

From training to practice

Midterm evaluation of the UTZ-Solidaridad
small-holder tea programme in Malawi



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smallholder tea programme in Malawi

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Preface

The smallholder tea sub-sector in Malawi is faced with many problems which include low productivity and inconsistent quality, leading to low income for the farmers. Many problems arose out of poor agricultural practices, which result in low incomes and environmental damage such as soil erosion, water pollution and deforestation. UTZ Certified and Solidaridad have initiated a tea programme in Kenya and Malawi to tackle these issues by developing and implementing the UTZ certified code of conduct for tea, improving the participation of national stakeholders in the development and implementation of sustainability standards, stimulating domestic and international market demand for sustainably produced tea and ensuring access to and benefits from certification schemes and markets for smallholder tea producers. UTZ and Solidaridad expect that by means of increasing the sustainability of tea production and trade, tea production will become a more economically viable option for the current and future smallholder tea farmers, enhancing their standard of living.

This study presents the results of the mid-term evaluation of the UTZ-Solidaridad smallholder tea programme in Malawi. The research was commissioned by Solidaridad and UTZ Certified to obtain insights into the effectiveness, the appropriateness and relevance of the UTZ-Solidaridad tea programme in Malawi and to obtain recommendations on how to improve the tea programme and other future programmes. We hope that the findings of this study will be useful to strengthen the programmes currently being implemented, and to inform the current debate on sustainable tea production.

We are greatly indebted to the information from and assistance of the farmers, the Malawi tea company staff, the Solidaridad East and Central Africa Expertise Centre and the hard work done by the enumerators to collect data. Without this, we would not have been able to do this study. We also thank the Solidaridad and UTZ Certified team members involved in the study for providing us with information on their training and certification approach in Malawi and feedback to the questionnaire and report.

L.C. van Staalduinen MSc
Managing Director LEI Wageningen UR

Abbreviations

DEMB	D.E MASTER BLENDERS 1753
ETP	Ethical Tea Partnership
EU	European Union
FFS	Farmer Field School
FLO	Fairtrade Labelling Organisation
GAPs	Good Agricultural Practices
EOT	Eastern Outgrowers Trust
IDH	The sustainable trade Initiative
ICS	Internal Control System
Kg	Kilogram
MST	Msuwadzi Smallholders Trust
PPE	Personal Protection Equipment
RA	Rainforest Alliance
SAN	Sustainable Agriculture Network
SAT	Sukhambizi Association Trust
SECAEC	Solidaridad East and Central Africa Expertise Centre
TIP	Tea Improvement Programme
UTZ	UTZ Certified

Executive Summary

S.1 Background and aim

The UTZ-Solidaridad tea programme in Malawi is built around the implementation of the UTZ Certified tea code of conduct in smallholder tea production. In 2010, Solidaridad and UTZ decided to evaluate the effectiveness of their activities and the impact of the implementation of the UTZ-Solidaridad programme on smallholder tea farmers in Malawi. LEI Wageningen UR was commissioned by UTZ and Solidaridad to carry out the evaluation of the UTZ-Solidaridad smallholder tea programme. The evaluation was conducted through the delivery of two studies: a baseline study at the start of the UTZ-Solidaridad programme and a mid-term evaluation after the programme had been running for two years.

This report presents the findings from the mid-term evaluation with regard to: i) the effectiveness and the appropriateness and relevance of the UTZ-Solidaridad tea programme in Malawi and ii) lessons learnt and recommendations for the current programme and other future programmes. The research methodology adheres to a mixed-methods approach in which quantitative analyses based on survey data, with a before treatment and after treatment approach, are combined with qualitative analyses based on interviews and focus group discussions. The analyses of the quantitative and qualitative information follows closely the theory of change underlying the UTZ-Solidaridad tea programme.

S.2 Effectiveness of the UTZ-Solidaridad tea programme in Malawi

The effectiveness of the programme was assessed based on the following evaluation questions:

1. To what extent have the activities led to the planned outputs?
2. To what extent have the objectives (outcome level) of the programme been realised as a result of the output?
3. To what extent are the different target groups reached?
4. What are the main factors influencing the results of the actors?

The first evaluation question was addressed by investigating whether lead and other farmers were trained, and whether all producer associations had become UTZ certified at the time of the mid-term survey. All 304 planned lead

farmers had been trained and minimally 60% of the target population of 9,700 farmers had received training by the UTZ-Solidaridad programme in the mid-term situation, although the exact percentage is not clear. The rest probably was not trained because the programme was put on hold in May 2011. One out of three producer associations became UTZ Certified before the mid-term survey was carried out.

The theory of change of the UTZ-Solidaridad programme specifies the immediate and ultimate outcome indicators and their expected changes as a result of the programme outputs. In the report, results are presented for the group of all farmers who participated in trainings, but we specifically focus on its subset of farmers who participated in the UTZ-Solidaridad trainings.

Looking at the question 'to what extent have the objectives (outcome level) of the programme been realised as a result of the output', it can be concluded that positive changes on outcome level have been observed for UTZ-Solidaridad programme participants. One-third of the overall immediate outcome indicators have changed significantly in a positive way between 2010 and 2012 for farmers who participated in trainings generally and for UTZ-Solidaridad training participants: i) they make better informed decisions on farm management, ii) they improved their overall implementation of sustainable practices, iii) they have healthier and safer working and living conditions, iv) they improved use of personal protective equipment, v) they decreased the use of crop protection products and vi) the relationship between farmers and tea factory managers improved.

An unexpected finding is that the overall knowledge level on sustainable farming practices has significantly decreased compared with the baseline situation. We could not find satisfactory explanations for this decrease. This finding challenges the causal sequence in the theory of change where improvement of knowledge is a prerequisite for an improvement in the implementation of practices. Nevertheless, the overall implementation of sustainable practices improved over time.

Box 1**Changes in overall outcome indicators for UTZ-Solidaridad training participants****Significant positive change in overall outcome indicators**

Immediate outcome indicators

- Better informed decision making on farming
- Improved implementation of sustainable practices
- Healthy and safe working and living conditions
- Improvement of relationships between farmers and managers

Ultimate outcome indicators

- Improved use of personal protective equipment
- Decreased use of crop protection products

Significant negative change in overall outcome indicators

Immediate outcome indicators

- Knowledge on sustainable tea production

No significant change in overall outcome indicators

Immediate outcome indicators

- Record keeping
- Farming as a business
- Better resource management and conservation practices

Ultimate outcome indicators

- Improved productivity
- Improved quality and consistency level of quality of green leaf
- Correct use of fertilisers
- Safe use of crop protection products
- Improved gross income*
- Increase in investment and savings

Change in the overall outcome indicator could not be established

Immediate outcome indicators

- More transparent processes
- Groups are better organised
- Better services to group members

Ultimate outcome indicators

- No child labour (in line with ILO)
- Improved farm-efficiency (economic, agronomic)
- Net income

*The calculated gross income should be treated with caution due to the small number of observations (information was not complete for all respondents) and the potential errors in the data.

The qualitative findings of this research are positive for many of the indicators except for the indicators 'better informed decision making' and 'groups are better organised'. Four indicators were not mentioned by farmers during the discussions: 'healthy and safe working and living conditions', 'child labour', 'decreased and safe use of crop protection products' and 'increase in investment and savings'.

No significant changes were observed for the UTZ-Solidaridad participants with regard to i) record keeping, ii) farming as a business (diversification), iii) resource management and conservation practices, iv) safe use of crop protection products, v) productivity, vi) tea quality, vii) correct use of fertilisers, viii) gross income, ix) increase in investments and savings. And change could not be established for the indicators 'more transparent processes', 'groups are better organised', 'better services to group members' and 'no child labour (in line with International Labour Organisation standards)', 'farm efficiency' and 'net income'.

The target group of the UTZ-Solidaridad programme consists of all 9,700 farmers connected to the three producer associations that were to become UTZ certified. More than 60% of the targeted farmers have been reached at the mid-term situation, but there is a high degree of uncertainty about the actual percentage due to the lack of training records. In the programme setup, a specific objective was made with regard to the participation of women, as in Solidaridad's experience women usually hardly participate in training programmes even though they are involved in production activities. The programme was successful in attracting women to the training, as about 40% of the farmer-training participants were women. This exceeds the target of 33% of female participants aimed at. It is not clear whether 33% or more of the lead farmers are women as information on the gender of lead farmers was not available.

Regarding the factors influencing the results of the actors (evaluation question 4), farmers appear to be in need of more training as scores for knowledge and the implementation of practices both influence the results of the smallholder farmers in the analyses, and many of them indicated to be in need of more training in the survey and during the focus group discussions. The UTZ-Solidaridad programme thus addresses a problem of inadequate knowledge of and implementation of practices by farmers through training. Furthermore, the use of fertiliser, which was addressed in the programme, was also an important factor influencing productivity change and income. However, these three factors are not the only ones influencing the results of the actors. Factors such as climate change (especially droughts), logistics in green leaf production, access to credit, low prices for green leaf, illiteracy and a low education level are beyond the scope of the programme, but influence farmers' performance, as do high input costs for fertilisers, seedlings and personal protective equipment, and food security, although these latter factors have been partly taken up in the programme through training farmers on input use and diversification. It is not clear which of the influencing factors identified in this study has the biggest influence on the performance of smallholder tea producers in Malawi.

