number of female farm managers in the sample was too small to make a meaningful sex disaggregated analysis.

Regarding the sex of **respondents**, 75% of organic and 64% of conventional respondents were male.

Table 4: Sex of farm managers and sex of respondent

		organic			conventional		
		female	**male**	**total**	**female**	**male**	**total**
Total	**Farm manager**	5	39	44	6	27	33
	Respondent	11	33		12	21	
in %	**Farm manager**	11%	89%	57%	18%	82%	43%
	Respondent	25%	75%		36%	64%	

3.1.4 Educational level

There is a tendency, though not statistically significant, towards organic farmers having a higher educational level than conventional farmers.

Table 5: Educational level of respondent

	Primary	**Secondary**	**Vocational training**	**University**
Organic	--	41%	41%	19%
Conventional	7%	53%	33%	7%

Conventional farmers more frequently had a primary or secondary degree (60%), whereas more organic farmers had a vocational training or university degree (60%).

It has to be noted that the corresponding question was erroneously formulated in the questionnaire. As a result, the educational level of the respondent (instead of the farm manager) was determined, i.e. in 12 cases (6 organic and 6 conventional) the data includes the educational level of the wife instead of the farm manager himself. However, it is doubtful whether it would make a big difference, if the question would have been asked correctly.

3.1.5 Family size

The big majority of households consist of 5-8 people. Not included in these numbers are family members who are absent for the most part of the year (e.g. permanent job abroad).

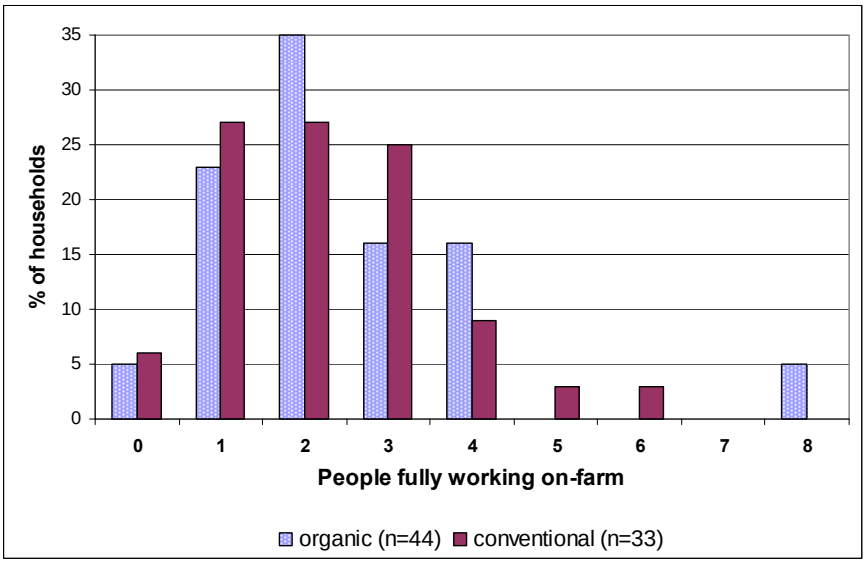
On average, slightly more people live on conventional farms compared to organic farms.

Table 6: Number of people living in the family

No. of people living in the family	**1-4**	**5-8**	**9-12**	**Mean**
Organic	23%	68%	9%	**6.25**
Conventional	9%	73%	18%	**6.82**

3.1.6 Labour force working on farm

Figure 4: Number of (adult) people fully working on-farm



- In both production types, about ¾ of the households have 1-3 adults (>=16 years) fully working on-farm.
- In about 5% of all interviewed farms no one is fully working on-farm.
- On 1/3 of all farms no man is fully working on-farm.

On average, **more women than men are fully working on-farm**, both, on organic and conventional farms. Organic farms tend to have a slightly higher number of adult people fully working on-farm, as can be seen from the following numbers (mean):

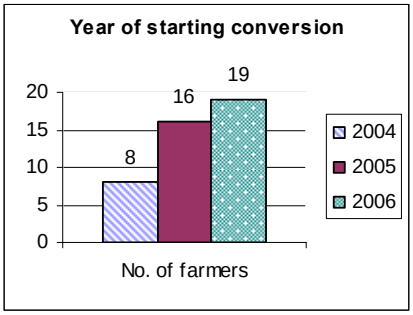
People fully working on-farm	**Mean**	
	men	**women**
Organic	1.09	1.41
Conventional	1.06	1.21

3.2 Production related characteristics

3.2.1 Conversion to organic farming

All interviewed organic farmers started conversion between 2004 and 2006.

Figure 5: Year of conversion to organic farming

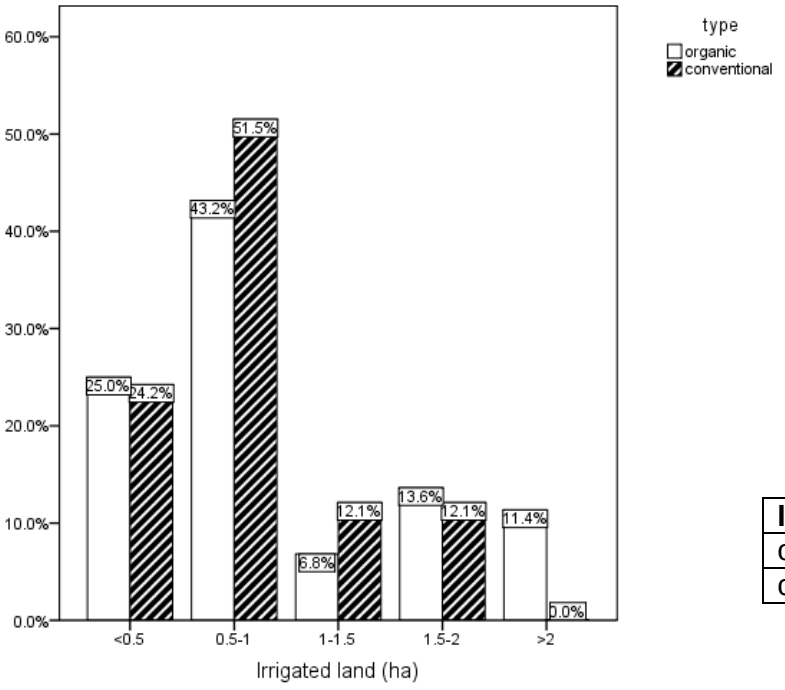


3.2.2 Land size

In Jalalabad region, irrigation is crucial; cotton and many other crops are only cultivated on irrigated land. Irrigated land is very intensively used while non-irrigated land, especially if it is small, is little used or even abandoned.

Irrigated land

Figure 6: Size of irrigated land (ha)



Irrigated land	Mean
organic	1.07 ha
conventional	0.84 ha

The majority of organic (68%) and conventional farmers (76%) have between 0.1 and 1 ha of irrigated land at disposal (including rented land). On average, organic farmers have more irrigated land than conventional farmers. However, this is not statistically significant.

The majority of organic farmers (61%) use the allowed maximum, i.e. half of their land, for cotton production. The majority of conventional farmers (60%) use more than 50% of their

irrigated land for cotton production, and 1/3 even has no diversification at all, using 100% for cotton.

Table 7: Percentage of irrigated land used for cotton

	Percentage of irrigated land used for cotton				
	<50% of land	**50% of land**	**51-99% of land**	**100% of land**	
organic	39%	61%	--	--	n=44
conventional	24%	15%	27%	33%	n=33

Non-irrigated land

In total, 29 organic and 17 conventional farmer do have non-irrigated land. However, the majority, i.e. 59% of organic and 65% of conventional farmers do not make use of this land.

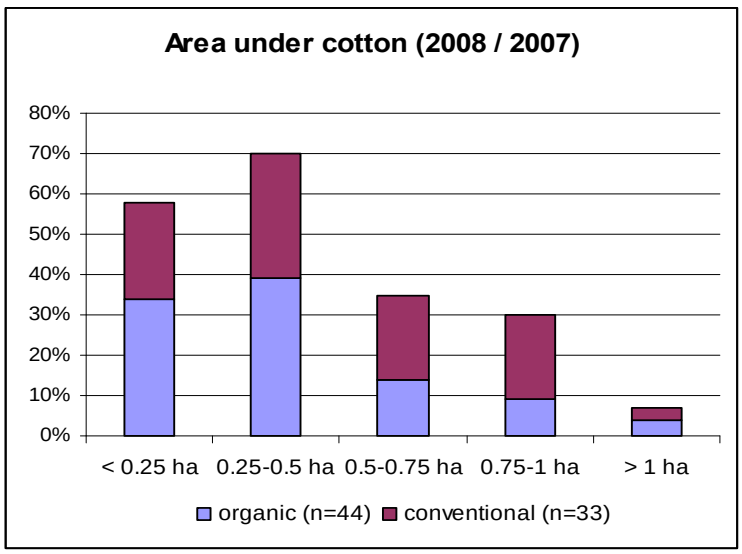
Non-irrigated land is usually located quite far from the villages, in hilly and remote areas. Some use it for cultivating sunflower or chick peas, but many farmers do not care for it. Usually, this land is left to people living near it in exchange for something. Discussing whether this land could be better developed, people agreed that it is impossible since the land is not very productive, too far away and no labour force available.

3.2.3 Area under cotton – past and current trends

In the past few years cotton production became less attractive due to an unfavourable development of market prices for (conventional) cotton and strongly rising input costs (fuel, fertiliser, agro-chemicals, etc.) Additionally, as a reaction to the global food crisis in 2008 wheat production was strongly pushed and subsidised. Therefore, cotton production in the region was, and still is shrinking. Some farmers (4 OF, 7 CF) in our sample didn't cultivate cotton in 2008; in these cases data refer to 2007.

The following figure shows the area under cotton - 2008 for those still producing cotton, and 2007 for those farmers who stopped cultivating cotton.

Figure 7: Area under cotton (ha) in 2008 /2007

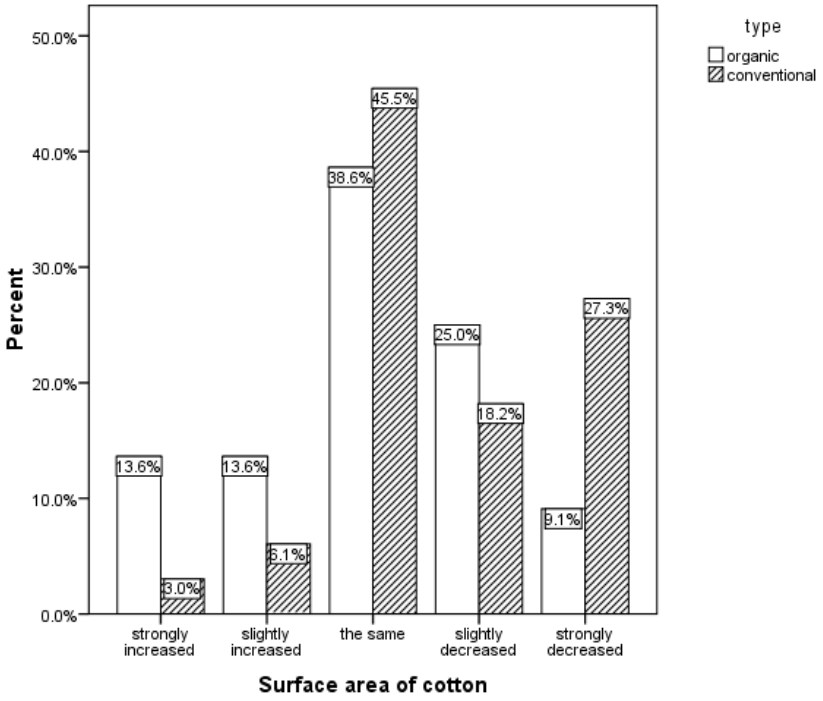


	Mean
organic	0.44 ha
conventional	0.52 ha

- In the study area, cotton production is small-scale; about 90% of all interviewed farmers cultivate less than 1 ha of cotton. Over 70% of the organic sample only cultivates up to 0.5 ha cotton, while in the conventional sample this share is 55%.
- Organic farmers tend to cultivate less cotton than conventional farmers, which is not surprising as they are obliged to practice crop rotation and are not allowed to cultivate more than 50% of their land with cotton.

In a time comparison people compared the surface area of their cotton production today and in the past, i.e. today and before conversion (for organic farmers), and today and 5 years ago (for conventional farmers).

Figure 8: Development of cotton growing area during the past years



Increase

- **Organic farmers (OF)**: of the 27% of organic farmers reporting an increase of cotton area, the majority did not produce any cotton before they joined the project.
- **Conventional farmers (CF)**: one farmer mentioned land renting.

Decrease

Over one third of the interviewed farmers (34% organic, 46% conventional) decreased their surface area under cotton in the course of the last few years; though, for different reasons.

- **Organic farmers (OF)**: decrease is mostly explained with the **introduction of crop rotation,** a condition for conversion to organic farming. Only in half of the cases with a strong decrease the reason given was **price decline**.
- **Conventional farmers (CF):** Over 40% of conventional farmers explain having reduced the area of cotton because of the **decreasing profitability**, which is an effect of the **price decline of cotton** on the world market and **increasing production costs** (fuel, fertilisers, agro-chemicals).

Discussion

The currently strong decrease of conventional cotton production was confirmed in focus group discussions and the validation workshop. Farmers explained that many conventional farmers stopped growing cotton, or just grow little for the sake of firewood[3]; others converted to organic farming because of the better price. There were controversial opinions over the question whether this trend could have negative effects on organic cotton, or whether the number of organic farmers will decrease also. In fact, there are organic farmers who stopped producing cotton but remain organic (our sample contains four such cases).

The study team directly experienced the consequences of this trend as difficulties to find enough conventional farmers as interview partners (21% of conventional respondents produced cotton for the last time in 2007; the lack of a conventional comparison group in one village because they all stopped producing cotton).

There are controversial opinions on whether conventional cotton is in a crisis, or whether the current situation found in Jalalabad region is just an expression of a more generalised crisis of commodity prices. What is clear is that the number of conventional farmers and the surface area of conventional cotton have been decreasing since around 2007. Reasons for this are the unfavourable development of input costs and cotton price on international markets, and the promotion of wheat and other cereals by the government and the World Bank in the course of the international food crisis. It is not clear though, what effects this has on organic cotton production in the region. Organic cotton is linked to conventional cotton regarding price development, and by using the same infrastructure (ginnery, transport facilities for export). Today, organic cotton is not confronted with a similar decline and it was said that organic cotton currently stabilises the cotton sector.

Cotton stalks are used to heat the tandoor for baking bread (Photos: F. Bachmann)

The situation found at the end of 2009 is, that wheat prices developed negatively in 2009, i.e. they decreased. As a result cotton production might again become more attractive in the eyes of many (conventional) farmers.

3.2.4 Crops

Among those cultivating cotton, cotton is the most important cash crop for organic and conventional farmers. In accordance with the production zone, a number of different (rotation) crops are cultivated besides cotton. Usually farmers also have kitchen gardens with different types of vegetables and fruits.

[3] cotton stalks are the favoured firewood for baking bread in tandoor stoves

The most important other crops are wheat, rice and sunflower for human consumption, and lucerne and maize as animal feed. All these crops are used to a large extent for own consumption, namely:

	% of all farmers fully use for home consumption
Wheat	64%
Rice	70%
Maize	77%
Lucerne	88%
Sunflower	80%

Very few farmers mentioned onion and potato as cash crops.

The following table shows the percentage of farmers in the three production zones, cultivating a certain crop, and the purpose (home consumption or cash crop) the crop is used for.

Table 8: Crops and their main purpose

Crops	**Zone A**		**Zone B**		**Zone C**	
	Organic farmers	**Conventional farmers**	**Organic farmers**	**Conventional farmers**	**Organic farmers**	**Conventional farmers**
Maize	**71%** fully hc	**18%** partly hc	**43%** partly hc	**21%** fully hc	**88%** mainly hc	**38%** mainly hc
Wheat	--	**18%** fully hc	**50%** partly hc	**29%** mainly hc	**6%** fully hc	**12%** fully hc
Rice	**50%** mainly hc	**27%** mainly hc	--	--	--	--
Lucerne	--	--	**29%** mainly hc	**7%** fully hc	**44%** fully hc	**63%** mainly hc
Sunflower	**21%** mainly hc	--	--	**7%** fully hc	**12%** partly hc	**50%** fully hc
Potatoe	--	--	--	--	**6%** fully cc	--
Onion	--	**18%** mainly cc	--	--	--	**12%** fully cc

hc = home consumption cc = cash crop

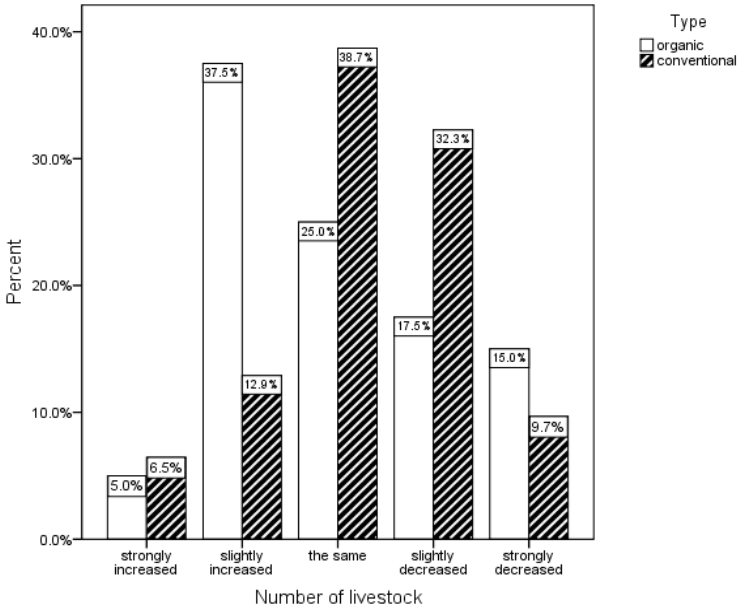
- In zone A, maize and rice are most important. Maize as animal feed is very important, especially for organic farmers, who have higher numbers of livestock and little land.
- In zone B, wheat and maize are most important, for organic farmers also lucerne.
- In zone C, where generally more livestock is kept, animal feed (maize and lucerne) is most important. Sunflower, which sometimes is cultivated on irrigated and sometimes on non-irrigated land is also quite important.

3.2.5 Livestock

As livestock is subject to taxes, we suspect the numbers people indicated during the interviews not to be precise or correct. However, they indicate that organic farmers keep more livestock – mainly sheep and goats, and poultry – than conventional farmers. This finding was confirmed in discussions.

The qualitative comparison of how livestock numbers developed over the past years shows **a tendency towards organic farmers increasing their livestock and conventional farmers decreasing it**.

Figure 9: Development of livestock owned (time comparison)



On total, 43 % of organic farmers and 19% of conventional experienced an increase in livestock during the past years, while 33% of organic and 42% of conventional farmers a decrease. Although no organic farmer explicitly mentioned it to be a reason for increasing livestock numbers, it is obvious that organic farmers need to keep enough livestock to get the necessary manure.

In focus group discussions it was confirmed that for organic farmers it is much easier than for conventional farmers to increase their livestock numbers for three **advantages organic farmers** have:

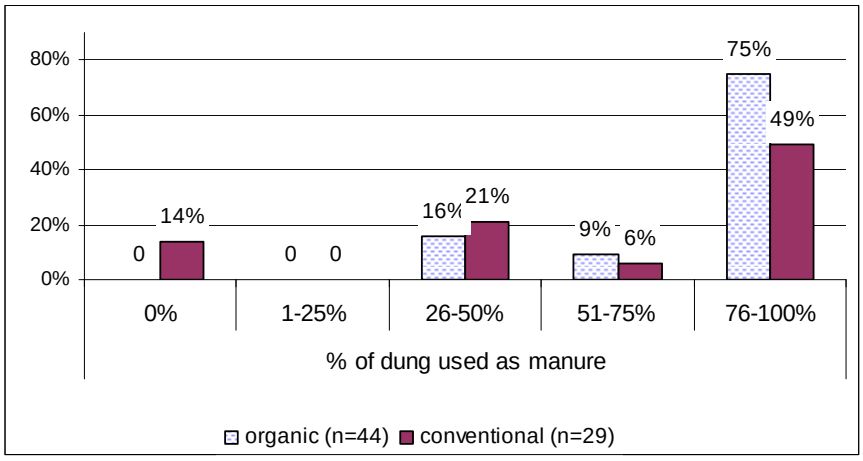
- Organic farmers get the **cake of pressed cotton seeds** without extra costs as valuable animal feed, while conventional farmers (partly) have to buy animal feed.
- Contrary to conventional farmers, organic farmers have much better access to credits and usually can **get loans in time**. As a result they feel less pressure to sell animals when they are in need of money, as conventional farmers usually have to.
- Agrokreditplus, a micro-credit institution collaborating with the Bio Botton Project, is providing **credit** to organic farmers **for buying livestock**.

The reasons mentioned during interviews for selling livestock are mainly the same for organic and conventional farmers: emergencies (e.g sickness) and social events (funerals and weddings).

3.2.6 Use of dung and compost

Use of dung: Both, organic and conventional farmers do use the dung of their livestock as manure and / or as fuel. **All organic farmers do use at least 50% of the available dung as manure**.

Figure 10: Percentage of dung used as manure



The big majority of organic farmers use dung mainly as manure. On average, organic farmers use 87% of dung for manure and 13% for fuel, while conventional farmers us 71% as manure and 29% as fuel.

There is no market for dung:

- **Buying**: dung is rarely bought, and if so, for a very low price if any (mostly only payment for transportation). Four farmers (3 organic, 1 conventional) bought dung in 2008 for manure and 1 organic farmer for fuel.
- **Selling**: none of the respondents sells dung.

Production of compost: A statistically significant difference is found between conventional and organic farmers in regard to compost production ($p<.001$[4], pearson chi-square test).

	Yes	**no**
Organic (n=44)	73%	27%
Conventional (n=33)	21%	79%

Organic farmers who don't produce compost explain as follows:

- No time / lack of labour force: 5
- No need (enough manure): 2
- Lack of space for compost pit: 2

Use of compost:

Table 9: Use of compost

	Compost is used:		
	only for cotton	**for cotton and other crops**	**only for other crops**
Organic (n=32)	55%	42%	3%
Conventional (n=7)	50%	25%	25%

[4] p= significance level, which means that the probability of error is less than 0.1%.

3.2.7 Crop rotation

Crop rotation is practised by 100% of organic farmers and 58% of conventional farmers.

	Yes	**no**
Organic (n=44)	100%	--
Conventional (n=33)	58%	42%

3.2.8 Pest management

In focus group discussions it was explained that crop rotation and the use of manure generally have a **positive influence on the occurrence and management of pests and diseases**, which results in reduced costs and workload for pest management in organic farming.

More and more conventional farmers also seem to get interested in methods of biological crop protection as they are much cheaper than pesticides.

3.2.9 Irrigation

Guiding questions: have irrigation practices changed since joining the project? Do organic farmers face difficulties with water allocation to their fields?

A precondition for organic production is to have access to clean water, i.e. water which is not flowing through fields of conventional farmers and which might therefore be polluted with agro-chemicals. Depending on where a farmer's fields are located, this can be a constraint to conversion to organic farming. The validation workshop confirmed that when looking for new farmers, bio inspectors especially choose farmers with good conditions regarding access to irrigation water.

During the past years, access to irrigation water was becoming a problem for about 33% of organic and 52 % of conventional farmers. Mainly mentioned were **climatic reasons** (i.e. water shortage in 2007 and 2008), but also **broken irrigation channels and infrastructure**, and to a minor degree the reported excessive use of water by rice growing farmers.

Few farmers (12% organic, 13% conventional) observed a positive change regarding access to irrigation water. In all cases it is due to new channels or the repair of broken infrastructure.

Broken infrastructure, besides drought the main problem regarding irrigation (Photo: F. Bachmann)

Irrigation practices and irrigation problems of organic farmers
As irrigation can be complicated for organic farmers since they are not allowed to use water coming from a field of a conventional farmer, organic farmers were asked about possible problems regarding irrigation.

Table 10: Irrigation problems of organic farmers

Organic farmers …								
Whose land is located at the ….. of irrigation channel			**Having problems in access to irrigation water**		**Facing problems with allocating water to their fields**		**Having changed irrigation practices**	
beginning	**middle**	**end**	**yes**	**no**	**yes**	**no**	**yes**	**no**
52%	36%	12%	51%	49%	19%	81%	40%	60%

- **Problems regarding the irrigation of organic farmers' fields are preponderantly not related to being in the neighbourhood with conventional farmers**. Although about 50% of organic farmers currently face problems in accessing irrigation water, only about 20% see the problem in the fact that they can not use water coming from conventional fields. The others face general problems of lack of water as already mentioned above.
- There is a **strong coincidence of farmers having their land at the end of an irrigation channel and those facing problems with water allocation to their fields**, i.e. not being able to use water coming from conventional fields. Though, some farmers having land at the middle are also affected by this problem, and others having land at the end do not have any problem.
- Most reported changes in irrigation practices are related to **using a mixture of (chicken) manure and water**, or to more careful and controlled irrigation (control pressure and amount of water).

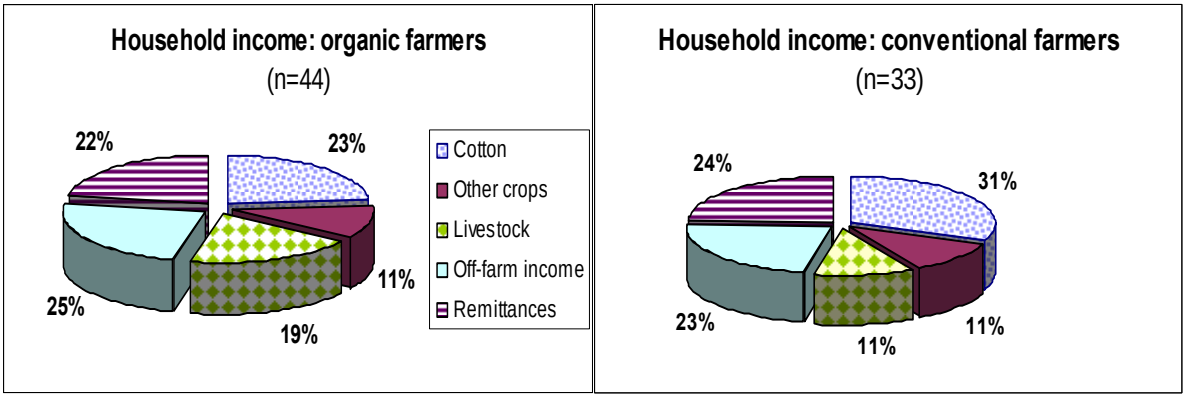
In several discussions it was confirmed that only very rarely conflicts between organic and conventional farmers occur over the allocation of irrigation water. Many organic farmers have their own channels which directly divert water from the main channel.

3.3 Household income

Guiding questions: What is the importance of cotton for the household? What is the importance of migration and remittances for the household?

Household incomes of organic and conventional farmers consist of the following components: cotton, other crops, livestock, off-farm income (salary, business, pension) and remittances.

Figure 11: Components of household income (average)



- **Only very few farms fully depend on income from agricultural activities**, i.e. 11% of organic farmers and 3% of conventional farmers.
- On average, both, **organic and conventional farmers' household income depends half on farming activities (53%) and half on off-farm activities (47%)**.
- The household income of organic and conventional farmers is (on average) equally composed, with very similar shares of each component. However, a difference is found in the **relative importance of cotton and livestock**, organic farmers having a higher share of income from livestock, conventional farmers from cotton.

This result was confirmed in focus group discussions. The higher share of cotton in the case of conventional farms was explained with the fact that they can use more land for cotton as they do not have to practice crop rotation. The higher share of livestock in the case of organic farmers is explained with the need for manure and the good accessibility of loans for buying livestock.

The relative importance of single components of household income

The relative importance of the different components varies strongly from farm to farm, and to a certain degree also between organic and conventional farmers. Looking at the percentage of households with a single component of household income being relatively more important, i.e. being >=50%, we find that **76% of conventional farm households compared to 64% of organic farmers do rely to at least 50% on one component of household income**.

Table 11: Percentage of farm households relying to 50% and more on one component of household income

Component of household income >=50%	Percentage of farm households relying to 50% and more on one component of household income	
	Organic	Conventional
Cotton	9%	21%
Other crops	2%	6%
Livestock	11%	3%
Off-farm income	16%	18%
Remittances	25%	27%
Total	*64%*	*76%*

- The main difference is in cotton, which for every fifth conventional farmer makes up 50% or more of the household income. This is related to the fact that the majority of conventional farmers use more than 50% of their irrigated land for cotton, while organic farmers can not have more than 50% under cotton.
- The reasons for the difference regarding livestock are the same as above.