Overall, this study concludes that, halfway through its implementation, the UTZ-Solidaridad tea programme has trained all promoter farmers and has reached at least 60% of the targeted farmers. The training was effective in attracting women to the trainings, although it is not clear if this also counts for lead farmer trainings, and one out of three smallholder associations reached UTZ certification by June 2012. Furthermore, one-third of the outcome indicators showed significant positive changes since the baseline situation while, unexpectedly, the outcome indicator knowledge decreased over time. Finally, this study identified that important factors that influence farmer performance are training, which is addressed by the UTZ-Solidaridad programme, and high costs for fertilisers, seedlings and personal protective equipment. The study also found that external factors, which are beyond the scope of the UTZ-Solidaridad training programme, influence farmer performance. It is not clear which of the identified influencing factors identified in this study has the biggest influence on smallholder tea producer performance in Malawi.

S.3 Appropriateness and relevance of the UTZ-Solidaridad programme in Malawi

To assess the appropriateness and relevance of the UTZ-Solidaridad tea programme, we used the following questions:

1. To what extent is the programme with regard to the training of UTZ certification of smallholder tea farmers in Malawi appropriate to the needs among the target group?
2. To what extent are the methods and activities well chosen to attract the target group?
3. What, if any, is the added value for the various actors going through the certification process? What, if any, is the added value for the various actors being certified?
4. Of the changes observed in the situation of the tea farmers in Malawi, if any, what can be said for contribution and attribution with regard to the Solidaridad/UTZ intervention?

Assessing whether the needs of the smallholder tea farmers were met by the programme, we conclude that most training needs of the farmers who participated in UTZ-Solidaridad training were met as almost all participants said they were satisfied with the training and would recommend the training to other farmers. Farmers would like to see some training topics to be addressed in the

future; e.g. how to establish nurseries and how best to grow food crops next to tea production. Field officers stress that leaf quality should be addressed in the future programme and that a solution to record keeping because of the illiteracy of farmers should be found. Farmers also expressed needs that have an indirect relation with the UTZ-Solidaridad training activities, for instance: high input costs, which can be related to training on fertiliser application; climate change adaptation, which can be related to issues around nursery establishment; and food security, which can be related to farmers' wishes to learn to grow food crops in a better way. Other non-training related challenges faced by the farmers, which indicate farmers' needs, are beyond the scope of the programme. Among these are: low prices for green leaf, high input prices, climate change, logistics in green leaf collection, access to credit and illiteracy.

With regard to the methods and activities chosen in the training programme, the best way to teach farmers is in small groups of farmers with similar backgrounds, led by well-trained, experienced and knowledgeable lead farmers. The current lead farmer system as it is implemented in Malawi fits the 'perfect training method' profile as indicated by farmers and field officers for about 60% of the farmers trained in the UTZ-Solidaridad tea programme. The other 40% (farmers from Eastern Outgrowers Trust) are trained in a less optimal way as the training groups are larger. This is due to logistical constraints as the farmers are widely scattered around the estate which they supply green leaf to.

For the lead farmer system to work, the motivation of lead farmers to teach other farmers is key. The lead farmers were active in their role at the time of the mid-term survey but field officers suggest to give the lead farmers a compensation because otherwise their motivation may decrease. Solidaridad mentions that financial payments would run the risk of lead farmers stopping training after the programme and payments end. It thus needs to be verified whether the voluntary lead farmer system is a sustainable way of training farmers in the future.

The added value of going through the certification process is different for the actors involved. Certification offers farmers a motivation to implement the required practices and pass the audit and is seen as a way to sell tea to the market and retain current clients in the future, which training by itself cannot achieve. Certification is also expected to lead to a higher price for green leaf, enhancing the potential to cover the costs of the certification activities. Furthermore, the Internal Control System has led to an improvement of internal planning and processes at the tea companies, leading to better communication between farmers and the tea company and better service delivery to the farmers. Such changes were not observed for the smallholder associations.

The UTZ-Solidaridad programme has contributed to both the knowledge level of training participants and to their improved implementation of sustainable practices. As you may remember, knowledge scores generally decreased over time, but the knowledge score of the UTZ-Solidaridad programme participants decreased less than the knowledge score of untrained farmers. The combination of the UTZ-Solidaridad training and Rainforest Alliance and Other trainings showed similar contributions to changes in knowledge levels and the implementation of, specifically, production practices. An interesting finding is that the effect of UTZ-Solidaridad training on the knowledge level of the respondents is influenced by the farmers' level of education and knowledge level in the baseline situation: the lower the education and knowledge level prior to the training, the bigger the effect of the UTZ-Solidaridad training. Due to insufficient data, no significant relationships could be found between changes in production, productivity, gross and net income and the type(s) of training participated in.

Overall, we conclude that UTZ-Solidaridad training alone and in combination with other training activities contributed to knowledge levels and the implementation of sustainable practices. Furthermore, the UTZ Solidaridad tea programme in Malawi has met most of the training needs of the target group, but some training needs still exist. Furthermore, farmers face challenges at the time of the mid-term survey that were beyond the scope of the programme. The training methodology could furthermore be adjusted for smallholders connected to Eastern Outgrowers Trust to better fit with the 'best training method' profile, although this may not be realistic from a logistical point of view. Finally, certification, including its potential for the farmers to retain their markets, and its potential for reaping market rewards, offers a motivation for farmers to implement the required practices and has improved organisational processes and planning at the tea companies (but not at the smallholder associations). The improvement of processes and planning at the companies has led to improved communication between farmers and the companies and better service delivery to the smallholder farmers.

S.4 Major lessons learnt

Four major lessons learnt have been identified in this study.

First, even though their knowledge scores decreased over time, UTZ-Solidaridad training participants did improve their overall implementation score significantly. Apparently, farmers may implement practices correctly, without knowing why some practices are better than others. This finding contradicts the

theory of change in which an increase of knowledge is expected to lead to an increase in the implementation of practices.

Second, at the time of this mid-term evaluation, smallholder tea farmers were facing a number of challenges that were not addressed in the UTZ-Solidaridad programme. It could be that these challenges arose after the programme had been developed and its implementation had started. The challenges brought up by farmers in 2012 include high costs of fertiliser and other inputs, climate change (droughts), low prices for green leaf, logistics in green leaf collection, access to credit and illiteracy. These challenges might need to be taken into consideration in the next stage of the programme, in order for the programme to respond to the most pressing needs of farmers. This implies revisiting the theory of change, the underlying assumptions, and reconsidering the boundaries and scope of the programme.

Third, the factories have a lot of data and other information which has not entirely been tapped into for this mid-term review. Such information could be used for potential future assessments.

Fourth, there is very high uncertainty about some of information gathered: more than 50% of the production data collected from the surveys are incomplete and the information contains many errors. This indicates that farmers had difficulties in answering the questions (which is linked to record keeping) or that enumerators did not persuade farmers enough to answer all the questions. This has limited the study in some aspects, but for most of the issues under investigation, reliable conclusions could be drawn.

S.5 Recommendations

For the next phase in the programme, it is recommended to focus activities on those knowledge and implementation topics that have a low score in the mid-term situation. This can be done based on the scores applicable to the whole target group, the trained farmers, the UTZ-Solidaridad training participants, or the scores for farmers connected to each of the three producer associations. Furthermore, the needs of the farmers with regard to training topics and methodologies, indicated in this report, can also be used to adapt the programme.

An important success factor for the training cascade is the willingness of lead farmers to train other farmers. As it is not clear if lead farmers need some kind of reimbursement to continue training other farmers, while concerns exist that they may lose motivation without reimbursement, it is recommended to discuss how to keep lead farmers motivated in the future and to take action when required.

With regard to the training activities, lead farmers appeared to be in need of follow-up trainings during the mid-term survey. LEI understood that such trainings have been organised after the validation workshop took place. It is recommended to regularly follow up the progress of the lead farmers and refresh the trainings as farmers who are trained irregularly or sometime in the past tend to forget what was taught. In addition, it is recommended to ensure that UTZ code of conduct requirements are understood well by the farmers as we found that farmers for instance misunderstood the requirements for the use of PPE. Also, it is recommended to ensure that training tools are adapted for use by illiterate farmers as many smallholder tea producers in Malawi are illiterate. Finally, it is recommended to combine trainings on similar topics, for instance of different certificates, to enhance cost-effectiveness of the training programmes.

Another recommendation which is directly related to programme activities as it is a UTZ code of conduct requirement, is to make record keeping simpler for the farmers and illustrate the potential benefits of record keeping such as better informed decision making. This is particularly important for farmers in Malawi since many farmers are illiterate. A way to make record keeping simpler is for instance to provide them with booklets (such as Msuwadzi Smallholders Trust did with good results), which can be easily filled out. In such a booklet, for instance, use can be made of pictures and pictograms next to boxes which can be ticked or in which only a number needs to be written. For instance, next to a pictogram of a bag of green leaf, the farmer can indicate the number he has brought to the leaf collection centre. Another option is to assist farmers to keep records, interpret them and use records in decision making.