3.3.1 Remittances

Remittances are an important economic factor in the Jalalabad Oblast. Most families, i.e. **52% of organic and conventional farmers currently do have one or several people (mostly) abroad**, sending them money (remittances). The big majority of these labour migrants are young and male. However, there are also a number of farm managers or their wives who migrate for working abroad. Some only go for a few months, while others stay the whole year.

Off-farm income – either from off-farm activities or from remittances – on average makes up **47% of household income**. For some households off-farm activities are far more important than income from farming. In18 % of conventional and 7% of organic farm households, either off-farm income or remittances make up between 75 – 89% of the household income.

During the last decade more and more people went abroad to earn money and remittances gained in importance; 42% of organic and 39% of conventional farmers say that remittances have increased during the past years. However, 26% of organic and 43% of conventional farmers say that remittances have decreased due to the global financial crisis, which results in loss of labour of those who migrated to Russia.

3.3.2 Migration in times of global crisis

During the validation workshop a discussion on the effects of the global crisis on local agriculture was held. Asked whether these people will come back (from Russia) and go back to agriculture first everybody thought that yes. After a lengthy and controversial discussion people agreed that a) generally young people are not interested to work in agriculture, and b) that usually people who lost their jobs abroad stay there and wait for new opportunities, or c) they come back but do not engage in agriculture but try to do business or any other type of off-farm activity. **It was concluded that the global crisis and the people who lost their jobs and come back will not solve the problem of labour shortage in local agriculture.**

4 Organic farming: motivation, status

Leading questions: *Why did bio farmers decide to convert to organic farming? How do they assess this decision today? Are conventional farmers interested in conversion? What is the attitude towards organic farming? What could make organic farmers change back to conventional?*

4.1 Organic farming – motivation and perceived constraints

Guiding questions: What attitudes do farmers have to organic farming? What are the reasons for converting to organic farming? How is this decision assessed today?

4.1.1 Organic farmers – motivation for conversion

According to the interviewed bio farmers (n=44), their main motivation and reasons for conversion were:

- **Economic advantages**: direct economic advantages of organic production are the higher price fetched for bio cotton (20% more than for conventional cotton) and reduced production costs (no need to buy fertilisers, pesticides and herbicides).
- **Support provided by the project**: training; marketing / selling of cotton, direct and timely payments for cotton; provision of seeds on credit; and giving back residues of cotton processing (cotton oil, cotton cake).
- **Health aspects**: quality of products and improvement of health conditions
- **Soil improvement**: soil fertility and texture

Table 12: Motivation for converting to organic farming

Reasons (44 respondents / 82 responses)	**% of all responses**		
Economic advantage		**38%**	
Cotton price	17%		*Direct economic reason*
Lower production costs	21%		*Direct economic reason*
Project support		**39%**	
Credits / seeds	4%		*Indirect economic reason*
Marketing	16%		*Indirect economic reason*
Training	15%		
Provision of cotton oil / cake	4%		*Indirect economic reason*
Health	**15%**	**15%**	
Soil improvement	**9%**	**9%**	

It is mainly for economic reasons that farmers convert to organic farming. Economic reasons (direct and indirect) **make up 62% of all mentioned reasons**.

Assessment of the decision today
In general, organic farmers are very conscious about the benefits of organic farming and the support they get from the project. Accordingly positive is their assessment of the decision they had taken when converting to organic farming.

If today they would have to decide on converting or not, **91% of organic farmers** (n=44) **would do it again**.

The 4 farmers who would not convert again, also mainly argue with economic reasons: low and declining cotton price, does not cover costs, low yields; one considers workload to be very high.

4.1.2 Conventional farmers – motivation for conversion and constraints

The interest in organic cotton is high. Only 30% of the interviewed conventional farmers (n=33) say that organic farming is no option for them or that they have never thought of converting. Seemingly, **70% of the conventional farmers have been thinking about conversion,** but have reservations; 9% even say they have taken the decision but not yet put into practice.

The **perceived constraints** to conversion to organic farming are (ranked according to importance):

1. **Workload** / **lack of labour force**: organic farming is more labour intensive, i.e. it requires more manual work for weeding, pest management, compost production, etc.

Labour migration and off-farm activities are widespread, mainly among the male population, which reduces the available labour force for farming activities.

2. **Land size**: small land size is a constraint as organic farming requires crop rotation and allows a maximum of 50% of the land being used for cotton which is the main cash crop. Organic cotton on rented land is not very attractive as the land of somebody else will be improved.
3. **Low yields:** some respondents reason with lower cotton yields in organic farming.
4. **Lack of information**: some respondents show a certain interest but are not aware where they can get the necessary information, training and support.
5. **Few animals / little manure**: in a few cases, farmers considered the number of their livestock and the amount of available manure insufficient for organic production.

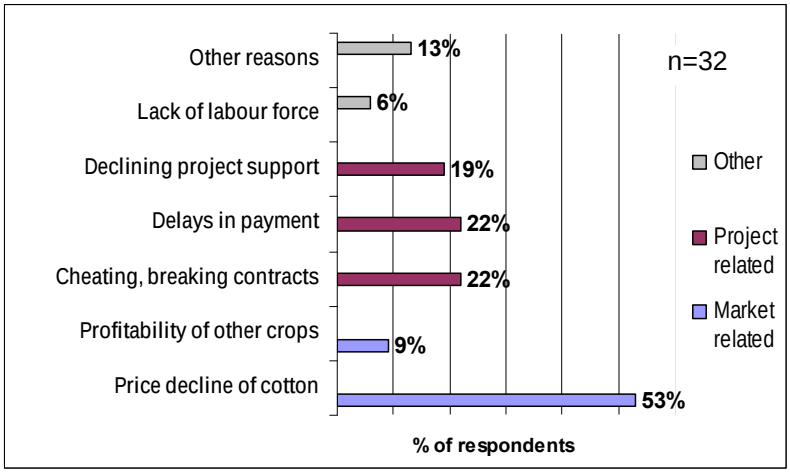
Group discussions confirmed that to be able to convert to organic farming, some minimum conditions regarding land size, livestock and labour force have to be met.

4.2 What could make organic farmers change back to conventional farming?

4.2.1 Possible reasons for changing back to conventional farming

Organic farmers are committed farmers. Asked about possible reasons that could make them change back to conventional farming, **27% of organic farmers say that under no reason they will change back**. However, there are some project related and other factors that could make organic farmers think of quitting producing organic. The project related factors should be analysed and mitigated carefully.

Figure 12: Reasons that could make today's organic farmers change back to conventional farming



The most important reasons mentioned by those 32 interviewed organic farmers (= 73% of total sample) who see possible reasons that could make them change back, can be organised into two broad categories:

- **Market related factors**: the single most important reason for quitting organic farming would be a **price decline of organic cotton** (mentioned by 53% of the 32 farmers), or, to a minor degree, if other crops become more profitable than cotton. There is no indication regarding the threshold, where the price for organic cotton looses its attractiveness, and this of course will also rely on other factors such as the development of

production costs etc. However, it can be seen as an **appeal to the Farmer Union**, to do its best to negotiate favourable prices for bio cotton.

- **Project related factors**: organic farmers are proud to be members of the project, but they react very sensitive to **situations where they get the impression that the project staff and services are not reliable**. Delays in payment, cheating or breaking contracts (e.g. if the cotton price is below what was promised, bad quality of seeds provided) and a generally unsatisfying project support (declining support, e.g. if seed provision or marketing support disappeared, if oil was delivered late, transportation costs not covered anymore, etc.) are reasons mentioned which could make organic farmers quit the programme. The fact, that these factors have been mentioned by many farmers points to a certain mistrust currently found in several villages. During the interviews we now and then heard complaints about the quality and price of seeds provided in 2009 (and partly also in 2008), and because of that some respondents suspected the project people to cheat them.

4.2.2 Drop outs

The issue of drop-outs was addressed in focus group discussions. However, it has not been done very systematically; and no drop-out farmers have been interviewed. The main reasons mentioned for leaving the programme are similar to the constraints conventional farmers have: labour migration and resulting lack of labour force; lack of land for crop rotation; low cotton price / decreasing profitability of cotton; lack of animals. In Suzak region, which is close to the city (market) and where plots are small, farmers switch to more profitable crops such as onion or vegetables. In Nooken region there seem to be less drop-outs as plots are bigger. A number of farmers is excluded from the programme for not keeping the rules of organic farming.

A group of village bio-inspectors explained that in 2006 and 2007 farmers got very interested in growing organic cotton, i.e. many entered the programme. In 2008 they were able to keep the number, but in 2009 it dropped to the level of 2007. There is a demand for organic cotton which in their opinion helps to keep organic farmers, while conventional cotton production is really decreasing because of the low price (and high costs). These bio-inspectors suspect failures attributed to the work of the Farmer Union to be additional reasons for drop-outs: they complained that in 2008 the quality of provided cotton seeds and cotton oil was low.

4.3 Status and reputation of organic farmers

Guiding question: How did the image of organic farmers in the village change?

Generally, respondents found it quite difficult to characterise organic farmers. The following is a compilation of what organic and conventional farmers said. Respondents often described specific aspects of organic production methods or features of the project; this especially applies to conventional farmers. Nevertheless, interesting results can be deduced regarding self-perception of organic farmers.

Organic farmers focused more on aspects relating to **attitudes** of organic farmers. **Organic farmers' self-perception** may be described as follows:

- Organic farmers are people who care about health, and who **produce and consume healthy and high quality products**;
- They are **well educated, skilled and experienced farmers**;
- They are **honest and reliable** people;
- And generally speaking, they are **concerned and caring** people regarding soil, health and the future.

Table 13: The reputation of organic farmers: organic farmers are….

Responses by:	Organic farmers (n=42)	Conventional farmers (n=25)
Don't know / no answer	**2**	**8**
Attitudes	**59**	**24**
Are innovative / progressive farmers	6	4
Are risk taking farmers	3	1
Hard working	5	2
Cooperate in groups (share knowledge, work together, have group solidarity)	4	4
Healthy farmers (concerned about health; consume / produce healthy, high quality products)	13	6
Experienced and skilled farmers (clever people; well educated)	12	1
Concerning about future	3	-
Good people (honest; don't cheat)	8	4
Care for their land (improve and have better soils; manage their land and farm carefully)	5	2
Economic status	**9**	**4**
Are wealthy farmers	5	2
Are small farmers / are poor farmers	2	1
Have big land / need to have big land / have animals and land	2	1
Production	**10**	**12**
Don't use chemicals and fertilisers	5	5
Use manure and make compost	3	3
Variety of crops	1	-
Have more (manual) workload	1	1
They follow specific production rules and are controlled / not so flexible	-	3
Profitability	**4**	**11**
Have less expenses / less costs	1	4
More profitable / higher price / higher income	1	6
Don't have problems with selling	2	1
Get project support (training, seeds, cotton oil and cake)	**0**	**6**

4.4 Plans for the future of their children

Guiding questions: What plans do you have for the future of your children?

Asked about possible options they see for their children to make a decent living, there is no significant difference in answers of conventional and organic farmers.

Table 14: Plans for the future of the children

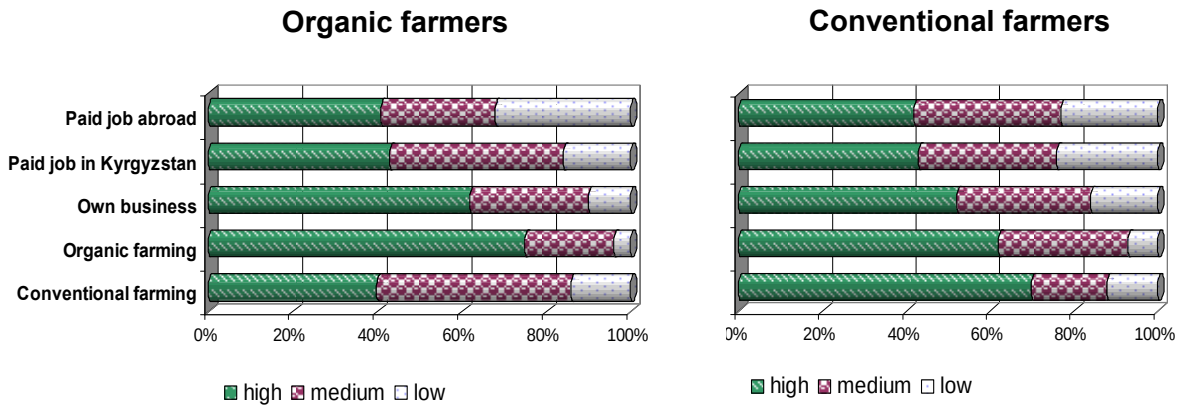
	organic	**conventional**
Education / professional job	76%	67%
Farming	2%	13%
Attitudes (being a good person; hard working)	18%	15%

The big majority of respondents consider **education, a good career and professional job** (e.g. veterinary, teacher, doctor, dentist, accountant, lawyer, banking) to be the most promising option for their children. Farming was only mentioned by very few.

The potential of specific options

Asked to judge specific options regarding their potential to make a decent living, respondents value the potential of agriculture and paid jobs differently. This inconsistency was addressed in focus group discussions and explained by the fact, that when judging concrete options, respondents thought more about themselves (or generally grown up people) and their current opportunities than about the future of their children.

Figure 13: The potential of different options to make a decent living



The perceived potential decreases from 'farming' to 'own business' and 'paid job'. All see the highest potential for making a decent living in farming – organic farmers in organic farming, and conventional farmers in conventional farming, which is consistent with what they are currently doing. Interestingly, conventional farmers' judgement does not differentiate much between organic and conventional farming, while organic farmers judge the potential of organic farming clearly more positively.

Discussion

For most small scale farmers farming is one source of income among others, and not in all cases the most important one. Though, for the current adult rural population farming is one way of making a living in the absence of job opportunities. Regarding the future of their children however, they don't see much potential in agriculture and prefer them to be educated in order to get a chance on the job market.

In focus group discussions the low attractiveness of farming was addressed. People agreed that farming is not considered to be an option for the children because a) plots are generally too small to make a decent living, and b) agriculture is not very profitable. They said that everybody wants to educate their children hoping they will get a chance to get a good job. However, unemployment is high and in reality a diploma is no guarantee to find a job. As a matter of fact, many people having a diploma get back to agriculture as no jobs can be found.

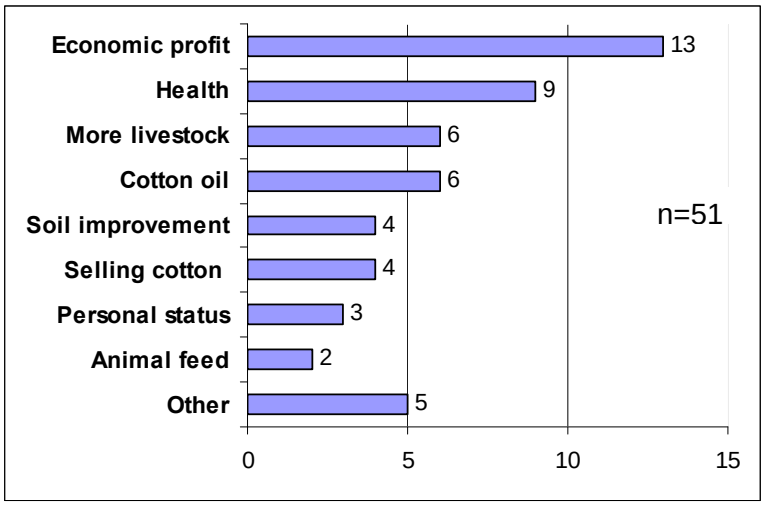
5 Impacts of the BioCotton project

Guiding question: What are the main effects of the project? What are the positive and negative side effects of the project?

5.1 Changes observed since conversion to organic farming

Organic farmers report a number of **positive changes** since conversion to organic farming, which are more or less directly related to the project. The answers (totally 51) related to organic farming and / or the BCP project have been categorised as follows:

Figure 14: Positive changes directly related to the BCP project / organic farming



- The **economic profit** is basically the result of the higher price for organic cotton and reduced expenses for inputs in organic farming.
- **Health improvement** is explained to be a result of not using agrochemicals and consuming healthier, i.e. organic food (organic oil).
- Credit facilities and the availability of animal feed allow increasing the number of livestock.
- The 'by-products' of organic cotton production, **cotton oil** and the **cake from cotton seeds** (animal feed) are highly valued and appreciated.
- **Soil improvement** was observed, and that bio cotton is **easy to sell**.
- A few farmers perceive a gain in their personal status by being a leader, a bio-inspector, or by having been interviewed for a TV programme on organic farming.
- Other positive changes mentioned are: credit, new crops, biogas and new knowledge.

The big majority of organic farmers, i.e. 36 out of 44 have not observed any relevant **negative changes** after converting to organic farming. However, a few complained about the increase in workload (mentioned by 3 farmers); and the fact that no herbicides, pesticides and fertilisers can be used in organic farming (mentioned by 2 farmers).

5.2 Economic impact of organic production

Data collected on production costs and revenues from cotton and rotation crops was supposed to provide a basis for calculating costs, revenues and gross margin for cotton and rotation crops, and making a comparison between organic and conventional production. However, most farmers do not have written records of production related data such as costs and amounts of inputs used, prices etc., and therefore had to rely solely on their memory to recall these numbers. An additional difficulty was the timing of the interviews. Conducted in June 2009, i.e. in the middle of the agricultural year, the interviews had to capture the situation and data of the previous agricultural year (2008), which was really difficult for farmers.

The collected quantitative data is purely recall data, which is fraught with too many uncertainties for a detailed economic analysis. Nevertheless, in combination with and backed up by the qualitative data, it allows to make estimations and delineate important trends.

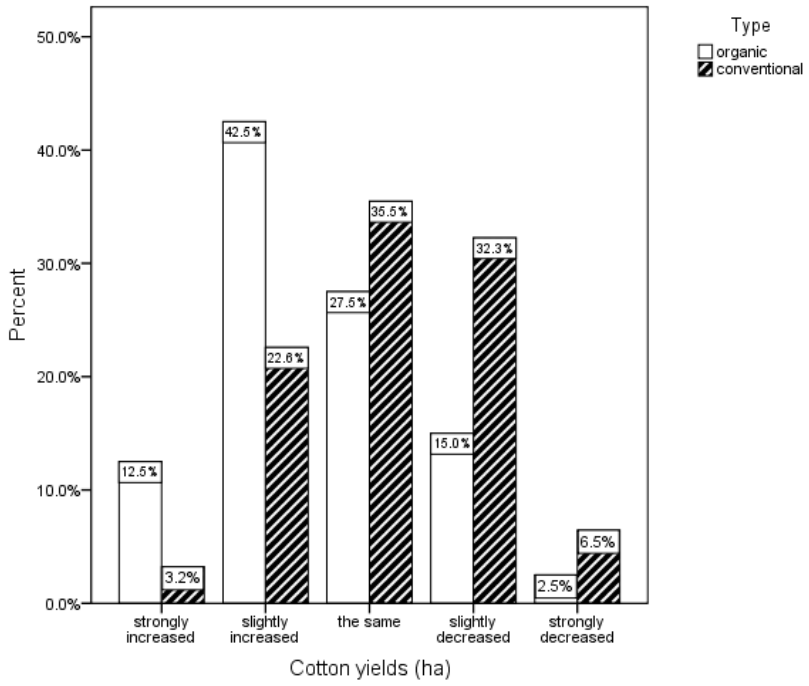
In the following, it will be differentiated between direct and indirect economic impact. The former consisting of production costs, revenue and gross margin; the latter of other impacts with indirect economic effects (e.g. access to credits and other services, crop diversification, etc.), i.e. which may influence the economic risk of a certain production type.

5.2.1 Direct economic impact

5.2.1.1 Cotton yields

Organic farmers have a more positive perception regarding the development of cotton yields during the past few years.

Figure 15: Development of cotton yields (time comparison)



Increase

- **OF**: The majority of organic farmers (55%) indicate increasing cotton yields, which they mainly relate to the use of manure, crop rotation and the improvement of soils.
- **CF**: Only 26% of conventional farmers experience increasing cotton yields, which they mainly relate to the use of (more) fertiliser.

Decrease

- **OF**: 18% complain about decreasing cotton yields, which most of them explain with the lower efficacy of manure compared to fertiliser.
- **CF**: 39% of conventional farmers complain about decreasing cotton yields, for very diverse reasons.

Discussion

- Organic farmers agreed that **in the first two years after conversion cotton yields decrease; then they steadily increase year by year, but in general remain below conventional yields.** One reason for the initial decrease is crop rotation: many farmers apply manure only where they grow cotton. In the 2nd year after conversion, cotton is thus sown on land, which has not yet been fertilised in the 1st year.
- **Availability of a sufficient amount of manure can be a constraint to organic farming:** having had a closer look at the specific conditions (land size, number of livestock and percentage of dung used as manure) of the 6 organic respondents who reported decreasing cotton yields, it might be **hypothesised**, that at least in some cases, the main problem is an **insufficient amount of available manure**, as 3 of them have comparably big areas of irrigated land and cotton but consider themselves to have below average or average number of livestock; one farmer does not have any livestock at all, and two use up to 30% of dung as fuel.

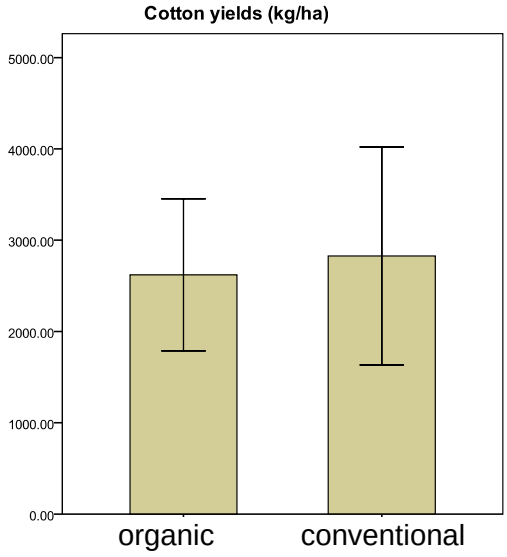
Cotton yields in 2008

In 2008, **cotton yields in organic production were 10% lower than yields in conventional production**. Statistical tests (T-Test) prove that this difference is **not significant**.

Mean	Cotton yield
Organic (n=42)	2'598 kg/ha
Conventional (n=33)	2'902 kg/ha

These average yields for 2008 have been confirmed by BCP and the Department of Agriculture during the validation workshop.

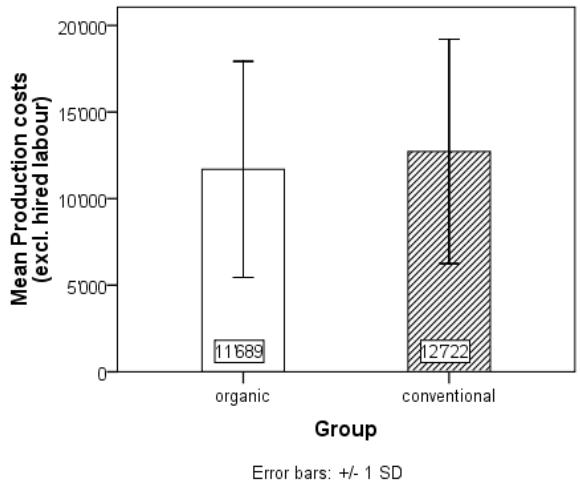
Figure 16: Cotton yields 2008



5.2.1.2 Production costs and cotton price

Production costs as assessed in the interviews include costs for seeds, fertilising, pest management, transportation, renting agro-machinery, land renting, irrigation costs, and taxes (land and social fund). Comparing production costs of organic and conventional farmers on the basis of the interview data results in **production costs being 8% lower in organic production** (please also consider the comments).

Figure 17: Production costs for cotton in 2008 (Som/ha)



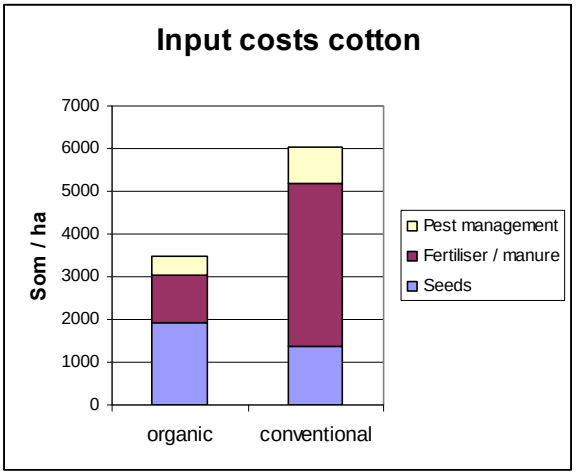
Organic: n=42; Conventional n=33

Comments

- ✓ Production costs do not include costs for own and hired labour.
- ✓ Obviously incomplete data sets (costs for seeds, taxes and irrigation) have been completed as follows: *Seeds*: OF → calculated costs using the amount of seeds per ha and costs of sees as indicated by BCP. CF → calculated on the basis of surface area of cotton and average value per ha of other conventional farmers. *Irrigation costs and taxes* (both depend on the size of the surface area) → data completed using the average per production type.
- ✓ Regarding other costs the data is not complete, as not all respondents were able to recall and indicate precisely.
- ✓ 4 organic and 7 conventional farmers' data refers to 2007.

Input costs

Figure 18: Input costs for cotton in 2008 (Som/ha)



Comments

- ✓ Obviously incomplete data sets (costs for seeds) have been completed as follows: *Seeds*: OF → calculated costs using the amount of seeds per ha and costs of sees as indicated by BCP. CF → calculated on the basis of surface area of cotton and average value per ha of other conventional farmers.
- ✓ 4 organic and 7 conventional farmers' data refers to 2007.

Input costs for cotton production are considerably lower (by 42%) in organic farming. Although seeds are more expensive, little is used for fertilisation as manure is usually available free of charge, i.e. only the transport has to be covered.

Given all the limitations mentioned in the comments to the graphs, these results have to be understood as **indicative of higher production costs in conventional cotton production** without being able to determine the exact difference. However, qualitative data strongly supports the assumption of lower production costs in organic farming (see e.g. table 12, figure 14, and figure 19).

Fig. 19: Perception of development of production costs for cotton (time comparison)

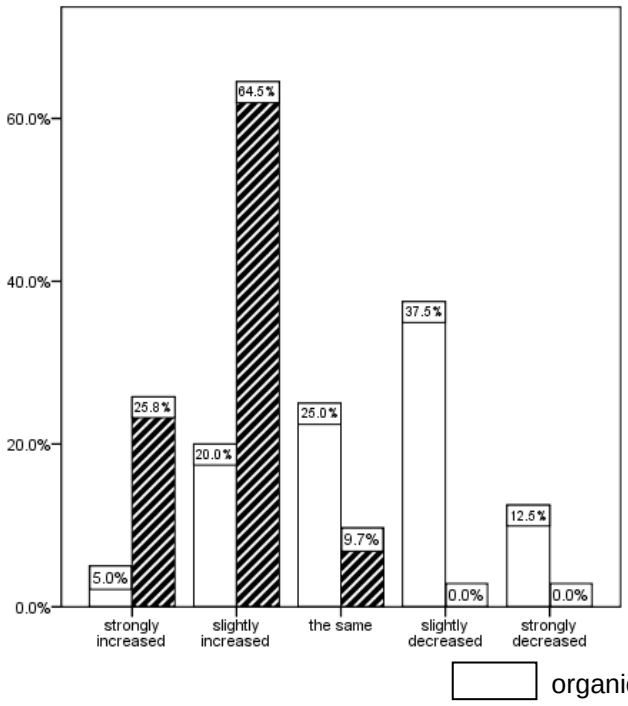
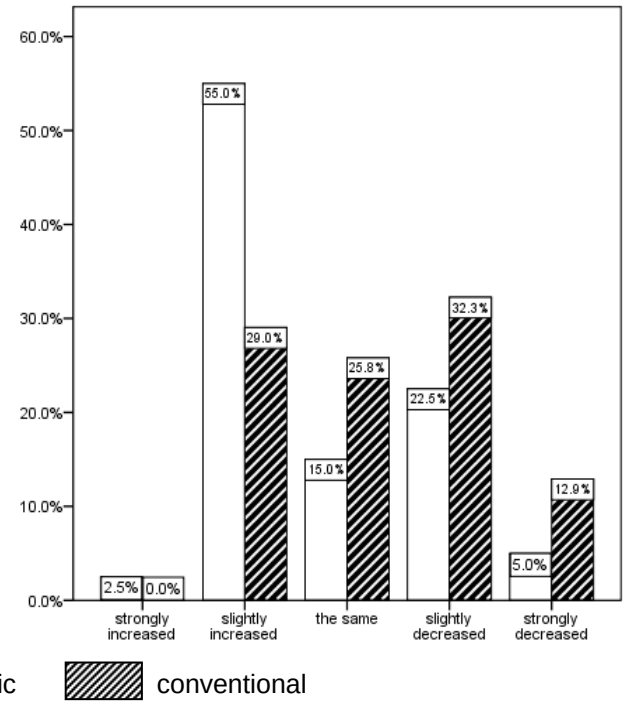


Fig. 20: Perception of development of cotton price (time comparison)



Production costs

Only 25% of organic farmers complain about increasing production costs for cotton compared to 90% of conventional farmers. On the other hand, 50% of organic farmers say their production costs have decreased, and they almost unisono explain this with the fact that they **do not need to buy fertilisers and agro-chemicals**. No conventional farmer observed declining costs.