As no detailed information was available on the training activities, it is recommended that in the next phase such activities are monitored, and especially to make sure that all targeted farmers participate in UTZ-Solidaridad trainings. Monitoring activities would include specifically defined outcome indicators so they can be measured in a good way and an indication of the time frame of the outcomes to be expected and the interdependencies of different outcome indicators. Such information could be used for programme evaluations, be it by programme staff itself, or an external party.

From a strategic programme point of view, it is recommended to revisit the theory of change with regard to the assumption that improved knowledge leads to an improved implementation of sustainable practices. We also recommend focusing on external factors, their potential influence on the outcomes and how they will be addressed when they arise. An important issue to be discussed is the assumption underlying the theory of change that more knowledge leads to a

better implementation of practices, as in this study knowledge levels decreased while the implementation of practices improved.

For potential future assessments, it is recommended to use tea company data for parts of the analyses and cross validation. When available, accessible and of good quality, such tea company data could assist in the analysis of changes in core production and income figures for the whole population and, potentially, assessment costs of evaluation studies could be decreased.

There is a scope to improve the logistics of green leaf collection by the factory companies. Smallholder tea producers can benefit at least in two ways from reduced waiting time at collection centres: improved green leaf quality and more time for other productive activities. This could be taken up in the next phase of the programme, or other future programmes.

Finally, it is recommended to communicate the study results to the farmers so they can learn from it. Around ten survey respondents indicated that they would like to know the outcomes of the survey.

For the development and execution of future other programmes, it is recommended to:

- Assess the needs of the target group before the programme is developed and to develop the programme accordingly. When a needs assessment is conducted prior to the development of a programme, to update it during the implementation of the programme and to adjust the programme's intervention strategy if required.
- Critically test the rationale of the theory of change with relevant stakeholders and potential evaluators prior to implementing the programme, and to assess whether the programme addresses the main challenge(s). This includes choosing very specific indicators (e.g. 'income adjusted for inflation' instead of 'income') that reflect the targeted outcomes, assessing how external factors may influence programme outcomes, and how to address such factors when they arise.
- Set up a monitoring system at the start of the programme and record activities in the field throughout the programme duration. This can be relatively simple through an excel spread sheet although it does take time to monitor and record the activities. Based on such monitoring data, evaluations by programme staff or external parties can be conducted in a much better way than without such data.
- Communicate to the companies and (lead) farmers involved what they can expect during the programme and regularly follow up on their progress, especially when extension work is not a large part of the day-to-day activities of

the field officers and lead farmers and thus a tension exists between extension work and other activities.

- Find out whether or not lead farmers should be remunerated to train other farmers for a long period of time.
- When an evaluation takes place, assess the availability of data at various value chain actors for the purpose of evaluation as this could potentially decrease the assessment costs.

1 Introduction

1.1 Tea production in Malawi¹

'With an estimated crop production of 52,000 tonnes annually, Malawi is Africa's second largest tea producer behind Kenya. The production in 2010 has been reported at 38,600 tonnes; a big drop from previous year production of 52,500 tonnes, due to long dry spells in the tea growing areas. The crop is also Malawi's third biggest export earner after tobacco and sugar and contributes 8% of the export earnings. The country's 2010 annual tea exports contribute 3% of global tea exports. The majority of tea is grown in the two districts of the Southern Region; Mulanje and Thyolo while a little, with one factory, is produced in Mzuzu District in the Northern Region. Over 90% of the tea is produced by 22 estates with 10 factories, who are members of the Tea Association of Malawi (TAML) and the rest, less than 10%, by the more than 11,000 smallholder farmers who take their green leaf to estate factories for processing. The total land cultivated with tea is approximately 13,500 Ha for the estates and 3,000 ha for the smallholder farmers. The bulk of the tea is sold through weekly auctions at Limbe, Blantyre and is exported to world destinations, the major outlet being UK. Local tea consumption is low at only 3% of production' (All figures in this paragraph: Kamanu, 2010).

1.2 The UTZ/Solidaridad tea programme and the context for the evaluation²

The smallholder tea sub-sector in Malawi is faced with many problems which include low productivity and inconsistent quality, leading to low income for the farmers. Many problems arose out of poor agricultural practices, which result in to low income and environmental damage such as soil erosion, water pollution and deforestation. Against this background, three factors enabled various actors to tackle these problems in the tea sector. First, market drivers created the opportunity to start working on the certification of tea in Malawi and Kenya. These market drivers consisted of market parties who demand sustainably produced tea, such as D.E. MASTER BLENDERS 1753 (formerly known as Sara

¹ The information in this section was provided by Joseph Kamanu from Solidaridad.

² The information in this section was provided by Solidaridad and UTZ Certified.

Lee). Second, UTZ and Solidaridad were willing to start creating the supply of UTZ Certified tea in order to ensure sufficient supply for future demand for such tea. Third, donors, such as IDH the sustainable trade initiative and DE Foundation, were willing to support projects that would improve the livelihoods of smallholder tea farmers.

In 2008, Solidaridad, in partnership with UTZ Certified, initiated its tea programme, which was originally built around the development and the implementation of the UTZ Certified tea standard. By the end of 2009, a Solidaridad-led consortium (including UTZ Certified and DE Foundation as direct consortium partners and SOMO and Oxfam Novib as specific projects partners) received co-funding support from IDH for implementing the UTZ-Solidaridad tea programme within the IDH's 'Tea Improvement Programme' (TIP).

The specific purposes of this tea consortium are:

1. To improve the participation of national stakeholders, both men and women, in the development and implementation of sustainability standards through national reference groups¹
2. To stimulate domestic and international market demand for sustainably produced tea
3. To ensure access to and benefits from certification schemes and markets for men and women smallholder tea producers

1.2.1 Developing the UTZ Tea code of conduct

Following the success of the growing demand and supply for UTZ Certified coffee, above objectives offered UTZ Certified an opportunity to develop a similar programme for sustainable tea. With Sara Lee, one of the first international movers in sustainable supply chain development, a committed private partner was found to translate the ambitions into concrete projects and results. It also offered a good basis to further develop the market for sustainable tea.

To guarantee a bottom-up approach in the interventions, national reference groups were established through which the local realities were taken along in the development of the UTZ tea code of conduct and programme development. This distinguished the UTZ-Solidaridad programme from the other tea programmes under the IDH Tea Improvement Programme.

¹ A national reference group is a national voluntary body composed of tea industry stakeholders (farmers, producers, processors, exporters, traders, government) who push the industry concerns particularly with regard to multiple certifications.

1.2.2 Stimulating domestic and international market demand for sustainably produced tea

The programme's ambition was not only to increase demand for sustainable tea from Europe. The partners were realistic about the limited volumes demanded by the EU market and therefore also included market development of the main tea consuming markets in Asia (India, China and Indonesia) in the goals of the programme.

1.2.3 Reaching smallholder tea producers through the UTZ-Solidaridad tea programme

At the start of the UTZ-Solidaridad programme (2009), its focus on sustainable tea from smallholders was an innovative one, as so far other certification activities in the tea sector had only been focusing on larger estates.

The decision to carry out the programme in Malawi was directly related to the market demand for UTZ Certified tea. Malawian tea offers an important component in the blended black tea bags on the European market and concrete market demand for UTZ Certified tea from Sara Lee for their Pickwick brand was the main reason to start working in Malawi.

A scoping study of the Malawian tea sector conducted by Solidaridad revealed that the smallholders were in strong need of capacity building of agronomic, economic and organisational skills. The smallholders sell their tea to the larger estates, which in turn offer the processed tea to international markets. The estates can provide the smallholders limited extension services and are strongly in favour of enhancing the capacity of the smallholders as this is regarded an important factor in the potential to increase overall productivity of the sector. In other words, besides concrete market demand, the Malawian situation offered the tea programme a case of serious smallholder issues that needed to be addressed. Moreover, with a strongly growing number of estates obtaining certification, leaving out the smallholders of certification would eventually exclude them from the supply chain and strongly limit their market access.

Having supported similar experiences in coffee projects, DE Foundation believed that by supporting smallholder farmers, a decent income and future could be created. In 2008, the DE Foundation agreed to financially support activities for the tea sector in Malawi, from certification support of the estates to longer term capacity building of the smallholders.

Within the programme, farmers were to be trained to reach UTZ certification. It was planned that training would reach all the farmers through lead farm-

ers and field officers. Lead farmers would be trained by Solidaridad on Good Agricultural Practices (GAP) based on the UTZ code of conduct for tea farms. In turn, lead farmers would train other farmers on the same curriculum, thereby increasing the outreach of knowledge with diminished costs compared with when Solidaridad would train all farmers.

The initial idea of the training programme for the smallholders in Malawi in relation to UTZ certification was that the programme would be executed over a 3-5 years period, as the number of requirements of the UTZ Tea Code of Conduct increases over a four year period and because the other needs (organisational capacity building) of the smallholders required a long-term intervention. Apart from the farmers, leaders of the producer organisations would be trained on organisation management and on establishing and maintaining an Internal Control System.

By May 2011, the programme activities in Malawi, were put on hold. Reasons behind the project progress were twofold. First of all, due to the increasing overlap of training activities of Rainforest Alliance and the Ethical Tea Partnership more coordination with these parties was needed. In the end, it was decided to share one coordinator and extension person for all tea related activities. The recruitment of this person took more time than expected.