Discussion

Prices of agricultural inputs such as fertiliser, fuel, machinery, seeds but also labour force have strongly increased and both, organic and conventional farmers are affected. However, **conventional farmers suffer much more from rising production costs** as they are dependent on more and expensive external inputs such as fertiliser, herbicides and pesticides.

Cotton price

Double as much organic farmers (58%) than conventional farmers (29%) perceive that the price for cotton has increased over the past years. On the other side, a price decline is perceived by 28% of organic and 45% of conventional farmers, they both generally refer to declining world market prices.

Table 15: Development of cotton prices (compiled by BioService)

	Organic					Conventional Cotton* (average) (som/kg)
	Seed cotton (som/kg)	Value of oil/cake (som/kg)	Value of linter (som/kg)	Fair-trade prime (som/kg)	Total value of **Organic, fair trade cotton** (som/kg)	
2004				-		
2005				-		
2006	16,50	4,20	0,61	-	21,31	15,50
2007	20,80	8,56	0,84	-	30,20	23,00
2008	20,37	9,25	0,99	2,47	33.02	24,50
2009	20,70	7,72	0,87	1,58[5]	29,29	24,00[6]

* market prices for conventional cotton vary considerably according to quality and time

Comments on table 15:

- ✓ The project started in 2004; thus the first year of harvesting certified organic cotton was 2006.
- ✓ Value of organic seed cotton: the following costs have already been deducted: costs for services provided by BioService, certification costs, membership fees Farmer Union (in 2008, these costs amounted to 6.52 Som/kg).
- ✓ The price for conventional cotton is subject to fluctuations in the course of the season, and varies according to quality.

Discussion

- A difficulty while talking about the **price for organic cotton** is that not everybody might be talking of the same as this **is a complex issue**. There is a certain price paid at the moment of delivery of seed cotton. The total value of organic cotton however also includes the value of oil, cake, and lint. So, some might refer to the price they got in cash, others to the total value of organic cotton.
  This might be a major reason for the fact that the price for organic cotton organic respondents mentioned during the interviews varied considerably.
- Price decline for cotton was an often heard complaint. A look at the above table shows that prices for conventional cotton have not decreased considerably (in absolute terms). However, in relative terms they have, as **inflation was high** (2008: about 20%).
- As a conclusion we can say, that **the ratio between costs and benefit of cotton production is getting worse**, **and this is what especially conventional farmers strongly feel due to their dependency on agro-chemicals**.

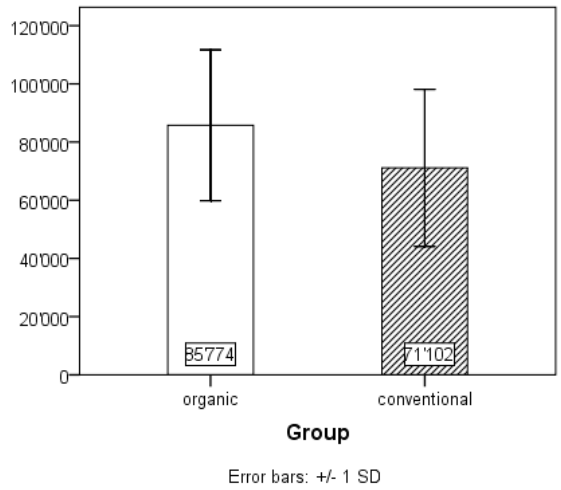
[5] In 2009 83'106 kg of cotton fiber were sold, 50% of which were sold as organic and fair trade (FT), the rest was sold as organic but without FT prime. Consequently the FT prime in 2009 was 1,58 som/kg

[6] In September / October 2009 the local price for conventional seed cotton was approximately 24 som/kg. However, in December the price increased to 26 som/kg.

5.2.1.3 Revenue from cotton and gross margin

The following calculation was made on the basis of interview data as far as yields are concerned, and on the basis of data provided by BCP as far as cotton price is concerned.

Figure 21: Revenue from cotton (Som/ha in 2008)

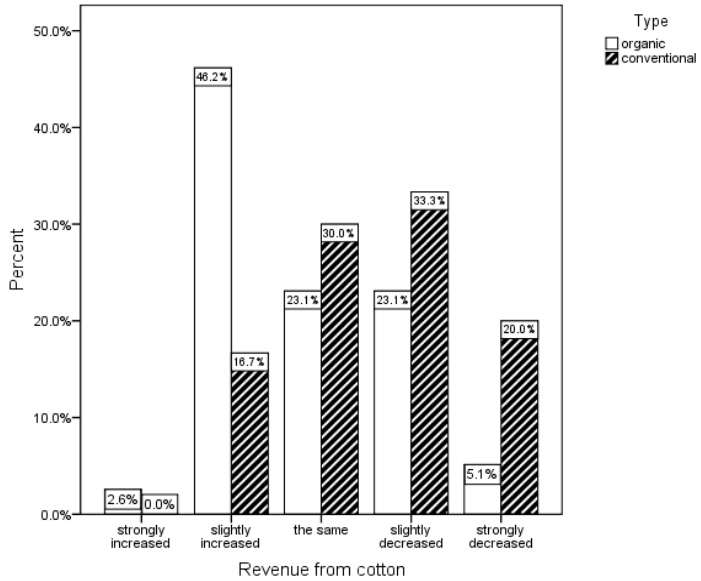


Comments

- ✓ Cotton prices indicated by respondents varied considerably, which at least for organic cotton is not true (possible reason see discussion above). It was decided to use average prices for both data sets in order to treat them equally, although prices for conventional cotton do vary in the course of a season. The following prices were applied: 33.02 Som/kg for organic cotton and 24.5 Som/kg for conventional cotton (average price in 2008).
- ✓ 4 organic and 7 conventional farmers' data refers to 2007.

In 2008, organic farmers had thus a 20% higher revenue from cotton than conventional farmers. This difference is statistically significant (T-test). However, this should not be overemphasised as we have to keep in mind the limitations regarding the data quality. Nevertheless, the higher revenue from organic cotton is also supported by qualitative data.

Figure 22: Perception of development of revenue from cotton (time comparison)



Increase

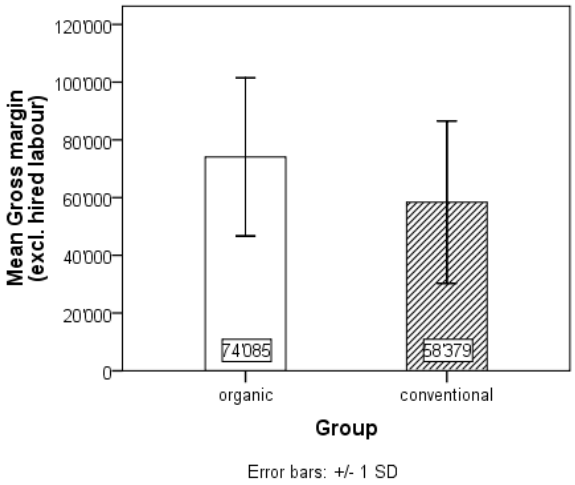
- **OF**: 49% of organic farmers consider their revenue from cotton having increased since conversion, which they explain with the **higher price for organic cotton** but also with the **additional benefits** they get, i.e. the cotton oil and animal feed. Another aspect mentioned is that they do not have to spend money on agro-chemicals.
- **CF**: No specific reasons are given by the 17% of conventional farmers who perceive an increasing revenue from cotton.

Decrease

- 28% of organic and 53% of conventional farmers feel that their revenue from cotton has decreased. The main reasons for both groups are very similar, namely some use less land for cotton, higher prices fetched for other crops, and increasing costs.

Gross margin of cotton production
On the basis of the calculation of production costs and revenue the following gross margin results:

Figure 23: Cross margin in cotton production (Som/ha in 2008)



Comments
- ✓ The same limitations apply as to the other economic calculations.
- ✓ 4 organic and 7 conventional farmers' data refers to 2007.

Calculated on the current data basis the gross margin of organic farmers is 27% higher than that of conventional farmers, which is statistically significant (T-test). However, we should not overemphasise this result as we have to keep in mind the limitations regarding the data quality. Nevertheless, also this result is supported by qualitative data (see e.g. figure 14).

Discussion
One might have expected more organic farmers saying that their income from cotton has increased since conversion. This point was thus discussed in a focus group discussion with village bio inspectors and during the validation workshop with the following results:

- Two main explanations were given: first, the 28% of organic farmers who perceive a decreasing revenue from cotton were suspected to be lazy; second, it was argued, that **currently the world market price for cotton is low and expenses high**.
- Additionally it was confirmed that most farmers don't have a recording system and therefore don't know very precisely what expenses they have. As a result they don't calculate their expenses and income and can not provide detailed data.

5.2.1.4 Overall evaluation of cotton production

For an overall judgment of the development of cotton production over time, a global scale "assessment of cotton production" was created by calculating the mean of the four items "cotton yields", "production costs" (inverted), "price for cotton" and "revenue from cotton". Internal consistency for this global scale was satisfactory (Cronbach's Alpha = .7). This means that the four above mentioned items corresponded to a similar underlying construct. This scale most likely describes the farmer's subjective assessment of the development of their cotton production during the past few years. Mean comparison (T-Test) showed that **organic farmer's assessment was significantly more positive than conventional's** ($p < .001$).

5.2.1.5 Conclusions on the quantitative assessment of economic impacts

During field work and analysis the study team found - what was later on confirmed by bio inspectors and BioService staff - that most farmers do not have detailed and written records. In many cases, respondents found it difficult to recall exact numbers, and even more so for different crops. Not having a sound basis for calculating their income or costs, they are not in a position to give precise data. **The collected quantitative data is purely based on memories and perceptions, which by their nature are not very precise.**

A number of difficulties regarding the collection of exact numbers experienced during data collection relate to certain complex mechanisms of the project: e.g. seeds are provided by the seed fund and seed costs only later deducted from the payment, when oil and cake are delivered. We interviewed a number of farmers who were not able to determine the costs of cotton seeds. Another obstacle was that for organic cotton the cash price is not the same as the value of cotton which includes by-products such as oil, cake and lint. During the interviews it was not always clear what exactly people were talking of. To illustrate this problem we can use the selling price for organic cotton in 2008 – as indicated by respondents. It ranged from 15 to 31 Som/kg. Did some talk about the cash price at delivery and others about the total value of organic cotton? Or did they just not remember exactly?

In a situation where farmers do not have records of their spending on production inputs and revenues a rapid survey with a questionnaire is not the most suitable approach to collect the data for a detailed quantitative economic analysis.

Recommendation

In order to make reliable quantitative statements on economic profitability of organic and conventional production **exact records and measurements** are necessary for both, organic and conventional farmers.

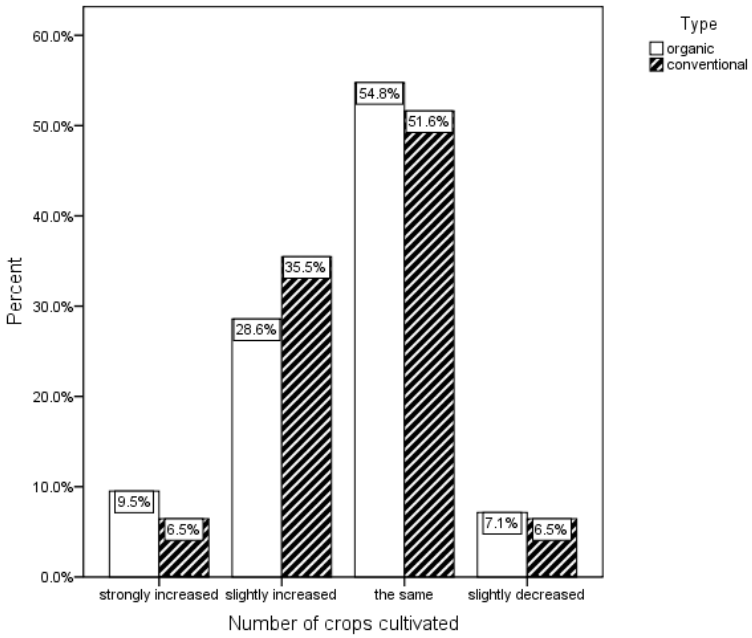
- A representative sample of organic and conventional farmers in different production zones has to be found, who are willing to keep detailed records on all inputs and costs as well as all revenue related to the production of cotton and rotation crops. For this purpose a **farm diary** is helpful, where all working steps and working hours, amount of inputs used and respective costs, as well as selling price and amount are documented in detail.
- If possible, measurements of the respective plot size, amounts of inputs and yields should also be made.

In the meantime, i.e. in late June 2009, BCP started to collect this information in a sample of 30 organic and 30 conventional farmers. Although the sample is not fully representative, more accurate and detailed data can be expected from this study, and should be used for **triangulation** with the results from the current study.

5.2.2 Indirect economic impact

5.2.2.1 Crop diversification

Figure 24: Perception of crop diversification (time comparison)



Crop diversification has only been assessed in relative terms, i.e. by asking about how diversity developed over time.

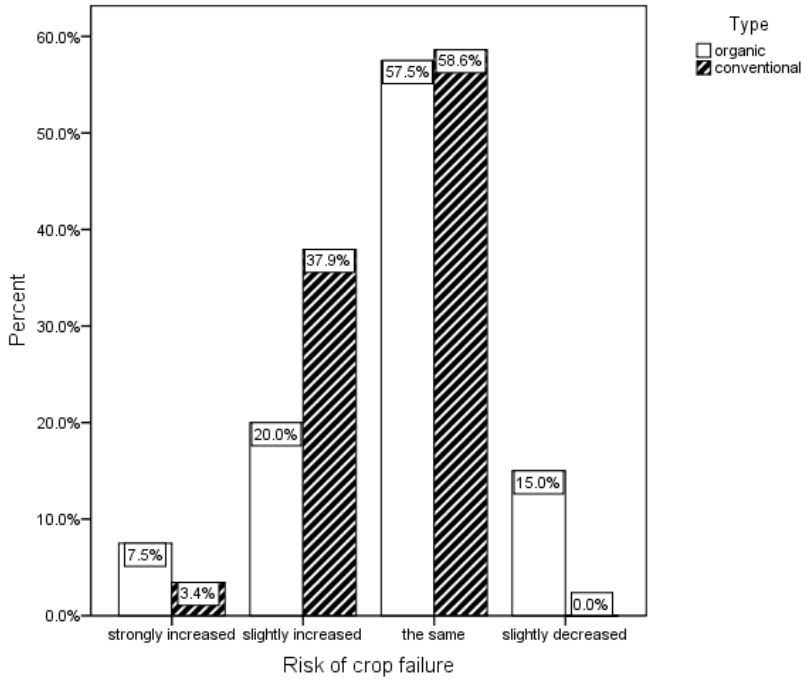
- About 40% of organic and conventional farmers report increasing crop diversity compared to a few years ago.
- The majority of organic farmers attribute higher crop diversity to crop rotation.
- Very few conventional farmers give specific reasons for higher diversity, but most of those who do, say it is because some years ago they used to produce cotton as a mono-crop.

In a focus group discussion it was mentioned that one reason why organic farmers grow more different crops is because being linked to the project, they get more information about new varieties and crops. Farmers share experience among each other, and it happens that an organic farmers experiments with a crop and later tells other (organic and conventional) farmers, who will also try.

High crop diversity is usually found in kitchen gardens (Photo: F. Bachmann)

Risk of crop failure

Figure 25: Perception of risk of crop failure (time comparison)



Increase

- **OF**: 28% of organic farmers say the risk of crop failure has increased. Reasons are manifold: lack of manure, abstinence from using fertilisers and pesticides, more pests, bad seeds, and climatic reasons.
- **CF**: 42% of conventional farmers consider the risk to have increased. They mostly see the reasons in more diseases and harmful insects, to a minor degree in climatic and irrigation problems, and bad seeds.

Decrease

- **OF**: 15% of organic farmers say their risk of crop failure has decreased. The most important reason is the support by BCP, which mainly refers to the guaranteed selling of bio cotton (see discussion below). Additionally it was mentioned, that before with monoculture the risk was higher. In focus group discussions organic farmers and bio inspectors explained that they have less problems with pests and diseases due to crop rotation.
- **CF**: No conventional farmer perceives less risk.

Discussion

- Conventional farmers have a more negative perception regarding their risk of crop failure.
- When organic farmers talk about the support by BCP as a reason for lowering risk, they in fact do not speak about risk of crop failure, but risk in general.
- It became clear from various discussions, that organic farmers have less problems with pests and diseases (see also 3.2.8), what results in a reduced risk of crop failure.

5.2.2.2 Access to credits

Organic farmers have better access to credit compared to conventional farmers. While 84% of all organic farmers say they do have access to credit if needed, this only applies to 58% of all conventional farmers.

However, quite a number of farmers say, that despite having access they are **not interested in taking credits** for the following reasons:

- Many farmers say they don't need to take, while others are sceptical and say they are afraid of taking credits.
- In Uzbek villages, 11 farmers explicitly mentioned that they do not take credits for religious reasons. However, some say they do borrow money from friends they trust.

Increase

- In the time comparison organic farmers (68%) perceive a stronger improvement of their access to credits than conventional farmers (45%).

Decrease

- Only few farmers (3% organic, 10% conventional) perceive a worsening of their access to credits.

BCP facilitates access to credit

Easier access to credits is generally due to a raising number of micro-finance institutions. However, for conventional farmers having little land it is difficult to get a credit.

BCP collaborates with the micro-finance institution *Agrokreditplus*, which strongly facilitates organic farmers' access to credits. *Agrokreditplus* provides credits for agricultural activities (inputs, livestock, etc.) on the basis of social collateral, i.e. a farmer who is member of a farmer group can get an individual credit, which is secured by **social collateral**, i.e. by the whole group. The advantages are easier access, less paperwork, favourable conditions, the disadvantage as perceived by some farmers, the social collateral, i.e. having to take responsibility for others.

It needs to be mentioned that organic farmers get cotton seeds from the **seed fund** in spring. The costs for the seeds (without interest) are deducted at the time of delivering the cotton oil and cake in the following winter. So, the seed fund also has a credit function.

Credits taken in 2008

In 2008, 45% of organic farmers took a credit compared to 21% of conventional farmers. Only about half of the credits taken by organic farmers are from *Agrokreditplus* (a microfinance institution and partner of BCP which gives credits on favourable terms but only for agricultural activities) or the Seed Fund (managed by BCP). Conventional farmers took their credits from various micro-finance institutions.

Table 16: Where credits are taken

Credit 2008 taken from:	**organic** (n=20)	**conventional** (n=7)
Agrokreditplus	9	--
Seed fund	1	--
Finca	1	4
Baytushum	4	0
Ayil bank	1	0
Other micro-finance institutions	2	3
Friends, relatives, informal groups	2	0

The main differences found regarding the purpose of credits is that organic farmers took much more credits for agricultural activities (85% of all credits) compared to conventional farmers (43%), who use a bigger share for off-farm activities and covering basic needs.

Purpose of credits taken in 2008

Table 17: Purpose of credits

Main purpose	Organic	Conventional
Agriculture, farming, crop production	45%	29%
Cotton production	15%	--
Livestock	25%	14%
Off –farm activity (business, shop, migration)	10%	14%
Food, clothing	5%	29%
Construction	--	14%

Discussions with farmer groups, bio inspectors and during the validation workshop confirmed a) that credits are easier accessible for organic farmers and on better terms, and b) that there is a difference regarding the use of credits (farming versus off-farm activities). However, whether organic farmers' investments in agricultural activities are due to 'organic farmers being real farmers, while conventional farmers are more business oriented people', as was often heard, remains open.

5.2.2.3 Access to market for selling cotton

Market access for selling cotton has improved in the perception of 78% of organic farmers; none of them perceives a worsening situation. Only very few respondents point out reasons, but most are related to the BCP project, i.e. to the fact that the project organises delivering and marketing of organic cotton.

Among conventional farmers 39% perceive an improvement, and 39% a decrease. Improvements are due to new ginneries and business men buying directly from the farm, while the main reason for the decrease is perceived to be a decreasing demand for cotton on the world market.

5.2.2.4 Access to support services

Changes in the access to support services were perceived as follows:

- 82% of organic farmers perceive that their access to support services has increased, mainly due to the BCP project. No explanations were given for a perceived decrease.
- **About 50% of conventional farmers were not in a position to answer the question.** From the remaining, only 19% perceive an improvement of their access to support services, while another 19% a decrease.

In the region, there is currently no functioning support service for farmers from the official, i.e. governmental side. According to the representative of the Department of Agriculture, the Rural Advisory Service (RAS) suffers from limited resources. Therefore it seems, conventional farmers only get very limited and punctual support from the government, e.g. in cases of climatic problems.

5.2.2.5 Economic risk

In general, **organic farmers judge their access to credits, markets and support services much more positive than conventional farmers do**. They have easier access to credits on more favourable terms and with social collateral, they sell their cotton for a guaranteed and higher price, they can rely on support and different services provided by BioService and the Farmer Union such as pre-financing of seeds without interest by the seed fund, training, technical advice, transportation and marketing of cotton. **Conventional farmers in the study area do not get any systematic and reliable support.**

As mentioned above (see chapter 3.2.5), organic farmers are less urged to sell livestock when they are in need of cash; and livestock reproduces and also plays an important economic role. However, it happens that organic farmers sell part of their cotton on the free market when they face an emergency (as reported by two organic farmers (5%) for 2008).

Of course, all these supporting factors, and being independent of having to buy expensive agro-chemicals reduce the economic risk of organic farming.

However, one major disadvantage of organic farming in the given context is, that **organic farmers are currently 'bound to one product'**, which is cotton, and loose their flexibility to adapt to changing framework conditions such as fluctuating market prices. Of course they also produce and sell other crops, but up to now, none of these crops can be sold as organic, i.e. at a higher price.

BCP's efforts to find buyers for organic rotation crops have not yet been very successful, and so far no real market for organic products exists in the region. In September 2009, BCP started a second trial with a small shop on the local Jalalabad market for selling fresh and processed organic vegetables. It must be assumed that currently only very few people in Jalalabad are willing to pay a higher price for organic products on the local market. However, this initiative might have a positive effect regarding awareness creation and promotion of organic farming.

Apparently, new and promising opportunities for marketing organic wheat and herbs began emerging after fieldwork for this study was finished.

Discussion
Organic farmers do have good access to services (credit, training, marketing) compared to conventional farmers who hardly get any support. In the given environment, where farmers have to struggle and governmental support is weak or almost inexistent, conversion to organic farming can be seen as a strategy to get access to support services.

Reliable support services, guaranteed selling of organic cotton for an acceptable price and credits secured by social collateral reduce the economic risk of organic farmers. However, to render organic farming fully profitable it is indispensable that other organic crops find a market and sell with a prime. In this field continuous efforts are required.


Cotton – from blossom to seed cotton (Photos: F. Bachmann)

5.3 Social impact of organic farming and the project

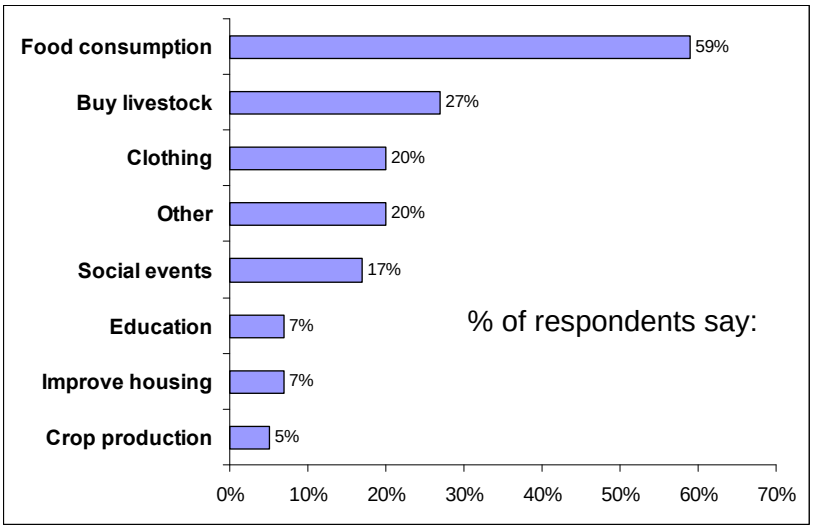
Guiding questions: How is the (extra) money earned from organic cotton used? How did workload change? In which way did the project change the way farmers cooperate?

5.3.1 Extra money from organic cotton improves living conditions

Organic cotton sells at a higher price and with a prime. About 80% of organic farmers generally agree that their income from cotton has increased since they produce organic. Those disagreeing mainly argue that (in general) expenses are high and prices low, which in the end does not make a real difference.

The following graph shows how this 'extra money' earned from organic cotton is used. The numbers refer to the percentage of respondents (out of those reporting a higher income from organic cotton), not to the amount spent.

Figure 26: The use of extra money from organic cotton (n=35)



The extra money is mainly **used for reproduction**, i.e. for **meeting basic needs** and **improving living conditions.** Only a minor part of the respondents use it partly for productive purposes (agriculture, business, etc.).

- The majority, i.e. 59% use (part of) the extra money for food consumption, which should result in an improved nutritional status of organic farmer families. This improvement due to better quality and diversity of food products was confirmed in the validation workshop.
- A considerable part of respondents (27%) buys livestock as a sort of savings.
- The extra money also serves to cover the costs of social events such as funerals or weddings.

5.3.2 Health conditions

The time comparison did not show any relevant difference between the perception of organic and conventional farmers. However, organic farmers tend to justify an improvement of health with factors relating to organic farming such as consuming healthy food, less use of harmful agro-chemicals and environmental improvements.

Time comparison: general health conditions	slightly improved	the same	slightly worsened
organic	21%	62%	17%
conventional	16%	65%	19%

This question was difficult to deal with for most respondents. It is obvious (from the reasons they gave) that many respondents' negative judgement was simply based on health problems of a specific family member, i.e. in several cases a worsening of health conditions was reported because someone got sick or needed a surgery, or because the respondent himself got old and weak.

However, the **improvement of health conditions is the second most positive change observed after conversion to organic farming** (see chapter 5.1.1). This is the result of an open question and therefore a clear indication that an improvement of health conditions as a result of organic farming is perceived.

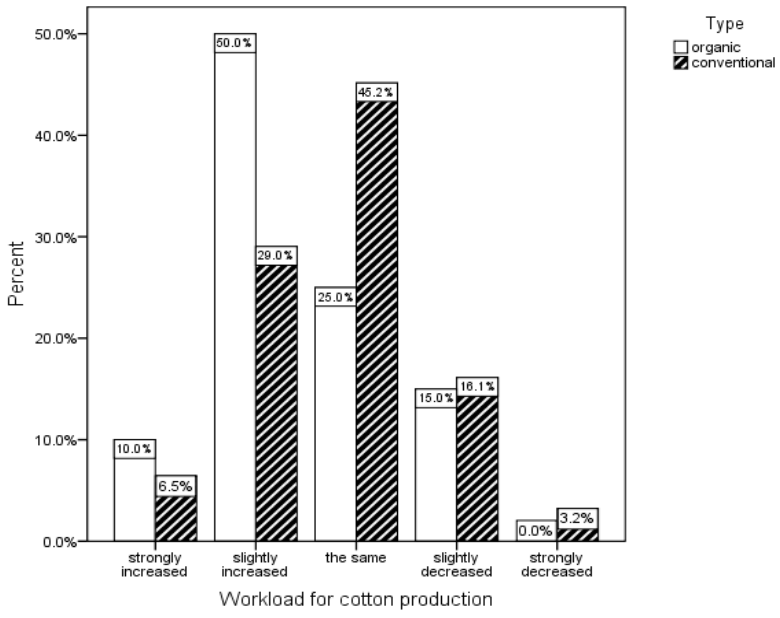
The project provides organic farmers with oil from the cotton seeds of their production, which is used for cooking. In addition they receive the residues (cake) from processing cotton seeds into oil, which are used as animal feed. Both by-products are widely acknowledged as an additional and valuable benefit from organic cotton production and the project. As far as cotton oil is concerned, many farmers explicitly point out its importance and benefit as a healthy and clean product. Even many conventional farmers emphasize this aspect when talking about advantages of organic farming.