Second, when it became clear during the process that less than 5% of the Malawian smallholder farmers would become suppliers to D.E MASTER BLENTERS 1753 (DEMB), DE Foundation and Solidaridad needed to reconsider their respective priorities. In May 2012 DE Foundation decided to enter into a direct collaboration with the UTZ Certified field development team, in order to be more directly involved with the UTZ Certified tea supply chain needs and projects. With funding flows changing, related activities for Malawi became uncertain though the programme continued to support the estates to obtain and maintain UTZ certification. Through the estates the programme continued supporting smallholders connected to Msuwadzi Smallholders Trust and outgrowers of the Nchima tea estate to obtain certification.

Between the different organisations that are already active or that have ambitions to become active in the Malawian tea sector, several discussions are currently taking place to ensure the continuation of the support to smallholders.

1.3 The theory of change of the tea programmes in Kenya and Malawi

1.3.1 Mapping out the theory of change

In a workshop setting, the theory of change of the UTZ-Solidaridad tea programmes for Kenya and Malawi was mapped out in July 2012 by UTZ, Solidaridad and DE Foundation. LEI consequently elaborated and finalised the theory of change with feedback from UTZ, Solidaridad and DE Foundation. As shown in Figure 1 on page 26 and 27, the theory of change is presented as a flow-diagram that starts with the reasons why the programmes started, followed by actions of the programmes, leading to expected changes in the farmers' situation.

The theory of change describes how Solidaridad, UTZ and DE Foundation intend to create desired impact and which steps need to be taken. Following the impact logic to operate and assuming certain conditions are in place, they expect the desired changes to occur. In the next sections, we will explain the rationale and assumptions behind the tea programmes and the impact logic of farmer training, following the elements of Figure 1 from the left to the right. Keeping in mind that the programme outcomes are influenced by many factors that are beyond the control or influence of the programme, we then present a list of external factors that should be taken into consideration when evaluating programme outcomes. The theory of change around ICS establishment and management and detailed information on how improved farm practices lead to the expected outcomes can be found in Appendix 1.

1.3.2 The rationale behind the tea programmes

After funding became available to start the programmes, the programme team identified smallholder associations to take part in the programme and convinced them to do so, based on the reasoning that the programme will positively influence organisational management (*through ICS*), farm productivity, efficiency and green leaf quality, and improve efficiency of factory operations.

In Malawi, it was assumed that problems such as low productivity, inconsistent quality of tea, low efficiency (high ratio of inputs to outputs) amongst smallholder farmers are partly explained by the fact that smallholder farmers were not implementing Good Agricultural Practices (GAPs) for lack of knowledge. A large part of the programme is therefore focused on training farmers on implementing GAPs. The rationale is that when farmers learn about implementing GAPs and see the benefits of it, they will start implementing

these GAPs on their own farms, which will then improve their productivity and green leaf quality, efficiency (high ratio of outputs to inputs), and income.

Figure 1: Theory of change UTZ-Solidaridad tea programmes in Kenya and Malawi

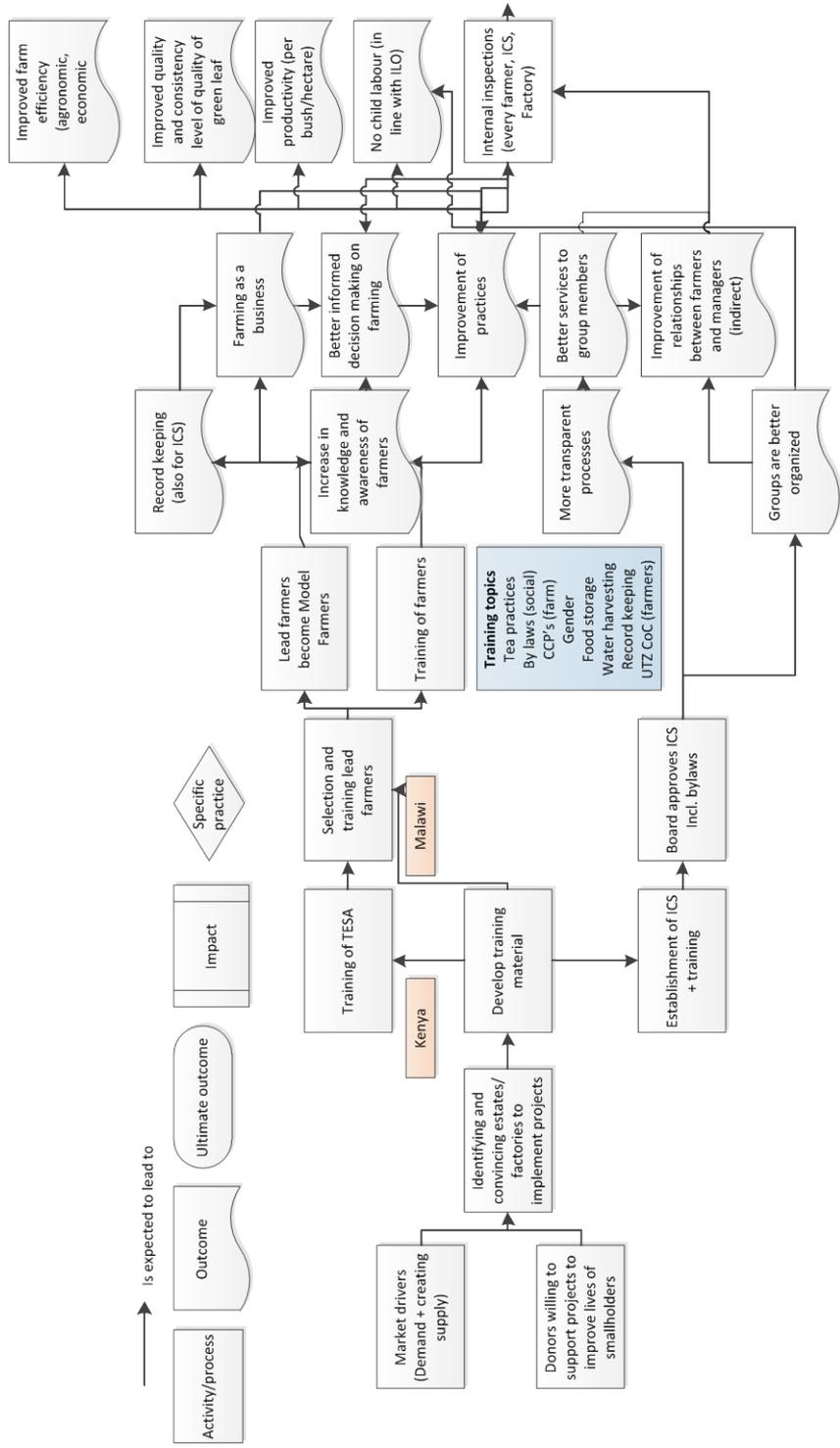
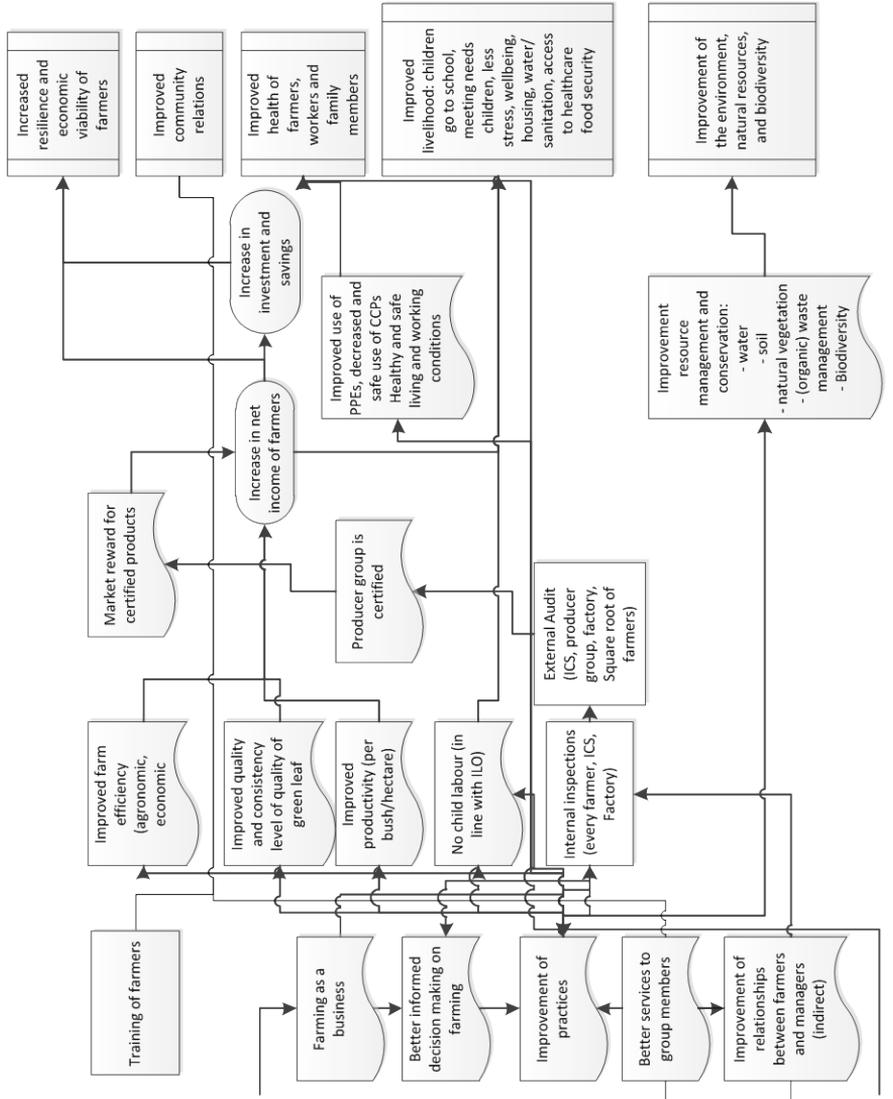