5.3.3 Changes in workload

Organic and conventional farmers were compared regarding their assessment of changes in workload over the past few years (time comparison). To this aim, the three items "overall workload for farming", "workload for cotton", and "women's workload" were compiled into a global scale "workload". Internal consistency for this scale was high (Cronbach's Alpha= .8). Mean comparison (T-Test) showed that **organic farmers perceived significantly more workload than their conventional colleagues** (p<. 05).

Workload for cotton

Figure 27: Perception of workload for cotton (time comparison)



Organic cotton production is more labour intensive.

Increase

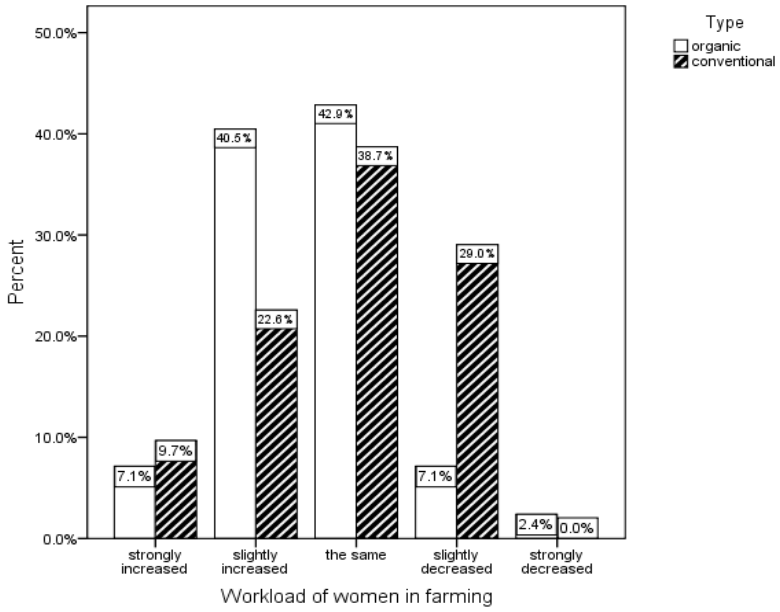
- **OF**: 60% of organic farmers experience higher workload for cotton production, predominantly explained by the **use of manure**, which has to be transported to the fields and is spread manually. They say **organic production in general requires more manual work**.
- **CF:** 35% also report an increase in workload for cotton, which in their opinion is mainly due to **climatic problems, pests and diseases.** Also mentioned was an increase of manual work because raising input costs lead some farmers to use less machinery.

Decrease

- **OF**: 15% of organic farmers perceive a decreasing workload for producing cotton, which they explain with **less weeds, less insects and less diseases** (as a result of crop rotation) they have to cope with, and that **manure softens the soil** thereby reducing workload.
- **CF**: 19% of conventional farmers reported **decreasing workload** because all but one either **stopped producing cotton** or **decreased the surface area of cotton.**

Workload of women

Figure 28: Perception of women's workload in farming (time comparison)



Increase

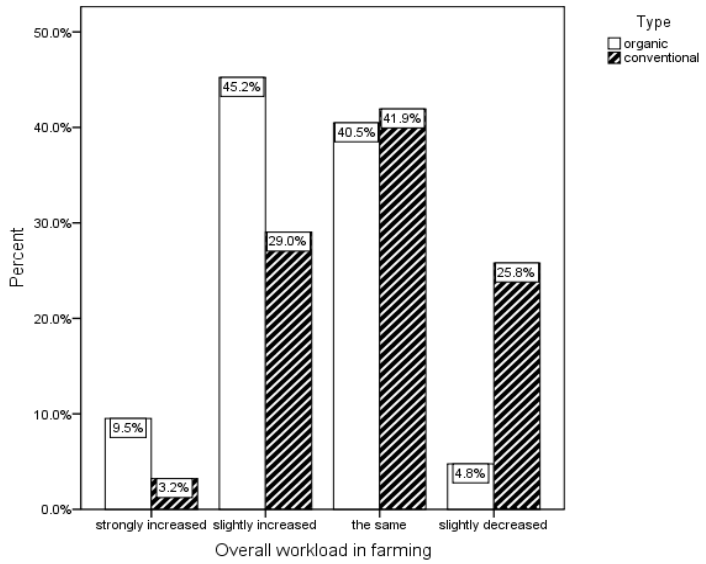
- 48% of organic and 32 % of conventional farmers say that women's workload has increased. The main reason is for both the same, **labour migration of men**. However, organic farmers also say that organic farming requires more manual work – and manual work is mainly women's work.

Decrease

- **OF**: 10% reported a decreasing workload of women, mainly because they started to produce less labour demanding crops.
- **CF**: 29% say the workload of women decreased because they started producing less labour demanding crops and / or stopped cotton production or decreased the surface area, or because they use workers.

Overall workload in farming

Figure 29: Perception of overall workload in farming (time comparison)



Increase

- The overall workload in farming has increased in the perception of the majority of organic (55%) and one third of conventional farmers (32%).

Decrease

- 5% of organic and 26% of conventional farmers observed a decrease. The same reasons for an increase or a decrease apply as above.

Sex disaggregated results

Disaggregation of results according to the sex of respondents and type of farming show the following:

Table 18: Differences in the perception of men and women regarding workload

	Organic		Conventional		All respondents	
Increased workload….	Men (n=33)	Women (n=11)	Men (m=21)	Women (n=11)	Men (n=54)	Women (n=22)
… of women	39%	64%	29%	36%	35%	50%
… for cotton	52%	73%	33%	36%	44%	55%
… overall workload farming	43%	82%	33%	27%	39%	55%

- Independent of the production type, **more women** than men **perceive an increase in workload**, be it their own workload, the one for cotton or overall workload.
  - ✓ 50% (and more) of all interviewed women say, workload in all three realms has increased.
  - ✓ The big majority of women from organic farms perceive increasing workload. However, less women refer to their own workload than to the overall workload or the work for cotton.
- **Perceptions do not differ very much between the sexes in the case of conventional farmers; by contrast they strongly do in the case of organic farmers.**

5.3.4 Cooperation and sense of community

In the time comparison farmers were asked about changes in cooperation among farmers and in the sense of community.

Increase

- **Cooperation among organic farmers has improved**. Far more organic (53%) than conventional farmers (30%) perceive an increase in cooperation. However, organic farmers' comments let assume that cooperation mainly occurs within the community of organic farmers: they exchange experience, advice and consult each other, use agro-machinery together, etc. It was said that the BCP project and frequent meetings unite the farmers, and experience exchange promotes cooperation.

Decrease

- 18% of organic and 30% of conventional farmers perceive decreasing cooperation which they primarily explained with increasing individualism.

Several discussions confirmed generally good relations and mutual exchange between organic and conventional farmers. Cooperation usually starts among organic farmers, then conventional farmers become interested (e.g. in organic pest control) and ask their organic colleagues for advice. Therefore, in most villages a **multiplication effect** is observed and cooperation improves in the whole community.

Organic farmers say the **project unites** (organic) **farmers**; 52 % perceive an increasing sense of community. Also 43% of conventional farmers say that the sense of community has improved which they mostly explain with the fact that more people are getting richer (e.g. due to migration), which makes them more relaxed and generous. However, a minority of organic and conventional farmers feel that the sense of community is deteriorating, a development which they again mainly explain with increasing individualism.

5.3.5 Image of organic farmers

The image of organic farmers is good, and according to 71% of organic and 50% of conventional farmers it has improved in the course of the past years. The reasons mentioned are manifold, but sometimes mix up the image of organic farmers *per se* and the image of an individual person:

- A widespread interest in organic farming and the project, even among conventional farmers;
- the better price they get for cotton and because they are becoming wealthier;
- some refer to their personal position as e.g. bio-inspector, village head, leader of farmers, member of the management board of bio-farmers etc., while others say their knowledge and experience makes them be considered as an expert.

Generally speaking, organic farmers are considered to be knowledgeable and skilled and are being consulted by conventional farmers.

5.3.6 Gender aspects

Female farm managers
In the sample of this study the percentage of female farm managers was 11% for organic and 18% for conventional farmers. It has to be kept in mind that the sample only covers farmers that were certified in 2008, i.e. farmers who joined the project in the first few years of its existence. Currently, 25% of registered organic farm mangers are female.

In discussions it was generally agreed that there are no specific constraints for women to joining the programme. However, if something new comes (as was organic farming), usually men first get involved, as for women it is more difficult to take the risk. One woman said that for her organic farming was an opportunity to become independent of her husband's family.

Responsibilities and workload
Due to labour migration of men, many women become the *de facto* head of household taking over more responsibilities. However, several women in this situation explained that important decisions are usually taken together, after consulting the husband by phone.

It is generally agreed that organic farming is more labour intensive and that especially women have to face an increasing workload because a) manual work is mainly done by women, and b) due to migration of men women have more work anyway.

Manual work is women's work – women weeding a maize field (Photo: F. Bachmann)

Leadership
At the management level of the two new organisations an equal number of men and women are active. The executive directors of the two institutions are male.

Table 19: Positions by sex (2009)

	men	women	total	% women
BioService				
Management	4	4	8	50%
Bio inspectors	3	2	5	40%
Village bio inspectors	19	1	20	5%
Farmer Union				
Management	1	1	2	50%
Board	6	1	7	14%
Village representatives (general assembly)	46	25	71	35%
Organic farmers (registered farm managers)	576	189	765	25%

Source: compiled by BioService

While 2 out of 5 Bio Inspectors are female, only 1 out of 20 VBIs is female. VBIs agreed that it is difficult for women to take over the task of a VBI as it implies a lot of activities, travelling and visiting farmers; all besides the other chores women already have on the farm, in the household and possibly also off-farm.

5.3.7 Fair trade prime

Discussions revealed that farmers are not well informed about fair trade and the respective mechanisms, i.e. how the fair trade prime is supposed to be used is not understood and they don't see any reason, why a prime should be used for community purposes (as foreseen).

More effort and information is needed to make organic farmers understand the prime and its designated use.

5.4 Impact on soils

Guiding questions: Has any change in water holding capacity of the soil been observed?

A strong positive impact of organic farming practices on soil qualities is perceived.

Figure 30: Perception of soil fertility changes (time comparison)

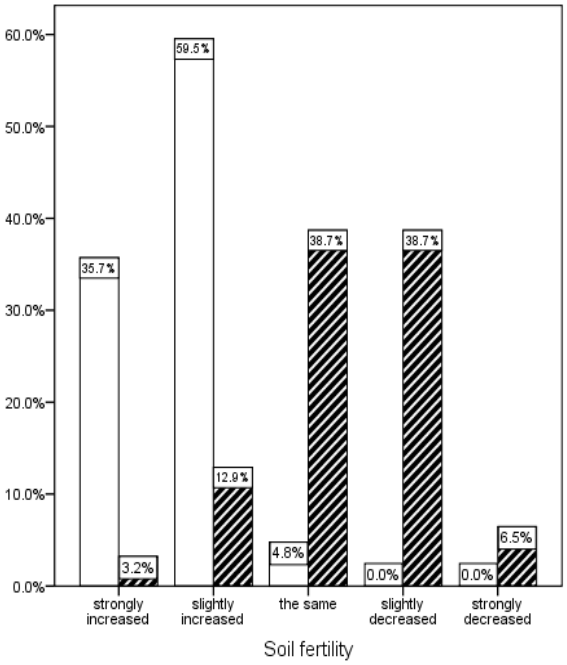
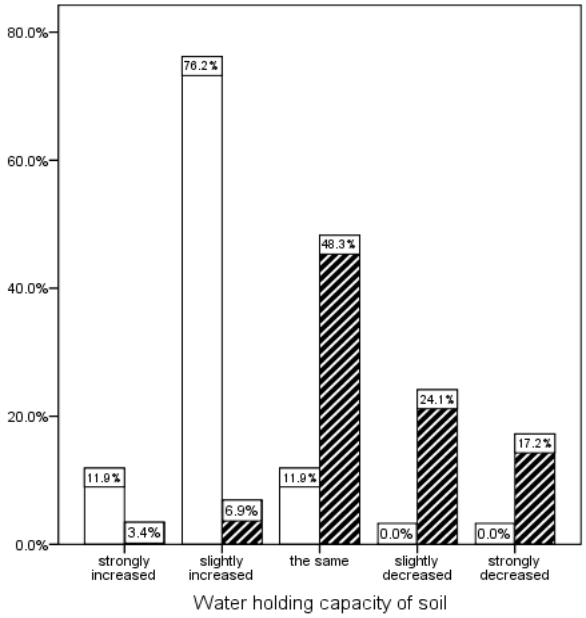
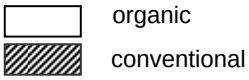


Figure 31: Perception of changes in water holding capacity of soils (time comparison)





Increase

- **OF**: **95% of organic farmers perceive an increase in soil fertility**. The use of manure is the most important reason, besides crop rotation, lucerne and abstaining from using chemicals. **88% of organic farmers perceive an improvement of the water holding capacity** of soils and almost unisono explain it with the use of manure.
- **CF**: Only 16% of conventional farmers perceive improved soil fertility, and 10% improved water holding capacity. Interestingly, improved soil fertility is also mostly explained with the use of manure. While 41% a decrease for various reasons

Decrease

- **OF**: None of the organic farmers observed decreasing fertility or water retention capacity of soils.
- **CF**: 45% of conventional farmers observe decreasing soil fertility, which they mostly relate either to the lack or insufficient amount of manure, or the use of chemicals and abusive use of fertilisers. Some farmers said their soils need more fertiliser each year. 41% face decreasing water holding capacity, for various reasons.