Figure 1 (continued): Theory of change UTZ-Solidaridad tea programmes in Kenya and Malawi



1.3.3 Impact logic of farmer training: programme activities, expected outcomes and impacts

Before farmers could be trained, training materials were developed by Solidaridad with contributions from Agricana, to facilitate the trainings since appropriate training materials did not exist when the programmes started. These training materials were then used to train lead farmers, who in their turn would use them to train other farmers. The reason to use lead farmers instead of professional trainers is that UTZ and Solidaridad expect that farmers can learn well from colleague farmers, as they are often in contact with each other. This expectation is based on personal experience from the tea industry and experience from the regional coffee programme that has been running before. Lead farmers are first required to implement what they have learnt, from which other farmers can copy (Kamanu, personal communication).

Lead farmers are selected in a selection process in which farmers are gathered together on Block level, and choose the lead farmers amongst themselves. The reason for letting farmers choose their own lead farmers is to give them ownership of the programme, and obtain their support to the programme. Lead farmers are not reimbursed financially for their role. 'The motivation of farmers becoming lead farmers is firstly to get the opportunity to be trained, learn and improve their practices on their own farms, leading to improved productivity and income. The second one is be seen as a knowledgeable and better farmer by other peer farmers, and hence share this knowledge with the others and contribute to improvement of his/her community and assist them to get certified. Farmers are proud about their association or factory being certified. Some farmers also use the position to popularise themselves in order to be elected as tea committee leaders in the leaf collection centre and/or association and even political leaders (councillors) in the wards. Further, some also think that they may make money in future as they offer the services' (Kamanu, 2012).

Lead farmers were to become model farmers and train other farmers on a variety of topics required for UTZ Certification such as green leaf production practices, the correct use of crop protection products (CCPs), pesticide use, record keeping, and first aid. Because smallholder farmers undertake mixed farming and often grow a variety of crops and rearing animals, the training treats more topics than just the practices required for UTZ Certification to address sustainability holistically. Examples of such topics/practices include gross

margin analysis of a variety of crops, tea production bylaws¹, water harvesting, food storage, kitchen gardens, savings, investments, grouping and economies of scale, gender equity, youth involvement, etc. The knowledge and awareness of farmers on all topics is expected to increase through the trainings and learning from the lead farmers as model farmers.

UTZ and Solidaridad expect that through the training farmers will have increased knowledge and skills on agricultural, social and environmental practices in line with UTZ code of conduct for Tea Farms and the other topics covered in the training. They also expect that the farmers will have knowledge on the requirements and procedures for UTZ certification, and that in the end they will adopt this knowledge, that is, put it into practice. Thus, the increase of awareness and knowledge of farmers through the trainings and examples of model farmers as well as keeping records and a better administration is expected to lead to farmers 'farming as a business, making better informed decisions on farming matters and improving their practices.

Improvement of their practices will lead to farmers passing the internal inspections, external audits, and then to the certification of the producer group. Being part of the certification process, including group formation (social peers) and receiving inspections, is expected to contribute to the implementation of the practices learned in the training (full set of good practices instead of quick wins only; and continuation of practices after the training). Certification itself is expected to lead to market rewards for certified products, which also contributes to increasing the net income of farmers.

It is important to emphasise that the focus of the programme is not on the premium. Solidaridad and UTZ assume, namely, that in the long run (long-term outcomes) farmers will have increased productivity and increased quality tea, increased efficiency (professional farmers, farming as a business), increased income and improved social and environmental conditions. Better social conditions will also benefit workers. By the end they expect that better livelihoods are created. In the context of smallholders, the programme focuses on the following immediate/intermediate outcomes:

1. Improved knowledge on sustainable tea production
2. Record keeping
3. Farming as a business

¹ Bylaws are the written rules for conduct of a corporation, association, partnership or any organisation. A bylaw can be for example a rule made by a local authority for the regulation of its affairs or management of the area it governs, a regulation of a company, society, etc., or a subsidiary law.

4. Better informed decision making on farming
5. Improved implementation of sustainable practices
6. Better resource management and conservation practices (water, soil, natural vegetation), (organic) waste management, biodiversity increase)
7. Healthy and safe working and living conditions (including safe handling and storage of agro-chemicals and chemical waste)
8. More transparent processes
9. Groups are better organised
10. Better services to group members
11. Improvement of relationships between farmers and managers (indirect).

When these immediate and intermediate outcomes are realised, the following mid-term outcomes are expected:

1. Improved quality and consistency level of quality of green leaf
2. Improved productivity (per bush/hectare)
3. No child labour (in line with ILO)
4. Correct use of fertilisers
5. Improved use of personal protective equipment (PPE)
6. Decreased and safe use of crop protection products (CCPs)
7. Improved farm-efficiency (economic, agronomic)
8. Improved income
9. Increase in investment and savings.

These outcomes, and receiving a market reward for UTZ certified products, are expected to lead to an increase of net income of producer groups and farmers and subsequently lead to an increase in savings from income from tea and other farm enterprises.

Training and an increase in savings are expected to lead to an increase in investments by farmers. An increase in net income, savings and investments of farmers is expected to contribute to the following impacts:

1. Increased resilience and economic viability of farmers
2. Improved health of farmers and workers & families
3. Improved livelihoods: children go to school, meeting the needs of children, less stress, improved wellbeing and food security (indirectly, through increased income). Estates are expected to invest in and by doing so improve housing, water/sanitation, access to healthcare, for workers.
4. Improvement of the environment, natural resources and biodiversity

5. Better community relationships, through increased interaction between farmers (as part of the training programme) and better services leading to trust and loyalty.

See for detailed information on how the improvement of practices are expected to lead to the impacts areas mentioned above, Appendix 1.

1.3.4 External factors that can influence programme outcomes

Although external factors are not explicitly displayed in the theory of change in Figure 1, they are an important issue to the M&E of the programmes as they can influence programme outcomes. During the workshop of UTZ Certified, Solidaridad and DE Foundation, several external factors that can influence programme outcomes were identified. These factors, which should be taken into account during the mid-term review, are:

1. Rainfall and rainfall patterns/climate change
2. Market prices
3. Governmental stability
4. Other trainings and certification programmes
5. Labour availability (including health of farmers and family members)
6. Relationship between farmers and factory
7. Market demand for certified products
8. Services or subsidies by government
9. Access to credit
10. Plagues, diseases on tea
11. Input costs
12. Age and education of farmers
13. Land ownership/tenure issues: if land is legally owned by men, but women do the work, they may not adopt the knowledge learnt fully as they believe they are not fully benefitting.

These external factors have been taken into account in the analyses in this study, except governmental stability, services or subsidies by the government and land tenure issues. LEI could not take these factors into account as no quantifiable information could be found for them or no (explanatory) information on these factors was obtained in the focus group discussions and interviews. The same counts for the external factors: market prices, the relationship between farmers and factory, access to credit and plagues and disease on tea.

1.4 Aim of this study and research questions

In 2010 Solidaridad and UTZ decided to evaluate the effectiveness of their activities and the impact of the implementation of UTZ certification amongst smallholder tea farmers in Malawi. Their aims for such an evaluation study was to show their contribution to impact on smallholder farmers and their households, and to use the findings for their own learning and improvement. For this reason, a baseline study was carried out at the start of the UTZ-Solidaridad programme and a mid-term review after the programme had been running for two years.

The baseline study, carried out in 2010, described the situation of the smallholder tea farmers in 2010 that was to be compared with the situation in the mid-term and end-of-the-programme situation. The baseline situation included basic characteristics of the farmers such as household characteristics, their knowledge and implementation of GAPs, and their production and livelihood (see Waarts, Y. et al., 2011).

The objective of the mid-term evaluation, and thus of this study, is to present information about the achievements (on output and outcome level) and the relevance and appropriateness of the Solidaridad - UTZ tea programmes with regard to the training and implementation of UTZ certification of smallholder tea farmers in Malawi. The information from the mid-term evaluation will be used in two ways:

1. It is a learning experience for Solidaridad, UTZ and the smallholder farmer organisations in the implementation of similar programmes and may possibly lead to an adjustment/optimisation of the current programme to enhance the outcomes. This process will be reinforced, by using the results of the LEI impact assessment study: Sustainable tea production, impact assessment of Farmer Field School and Rainforest Alliance training as a basis for shared learning.
2. It is expected that preliminary results can be used as input for communication towards (potential) donors and other stakeholders about the effectiveness of the programme

1.5 Research questions

The research questions for this mid-term review study are divided into several categories. The following are the research questions per category.