Besides the positive effect on soil fertility and water holding capacity, many organic farmers mention that the soil has become softer due to the use of manure.

Some organic farmers explained that they directly experienced improved water holding capacity in 2008, which was a dry year, as they had to irrigate less than conventional farmers in their neighbourhood.

6 Economic and institutional sustainability of the project

6.1 Perception of tasks, roles and functions of the two new organisations

Leading questions: Is the Farmer Union in a position to represent and promote the interests of their members? Is BioService Foundation in a position to render the necessary services (extension, ICS, marketing, finance)?

BioCotton Project (BCP) was the initiator of organic farming and cotton production in Jalalabad Oblast and the supporting institution for organic farmers. In 2007, BioService Foundation and the Farmer Union have been founded. The two organisations are complementary and do have different roles and tasks regarding organic (cotton) production and marketing.

New organisations and their functions are little known
Asked from whom they are getting support, 39% of organic farmers (n=41) mention BioCotton Project to be the institution currently providing support in organic cotton production, 37% mention BioService, 20% say they don't really differentiate between the organisations.

The majority of organic farmers can not (or do not) really differentiate between the two new organisations BioService Foundation and Farmer Union and their respective tasks and functions. However, people seem to be more aware about the existence and support of BioService than the Farmer Union. 18% of the respondents (organic farmers) are not able to mention any service provided by BioService Foundation, while 70% are not able to mention any tasks or responsibilities of the Farmer Union. 36% explicitly say that they have either never heard of the Farmer Union, or they have heard, but don't know its function and responsibilities. Given the fact that all bio farmers are members of the Farmer Union, this is quite surprising though!

That people can not well differentiate between the two organisations is reflected in the fact, that the same services are listed for the two organisations. The following table reflects how those 39 respondents who listed any services judge the quality of service provision regardless of to which organisation they assigned the service.

Performance in support services

Table 20: Organic farmers' judgement of support services by the project

Service mentioned	Performance			comments
n = 39	good	medium	low	
Training and advice	28	2	-	
Seed provision	10	3	5	Low seed quality in 2009, too expensive
Control, inspection, monitoring	10	4	1	
Marketing	8	5	2	Price does not meet all expectations
Credit and pre-financing	8	2	-	
Transportation (cotton)	7	-	-	
Pest management	2	1	-	
Provision of oil and animal feed	1	-	-	

Training and advice is the best known and highly appreciated service. Generally speaking, the quality of service provision is judged as being (rather) good. However, there are exceptions: regarding seed provision, respondents in several villages complained about the bad quality of seeds provided in the current year (2009); regarding marketing, not everybody is satisfied with the current cotton price received, and it was lamented, that no buyers could be found for organic beans.

Conclusions regarding the two new organisations
The two new organisations are still relatively young and have to deal with internal and external problems. Looking at the current work and situation of the organisations and how their respective roles and responsibilities are perceived by the farmers and VBIs, we can say that **BioService is in a position to render the necessary services** such as training and consultation, marketing, Internal Control System, facilitating access to credits and pre-financing, etc. Its visibility and presence in the villages is given by the work of the VBIs and bio inspectors who regularly visit the villages.

However, the visibility of the Farmer Union and the services it provides to organic farmers is weak. Many organic farmers are neither aware of the existence of nor of their membership in a Farmer Union and they lack knowledge on the Farmer Union's roles and tasks (see above). No identification of farmers with the Farmer Union was felt during this study.

Considering the current lack of awareness of farmers and the lack of visibility of the Farmer Union and its services together with problems regarding their performance in the past, **we can not consider the Farmer Union to be currently in a position to fully represent and promote the interests of its members**. The consultants got the impression that the Farmer Union in its current form is some kind of 'paper tiger'.

Whenever the roles and relations of the new organisations were addressed in focus group discussions, a majority of people were of the opinion that it would be better to have a cooperative under one head, instead of the two organisations and different heads with opposing ideas and less but ideal cooperation. The management of the Farmer Union supports this idea and has a vision of a cooperative under their lead, with BioService as an integral part of the cooperative. The government is currently promoting the building of cooperatives, and according to several VBIs first steps into that direction have already been taken.

6.2 Suggestions for raising the interest in organic farming

Organic as well as conventional farmers have been asked what they would suggest BCP to raise the interest in organic farming. The following is a compilation of suggestions (only those mentioned by more than one respondent) made by interview respondents.

Table 21 Suggestions on how to raise the interest in organic farming

	organic	conventional
Economic measures		
Increase cotton price / keep price high	**15**	**11**
Pre-financing / credits without or with low interests	7	2
Agronomic measures		
Diversification of bio crops	3	1
Information and training		
More information and advertisement on TV	**11**	**7**
More training	7	3
Exchange visits with bio-farmers in other countries	2	
Support services		
Provide / pre-finance agro-machinery	**12**	**6**
Facilitate access to land	4	
Improve support / more support (general)	5	1
On time payment / delivery of services	6	
High quality seeds	4	
Provide transportation	2	2
Other		
Create a cooperative	1	1
Transparency (clear contracts, transparent cotton price)	2	

- Interestingly, the most often heard suggestions (in bold) are the same, independently of the type of farming the respondent practices! They comprise of **maintaining a high and attractive cotton price**; **improve and intensify information** on organic farming, and **provide support / pre-financing regarding agro-machinery**.
- Especially in the perception of organic farmers, all type of support already provided by the project (credit, general support, transportation, training) is important to be maintained or increased to attract more farmers.
- Some of the suggestions made by organic farmers have to be understood as an expression of the current discontent regarding 2009's seed quality and price some farmers expressed, the doubts on the correctness of the service provider a few farmers had, and complaints heard about sometimes untimely provision of services.

However, these suggestions might currently not be relevant for the project, as BCP has changed its strategy from growth to consolidation in spring 2009.

6.3 Change from growth strategy to consolidation strategy

From the beginning, BCP followed a growth strategy, i.e. increasing the number of organic farmers and the surface area of organic cotton and organic production in general. Growth rates were high and in the last years even exceeded expectations. This growth strategy should have allowed the two organisations to become cost-covering and fully self-financing by 2010, which was targeted in project planning.

A number of factors, among them the lack of buyers for fair-trade in conversion cotton (currently 60% of the farmers are still in conversion) finally made the steering committee to change the strategy towards a consolidation strategy, i.e. keeping farmers without actively recruiting new ones, or new ones are only accepted without paying a prime for in conversion cotton. The consolidation strategy helps to reduce costs (training, services) but delays the financial self-sufficiency of the two organisations, and extends the time of dependency on donor support.

IV. CONCLUSIONS

General

- **Livelihoods**: The livelihoods of organic and conventional small-scale farmers in Jalalabad Oblast depend on average half on farming and half on off-farm activities. Labour migration is an important economic factor resulting in labour shortage in local agriculture. The study found that over 40% of households rely to at least 50% on either off-farm income or remittances. On average, cotton is a relatively more important source of income for conventional farmers, while livestock for organic farmers.
- **The perceived potential of agriculture**: Respondents don't see much potential in agriculture as a future for their children; they want them to be educated and have a good job. However, thinking of themselves and considering the current situation of high unemployment their favourite option is farming before having an own business or a paid job.

Conversion to organic farming – reasons and assessment

- **Reasons**: The reasons why organic farmers converted to organic farming are mainly economic reasons.
- **Assessment**: Organic farmers positively assess their decision to produce organic; 91% would convert again. 27% even say that under no reason they would change back to conventional farming.
- **Threads**: However, price decline of organic cotton or a higher profitability of other crops could make organic farmers change back. The same is true if farmers would get the feeling of being neglected or cheated by the project.

Impacts of organic farming and the project

General

- **Many positive impacts – one negative impact**: Economic profit, health, the increase of the number of livestock, the clean cotton oil and the improvement of soils are the most often heard positive impacts organic farmers observed since conversion. Besides the increase in workload no important negative impacts were reported.
- **Access to support services**: Joining the project and converting to organic farming is a way to get access to support services in a context, where hardly any support is provided from governmental institutions.
- **Comment on quantitative economic data**: since many farmers do not have records on revenues and how much they spend on farm inputs, the quantitative data is not fully reliable. Thus, the quantitative economic results of this study have to be understood as being indicative for a trend, which is strongly backed up by qualitative data.

Economic aspects

- **Yields**: Compared to conventional production, the 2008 cotton yields were 10% lower in organic farming, which is statistically not significant. In the first two years of conversion yields normally decrease, whereupon they start to increase steadily as an effect of the use of manure. However, yields remain below conventional yields. The availability of a sufficient amount of manure is probably a limiting factor for a number of organic farmers.
- **Production costs**: Organic farming leads to a reduction of production costs (by 8% in 2008) as much less inputs have to be bought. However, organic farming implies

more (manual) labour which increases labour costs compared to conventional farming.

- **Revenue from cotton**: About 50% of organic farmers perceive increased revenue from cotton since conversion due to the higher price for organic cotton and the additional benefits such as oil and animal feed. However, on very small farms no big differences are observed. The calculated difference in revenue (2008) is 20% higher for organic farmers, which is statistically significant.
- **Gross margin**: The calculated gross margin (excluding costs for hired labour) of cotton production is 27% higher for organic farmers (2008), which is statistically significant.
- **Economic risk**: Crop rotation and higher importance of livestock economy in organic farming lead to a generally more diversified production of organic farmers. Diversification together with project support reduces the economic risk.
- **Room for manoeuvre**: organic farmers have on one hand a very limited room for manoeuvre as far as flexible adjustment to market trends and price fluctuations is concerned, because cotton is so far the only crop fetching a higher price for organic production. On the other hand, the services provided by the project, i.e. pre-financing of seeds and good access to timely credits for agricultural activities increases their room for manoeuvre and reduces risk as they can keep more livestock (for dung and as a saving) and are less urged to sell it when cash is needed.
- **Access to credits**: the project facilitates access to credits, markets and support services. The collaboration of BCP with *Agrokreditplus* results in organic famers having access to credits for agricultural activities if needed, and on favourable terms (social collateral, interest rate, little paperwork). Therefore, organic farmers are less urged to sell livestock when money is needed, which gives them more security.
- **Individual risk**: the guaranteed selling of organic cotton and the marketing and delivering organised by the project reduces the risk of individual farmers.

Ecological aspects

- **Crop diversity**: Crop diversity has increased on organic farms as a result of crop rotation. Increasing the diversity is facilitated by the project with information on new crops and varieties.
- **Risk of crop failure**: Organic farmers have a more positive perception regarding their risk of crop failure. It reduces (at least for some) due to less problems with pests, diversification of crops and the project support.
- **Pests and diseases**: Organic farming and the use of manure have positive effects on the occurrence and management of pests and diseases.
- **Soil quality**: Organic farming improves soil fertility and water holding capacity, positive changes which are reported by almost all organic farmers.

Social aspects

- **Health**: Improvement of health is the second most often heard positive change observed since conversion to organic farming. Farmers relate it a) to organic cotton oil which is highly appreciated, and the consumption of organic food, and b) to not using chemicals which has positive health effects. The majority of organic farmers use at least part of the ‘extra money’ earned from organic cotton for food consumption which likely results in an improved nutritional status of the family.
- **Workload**: The most negative impact is the increase of workload, and especially the workload of women. This aggravates the situation of women who already have to bear the burden of male labour migration.

- **Cooperation**: Cooperation and exchange among farmers (not only organic) has improved as a result of the project; experience exchange, mutual advice, and social collateral being important factors. Also relations with conventional farmers are good and information and experience is exchanged.

Institutional sustainability

- The project remains dependent on donor support as the two new institutions are not yet self-financing. With the strategic change towards consolidation this dependency will remain for several more years. Self-financing will only be possible if the production volumes increase above the current level.
- Diversification, i.e. developing markets for other organic crops remains a challenge and priority for the next years.

V. RECOMMENDATIONS

Major challenges the project is currently facing are: to find buyers for in conversion fair trade cotton, and buyers for organic rotation crops. Based on the results of the study, the following recommendations can be made:

Impact monitoring

- A more systematic monitoring of the impacts of organic cotton and organic farming in general should be envisaged. For this purpose a) baseline data is required (e.g. yield levels and status of soil fertility before conversion, etc.), and b) the monitoring activities started in June 2009 should be continued.
- The ICS contains a lot of information on organic farmers. It would be valuable to collect selected key information on conventional farming too for comparative analysis and for monitoring purposes.

Promotion of organic farming

- Although it is currently not a priority of the project to increase the number of organic farmers, promotion is important. Adequate means of communication are TV and radio as they reach many people (TV: 100% coverage organic and conventional farmers; radio: above 60% coverage). However, cost might be too high. A quarterly newsletter might be a cheaper way to inform a broad public about the project, and the development and virtues of organic farming.
- For general awareness creation on organic farming the following means might be used: press releases; advertisement; involve schools; organise an exhibition, etc.

Service provision to organic farmers

- Agro-machinery is a constraint for the majority of farmers. The project should investigate on possible ways to facilitate access to agro-machinery. Better access to the use of agro-machinery might have a positive influence on production, as work can be done timely, and might also have a positive influence on the amount of workload. In case the project can facilitate access to agro-machinery, this will probably also be a strong incentive for conventional farmers to think about conversion.
- Maintain the quality of services and improve it where difficulties have occurred in the past, as organic farmers react with mistrust and suspicion: guarantee good seed quality; timely information regarding the price of cotton; transparency on costs, prices etc.
- Fair trade is not well understood by the big majority of organic farmers. More explanation and information on the prime and its possible use (community level) is necessary.
- More emphasis and training on compost production might be necessary to increase the number of organic farmers using compost, which are currently only 75%.

Marketing organic crops

- Keep on and increase efforts for developing markets and finding buyers for organic rotation crops. At the same time, new possible rotation crops with a potential for international marketing have to be identified.
- Increase efforts for developing local or regional markets for organic products. Evaluate the local / regional market potential of organic cotton oil, organic vegetables; organic fruits; herbs, sunflower (oil).

Organisational level

- The visibility of the Farmer Union and its services has to be increased, and the awareness of farmers on the existence and role of the Union, of which they are members, rose. Possible means are: an information campaign, flyer, meetings.
- The Farmer Union has to develop lobbying instruments to promote the interests of organic farmers and to foster organic farming in general.
- Cooperation and communication between the two new institutions BioService Foundation and Farmer Union needs to be improved.