Questions on effectiveness of the tea programmes

1. To what extent have the activities led to the planned outputs?
2. To what extent have the objectives (outcome level) of the programme been realised as a result of the output?
3. To what extent are the different target groups reached (for example men vs. women, workers vs. farmers, etc.)?
4. What are the main factors influencing the results of the actors (e.g. productivity)? (for example lack of availability of labour, climate/rainfall, impact of aids etc.)?

Questions on appropriateness and relevance

5. To what extent is the programme with regard to the training of UTZ certification of smallholder tea farmers in Malawi appropriate to the needs among the target group?
6. To what extent are the methods and activities well chosen to attract the target group?
7. What, if any, is the added value for the various actors going through the certification process? How do the intervention of training and certification influence/strengthen each other? What, if any, is the added value for the various actors being certified?
8. Of the changes observed in the situation of the tea farmers in Malawi, if any, what can be said for contribution and attribution with regard to the Solidaridad/UTZ intervention?

Lessons learnt and recommendations

9. Evaluating the results of this programme and, if possible and relevant, taking into account the results of the evaluation with regard to the Rainforest Alliance certification and/or the cacao evaluation, what are the major lessons learnt and what recommendations can be given with regard to the current tea programme in Malawi and in the development and execution of future other programmes?

1.6 Outline of this report

This report is built up as follows: first, the methodology of the mid-term evaluation is described in Chapter 2. Chapter 3 presents the results, and thus the answers to the research questions. In Chapter 4 conclusions are drawn based on the results in Chapter 3 and recommendations are given for the tea

programmes in Malawi and for the development and execution of other programmes.

2 Methodology

2.1 Introduction

As described in Chapter 1, the M&E study consists of three studies, of which this mid-term review is the second study after the baseline study in 2010 (Waarts et al., 2011). At the time of the baseline study, the programme activities were just started and most of the farmers had not been trained. The situation is expected to be different as the programme has been running for two years since 2010. By comparing the mid-term evaluation's results with the baseline study results and taking into account the potential influence of external factors (see Section 1.3.4), we analyse the evolution of the farmers' performance. This allows for provisional conclusions on the outcomes of the programme.

2.2 General approach

The research methodology adheres to the 'mixed methods' principle. This implies that multiple research methods was used to analyse the impact of the programmes. The specific properties of the impact of the programmes entail some validity threats for the research conclusions. When combining multiple research methods (both quantitative and qualitative) the qualitative data can back the findings of the quantitative study.

The impact assessment adheres to the before treatment and after treatment approach. In this approach a comparison is made of the change in the longitudinal data to establish the effect before and after a situation occurred (in this example: before training started and after a certain amount of time farmers have been trained). Data have been collected before farmers actively participated in the programme during a baseline study. Hereafter, data were collected for this mid-term evaluation, 2 years after the programmes have started. The impact of the UTZ-Solidaridad tea programmes is established as the change in the selected indicators over the time period of the programme, taking into account the external factors.

2.3 Sampling

A stratified sample was taken during the baseline survey from the 3 associations that were to become UTZ certified. The same sample was to be used for both the baseline study and the mid-term review to assess changes over time. Farmers were selected randomly from the list of all farmers in each association. The number of farmers connected to the three associations, and the number of sampled farmers per association are indicated in Table 2.1. In total, 300 farmers were to be interviewed.

Table 2.1 Total number of farmers in the sample per association		
Association	Total number of farmers in association (2010/2012) a)	Number of farmers to be interviewed (ratio based on number of farmers in 2010)
Sukhambizi Association Trust (SAT)	5445/6750	170 (ratio 1:35)
Eastern Outgrowers Trust (EOT)	3500/4880	100 (ratio 1:35)
Msuwadzi Smallholders Trust (MST)	300/164	30 (ratio 1:10)

a) At the time of the survey.

Sampling was done during the enumerator training of the baseline survey, by the enumerators and the training facilitator. It was coordinated by LEI Wageningen UR. First, lists with all farmers per association were gathered. Each farmer on these lists has an individual number. Then, the group responsible for sampling drew one note from a pile of notes with figures between 1 and 6 to obtain a random number. The number that was picked out was used to identify the first farmer on all three lists of farmers per association. From that farmer onwards, farmers were chosen according to the schedule in table 2.01. For example, for farmers connected to Sukhambizi Association, the succeeding farmer to be interviewed was located 35 places down the list from the previous farmer, etcetera.

For the mid-term review, we have interviewed as much as possible the same farmers that were interviewed in the baseline survey. Some farmers could not be interviewed (e.g. because they were away). These farmers were not replaced by others. See for more information on the interviewed farmers Chapter 3.

During the assessment, LEI came across farmers in the dataset who said not to have been trained, and farmers who said to be trained but not by the UTZ-

Solidaridad programme. In the analyses, the farmers were therefore divided into two groups: i) all farmers who have been trained ('farmers who participated in trainings generally') and ii) the farmers who said to have participated in the UTZ-Solidaridad programme (the UTZ-Solidaridad trained group). The latter group is a subset of the former group. The group with 'generally trained' farmers probably also consists of farmers who participated in the UTZ-Solidaridad programme as during the assessment it became clear that farmers were often not aware of the name UTZ or Solidaridad while they participated in the programme. But as no information is available to what extent those farmers participated in the UTZ-Solidaridad programme, and also other trainings were made available to the targeted farmers, this second category was created. The study results are still presented as a before and after treatment analyses with a focus on the UTZ-Solidaridad trained group, although also information will be provided on the evolution of the 'generally trained' group over time.

2.4 Indicator selection

From the discussions on the theory of change, indicators have been extracted that enabled us to analyse the impacts of the programmes on these indicators. Besides indicators derived from the theory of change, the research questions and the external factors potentially influencing the programme outcomes also provide a basis for deriving indicators for the evaluation. Both sets of indicators are presented in Appendix 2. In these tables, the proposed measurement indicators for the mid-term review are presented per outcome/impact indicator and per research question/external factor. In the last column, relevant indicators used in the baseline survey are presented.

2.5 Data collection

The main data required for the mid-term evaluation were collected by enumerators visiting individual farmers with a questionnaire after having been trained to interview farmers and use the questionnaire. This questionnaire collects information on the general characteristics of farmers and their farms and queries the farmers about information that can be used to assess the impact (results on outcome level) of the programmes. The questionnaire can be found in Appendix 3.

Besides data collection through quantitative household surveys, LEI also organised focus group discussions in Malawi with 9 farmers (from Sukhambizi association, SAT) and 3 field officers and 2 administrators from the companies and associations involved in the research. Field officers work for the tea companies, and have the responsibility of organising green leaf collection and extension activities. Administrators work for the associations to implement certification activities, amongst others.

Besides interviewing farmers and field staff, as many data as possible on rainfall, production statistics at the factory level, the trainings and the ICS were collected to be able to do meaningful analysis. When such data and data of other potentially influential factors were made available to LEI in an easily to be analysed format, LEI has taken such data into account in analysing the data. This enabled LEI to better assess whether the impacts (if any) can be attributed to the tea programme. Thus, both quantitative and qualitative data were gathered, from primary and secondary sources. The qualitative data is to back the findings of the quantitative findings, including an interpretation of the results and gaining understanding about the attribution of the programme.

The fact that all farmer groups in Malawi are (or will be) double certified on UTZ Certified and RA, has received special attention in the analyses. The issue that part of the smallholders in Malawi are not able to go for certification has not been addressed as we understood that all smallholder associations expect to pass audits for UTZ certification in 2013, apart from noting down reflections on costs and benefits of certification by field officers and administrators.

While analysing the performance of the different producer groups, these factors were taken into account as explanatory variables for the groups' performance. The main validity threat for the analysis is the attribution problem. Farmers are not exclusively trained by Solidaridad. Nor are they exclusively trained on the UTZ requirements. Factors to understand in the evaluation is what type of training the farmers we interview have participated in, with what training characteristics (topics, length, quality); to what extent was the training based on the UTZ Code of Conduct/certification requirements etc. Such issues were also solved by asking farmers also qualitative questions in the survey to understand reasons of certain behaviours and/or outcomes.

2.6 Data analysis and validation

Information collected through the survey was entered into Excel sheets and then further processed in the statistical programme Stata.¹ The raw data contain significant spelling errors and omissions which increased the time spent on data cleaning and identifying the correct information of the households and the respondents. Table 2.2 provides an overview of the respondents interviewed in 2010 and 2012.

An essential part of the methodological design is to establish changes over time on the same households (the 'before' and 'after' comparison). This requires that information be collected on the same households in both the baseline study and the mid-term review (i.e., repeated observation). As shown in Table 2.1, part of the households surveyed in 2010 (baseline) were not reached in the 2012. Among the households surveyed in 2012, a part of the households had not been surveyed in 2010.² The 'before' and 'after' comparison could only be made on households that were surveyed both in 2010 and 2012 (Matched households).

Producer Organisation Name	2010 (Baseline)	2012 (Mid-term)	Matched Respondents a)
Sukhambizi Association Trust (SAT)	127	119	117
Eastern Outgrowers Trust (EOT)	117	71	64
Msuwadzi Smallholders Trust (MST)	28	27	22
Total	278 b)	217	203

a) Of which about 10% of the respondents was a different person than in the baseline; b) For 6 respondents it was unknown to which company he/she was selling tea.

¹ StataCorp. 2007. Stata Statistical Software: Release 10. College Station, TX: StataCorp LP. Stata is a general-purpose statistical software package created in 1985 by StataCorp. It is used by many businesses and academic institutions around the world. Stata is a complete, integrated statistical package for data analysis, data management, and graphics.

² As some farmers could not be located or reached during the survey period, the enumerators interviewed farmers that were not sampled in the baseline in order to keep up the number of interviews.

Since the dataset contains repeated observations (data from two points in time) on the same farmers (representing their household), panel data techniques¹ are used to analyse the changes in each household and the influence of the UTZ-Solidaridad training programme and other trainings on these changes. Each household in the dataset, which is uniquely identified by the grower number, is one panel about which information was collected on various indicators in different periods, i.e., the baseline situation 2009-2010 (noted as 2009)² and the mid-term situation 2010-2011 (noted as 2011).

Changes in each individual household are calculated as the differences in values of various variables or indicators between 2009 and 2011. We use two-sample mean-comparison tests (t-test) to see whether these differences are statistically significant. To obtain insights into the explanatory factors for the changes observed, regression analysis is performed using these differences as the dependent variables and variables representing trainings and other characteristics of the households as the explanatory variables.

In general, the tables presented in this report give mean, median, standard deviation and sometimes minimum and maximum values. Differences are considered statistically significant using a confidence interval of 95% indicating that there is no more than a 5% chance that the difference registered in the sample has happened by chance. Whether the difference is significant depends on the variations both between and within the groups.

To describe the changes that have taken place from 2009 to 2011 among different groups of households, we computed the tables of transition probabilities for the indicators of interest that take a limited number of discrete values (levels). For an indicator/variable X, the transition probability table is illustrated in Table 2.02 The probability P_{ij} shows the proportion of households whose indicator has changed from level i in 2009 to level j in 2011. The table of transition probabilities offer insights into the stability of the group concerning a number of key features.

¹ In statistics and econometrics, the term panel data refers to multi-dimensional data that contain observations on multiple phenomena observed over multiple time periods for the same firms or individuals. A basic introduction to panel data techniques can be found in Verbeek (2000), *A Guide to Modern Econometrics*. John Wiley & Sons, Ltd Chichester.

² One of the three associations, MST, has their accounting year running from July to June. Their baseline situation therefore covers the period 2009-2010 and their mid-term situation covers the period 2011-2012. The other two associations have an accounting year running from January to December.

Table 2.3		Transition probabilities of indicator X from baseline to mid-term		
Level of variable X in baseline (2009)		Level of variable X in mid-term (2011)		
		a	b	C
a		P_{aa}	P_{ab}	P_{ac}
b		P_{ba}	P_{bb}	P_{bc}
c		P_{ca}	P_{cb}	P_{cc}

2.7 Methodological limitations

Like all impact assessment studies, the main methodological challenge to this study is how to attribute outcomes to the intervention of the programme. More specifically, the challenge concerns: 1) defining and designing outcome indicators for which specific and reliable data and information can be obtained; 2) demarcating the scope of the intervention; and 3) correcting for the impact of contextual factors other than the intervention and assessing the counterfactual.

Dealing with these methodological challenges requires good understanding of the theory of change, careful contextual analysis, and good quality data on the target group, to which this study has paid great attention. There are however still limitations with regard to the quality of survey data collected, specifically with regard to the quantitative data. Since most information on production and the living environment was based on the respondents' 'historical account', the information is subject to recollection error and dependent on the respondents' level of literacy and articulation. This has resulted in missing or erroneous values in the datasets. Finally, respondents did not appear to know the name of UTZ and Solidaridad and do not seem to understand what a lead farmer is, indicating that they were not aware of the status and role of lead farmers. This limitation poses difficulties to the attribution question.

3 Results

3.1 Introduction

In this chapter we present findings from the mid-term review as answers to the research questions that concern the effectiveness (Section 3.2-3.5) and the appropriateness and relevance of the programme (Section 3.6-3.9). Also we highlight the external factors that influenced the mid-term review results (Section 3.10).

3.2 To what extent have the activities led to the planned outputs?

The training of lead farmers is the key intervention in the theory of change of the tea programme. Lead farmers are expected to train other farmers. Training is also expected to lead to improved farming and group management practices, which will enable smallholder associations obtaining UTZ certification. In this section, the training of lead farmers is, following the theory of change, described as an activity and training of other farmers and obtaining UTZ certification as outputs of the tea programme.

3.2.1 Main programme activity and output: training of lead farmers

In total, 304 lead farmers were trained in Malawi in 2010 by Agricane Limited, which was contracted through the UTZ-Solidaridad programme. After their own training, they were to train other farmers; one lead farmer was expected to train about 50 other farmers. The field officers, employed by the estate companies to which the smallholders sell their green leaf, were also trained and were to assist the associations in organising the trainings. There were no formal agreements made on the training activities; such issues were discussed during planning meetings with the leaders of the associations, and lead farmers were informed about it during their training. One of the factory companies (Eastern Produce), indicated that since 2010 there had been no training follow-up for the lead farmers, and that it was unclear to the lead farmers what they were supposed to do, and when, after the training. The field officers indicated that following up lead farmers is important to stimulate the lead farmers to continue training to other farmers. The companies followed up with the lead farmers now.

3.2.2 Expected output of the programme: training of 'common' farmers

In the initial phase, farmers were trained through general meetings at block level in Malawi. Later, the lead farmers trained farmers in small groups at demonstration plots and then by farm visits, coordinated by the field officers. Training the farmers in small groups was implemented in different ways in Malawi. At two organisations, namely Sukhambizi (SAT) and Msuwadzi (MST), training took place in clubs of between 12-30 people and 17-50 people, respectively, where lead farmers usually train farmers of two clubs. At Eastern Outgrowers Trust (EOT), the training did not take place on 'club' level but on 'block' level because farmers who are part of this association are scattered. This means that farmers were trained in groups of 70-90 farmers. Both the club leaders and block leaders have become lead farmers, and they trained the farmers on UTZ certification and GAPs. Thus, the EOT training takes place in a slightly less intensive way than the trainings at the other two associations.

Information on trainings submitted to LEI by the associations for the year before the mid-term survey took place indicate that often UTZ Code of Conduct requirements are combined with other topics during trainings (RA, FLO, health and safety, GAP), and that relevant training sessions take between 1 and 4 hours and take place between 1 and 19 times per year, depending on the number of producers connected to the association. The training location is often a leaf collection centre or community house but trainings also take place in the field. Comparing the individual trainings implemented, between 11 and 93% of all farmers participated in individual trainings in the year before the survey.

Overall, about 60% of all farmers were trained in the tea programme according to the field officers and administrators (see Section 3.2 and more details in Appendix 5). This is corroborated by the respondents of the mid-term survey, as shown in Table 3.1, which provides an overview of different combinations of trainings that the respondents participated in. Respondents who are lead farmer of UTZ or RA are assumed to have participated in UTZ and RA training respectively.¹ For a small number of participants who did not provide answers to the question whether they participated in a specific training, it is assumed that they did not participate (detailed information can be found in Appendix 5).

¹ A surprisingly high percentage of respondents said to have been trained as a lead farmer for the UTZ-Solidaridad programme (46%) and 61% said to be a lead farmer for RA. Based on the information provided by the associations (see Appendix 5), these figures cannot be correct, which indicates that farmers do not understand exactly what a lead farmer is, or they could have misunderstood the question.

	Percentage of all respondents (Rounded)	Percentage of subgroups (Rounded)
No training	10	
Trained	90	
Affirmed UTZ-Solidaridad trained		58
Other trained farmers b)		42
Affirmed UTZ-Solidaridad trained (including lead farmers)		
UTZ-Solidaridad only	1	2
UTZ-Solidaridad+ Other combinations	51	56
Total	52	58
Other trained farmers b)		
RA only	5	6
RA + Other combinations	30	33
Non-RA training	3	3
Total	38	42
a) Based on the answers by the respondents of the survey. When the answer to the question with regard to the specific training was missing, it is assumed that the respondent did not receive the training. Both UTZ and RA training including the training as lead farmer.		
b) The group 'other trained farmers' may include farmers who participated in the UTZ-Solidaridad programme but who are not aware that they did.		

As indicated in the introduction, most farmers who participated in UTZ-Solidaridad training also participated in other trainings. Only a small percentage (1%) of all respondents only participated in UTZ-Solidaridad training. The information from the farmers seems to confirm that UTZ-Solidaridad training was often given in combination with RA, extension service and other trainings.

An explanation for the fact that not all farmers have been trained is that there has been no training follow-up for the lead farmers by programme staff since 2010, and that it was unclear to the lead farmers what they were supposed to do, and when, after the training. Another reason is that by May 2011 the programme activities were put on hold (see Section 1.2.3).

Concerning the implementation of different trainings, the field officers said that 'training is vital for farmers to improve, and farmers should be reminded over time because otherwise their implementation may weaken'.

3.2.3 Expected output of the programme: UTZ certification

In January 2011, one of the three smallholder associations (MST) became UTZ certified. By October 2012, none of the other two was UTZ certified, even though in the programme proposal external audits and certification were planned to take place in August 2011 (Kamanu, 2011). Table 3.2 provides an overview of the status of UTZ certification and training.

Table 3.2 Status of certification and training (July 2012)						
Smallholder association	UTZ certification	Start date training for UTZ certification	Number of UTZ-Solidaridad trainings	Premium for UTZ certified tea	RA certification	FLO certification
SAT	N/A	9-11-2010	27	N/A	7-12-2011	15-9-2008
EOT	N/A	1-11-2010	6	N/A	N/A	1-1-2009
MST	1-1-2011	1-11-2010	12	Not yet accessed	N/A	8-6-2007

a) The information in this table has been provided by the companies.

3.2.4 Conclusion

Looking at the question 'To what extent have the activities led to the planned outputs?', the programme activities delivered many, but not yet all planned outputs, by October 2012: i) all lead farmers (304) have been trained (100% of the planned activity has been implemented); ii) about 60% of the 9.700 targeted farmers have been trained (about 60% of the output has been reached) and iii) one of the three smallholder associations has obtained UTZ certification (33% of the output has been reached).

It is not clear from the project proposal (Kamanu, 2010) if all farmers should have been trained by July 2012. Because the programme activities were put on hold in 2011, not all targets could be met.

With respect to the impact logic of cascading trainings through lead farmers, it is difficult to assess to what extent the logic was indeed followed, i.e., whether lead farmers replicated training to common farmers because detailed records on the lead farmers and their training activities were not available.

3.3 To what extent have the objectives (outcome level) of the programme been realised as a result of the output?

3.3.1 Realisation of objectives

The theory of change specifies outcome indicators and changes to be expected as a result of the programme outputs. For example, training activities were expected to lead to improved knowledge on and implementation of sustainable practices. These immediate outcomes should then lead to the realisation of ultimate outcomes such as improved productivity. Following the theory of change in Figure 1, Table 3.3 presents an overview of the realisation of these two categories of outcomes for the group trained in the UTZ-Solidaridad programme (the UTZ-trained group). More information is presented in the subsequent paragraphs; see Appendix 5 (A5.4 and A5.5) for information from the qualitative research.

Table 3.3		Expected changes according to the theory of change and observed changes		
	Expected outcome by the theory of change	Outcome indicators	Observed changes in the indicators based on the survey + : Positive and significant changes +/- : No significant changes - : Negative and significant changes	Qualitative information (interviews, focus group and workshop): F: mentioned by farmers E: mentioned by extension staff/administrators
Immediate/intermediate outcomes				
1	Improved knowledge on sustainable tea production	Knowledge scores	- (See 3.3.2)	+ (F, E)
2	Record keeping	Score for implementation of practice Decision making based on records	+/- (See 3.3.3)	+ (F)
3	Farming as a business	Diversification (other sources of income)	+/- (See 3.3.3)	+ (F)
4	Better informed decision making on farming	Use of knowledge from training and other sources of information in decision making	+ (See 3.3.3)	+/- (F, indirectly mentioned)
5	Improved implementation of sustainable practices	Overall implementation scores	+ (See 3.3.4)	+ (F, E)
6	Better resource management and conservation practices	Implementation scores on environment	+/- (See 3.3.4)	+ (F, E)

Table 3.3 Expected changes according to the theory of change and observed changes (continued)				
	Expected outcome by the theory of change	Outcome indicators	Observed changes in the indicators based on the survey + : Positive and significant changes +/- : No significant changes - : Negative and significant changes	Qualitative information (interviews, focus group and workshop): F: mentioned by farmers E: mentioned by extension staff/administrators
Immediate/intermediate outcomes				
7	Healthy and safe working and living conditions (including safe handling and storage of agro-chemicals and chemical waste)	Implementation scores on social indicators	+ (See 3.3.4)	No feedback
8	More transparent processes	Satisfaction with service on ICS and Audits	Change could not be established (See 3.3.5)	+ (E)
9	Groups are better organised	Perception	Change could not be established (See 3.3.5)	+/- (E)
10	Better services to group members	Satisfaction with service and information provided by producer group (Appendix 11)	Change could not be established (See 3.3.5)	+ (F, E for all certificates combined)
11	Improvement of relationships between farmers and managers (indirect)	Satisfaction with the relationship between farmers and the factory	+ (See 3.3.6)	+ (E)

Table 3.3		Expected changes according to the theory of change and observed changes			
(continued)		Expected outcome by the theory of change	Outcome indicators	Observed changes in the indicators based on the survey + : Positive and significant changes +/- : No significant changes - : Negative and significant changes	Qualitative information (interviews, focus group and workshop): F: mentioned by farmers E: mentioned by extension staff/administrators
Ultimate outcomes					
1	Improved productivity	Yield (kg/bush); Perception;	+/- (See 3.3.7)	+ (F, E)	
2	Improved quality and consistency level of quality of green leaf	Percentage of first grade tea; Reduction of rejected tea	+/- (See 3.3.7)	+ (F, E)	
3	No child labour (in line with ILO)	Percentage of farmers using child labour; Activities carried out by children	Change could not be established (See 3.3.8)	No feedback	
4	Correct use of fertilisers	Timing and amount of fertiliser application	+/- (See 3.3.9)	+ (F, E)	
5	Improved use of personal protective equipment (PPE)	Use of PPE	+ (See 3.3.10)	+ (F)	

Table 3.3 (continued)		Expected changes according to the theory of change and observed changes		
	Expected outcome by the theory of change	Outcome indicators	Observed changes in the indicators based on the survey + : Positive and significant changes +/- : No significant changes - : Negative and significant changes	Qualitative information (interviews, focus group and workshop): F: mentioned by farmers E: mentioned by extension staff/administrators
Ultimate outcomes				
6	Decreased, and safe use of crop protection products (CCPs)	Percentage of farmers not using agro-chemicals; Use of bio or organic pesticides; Treatment of empty containers of agro-chemicals or excess agrochemicals	Decreased use + Safe use +/- (See 3.3.10)	No feedback
7	Improved farm-efficiency (economic, agronomic)	Agronomic and economic Input-output ratios	Change could not be established (See 3.3.11)	+ (E)
8	Improved income	Net income from tea Diversification of income	Gross income +/- Net income: change could not be established (See 3.3.12)	+ (F)
9	Increase in investment and savings	Perception; Percentage of farmers who invest	+/- (See 3.3.13)	No feedback

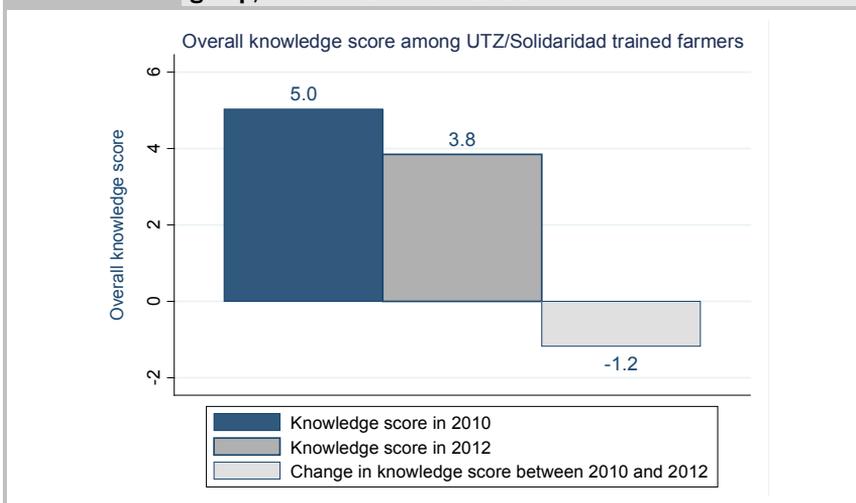
As shown in the Table 3.3, one-third of the overall outcome indicators showed significant positive changes and one of the overall indicators showed a significant negative change based on the survey data. About half of the outcome indicators did not change significantly between the baseline and the mid-term situation and for one-third of the indicators, a change could not be established due to the lack of reliable data. The qualitative information showed a more positive perceptions towards changes on the related outcome indicators when feedback was obtained, which is a trend you often see in similar assessments. Interestingly, farmers, field officers and administrators all said that knowledge levels increased, while the quantitative data show a decrease. Detailed explanations on these results can be found in the subsequent sections as indicated in the table.

3.3.2 Knowledge on sustainable practices

The overall knowledge score has become significantly lower among the trained farmers (overall average dropped from 4.9 in 2009 to 3.7 in 2011) and among UTZ-Solidaridad training participants, the overall knowledge score dropped significantly from an average of 5.0 in 2009 to an average of 3.8 in 2011 (see Figure 3.1 on the next page). Detailed scores per knowledge question can be found in Appendix 6.

Looking at the knowledge scores for individual questions and their changes between 2009 to 2011 (see for more information on individual questions the next paragraph), we observe that the knowledge scores of training participants has significantly decreased for 14 out of 15 knowledge questions and that farmers participating in the UTZ-Solidaridad programme significantly decreased their knowledge scores for 11 out of 14 knowledge questions. No significant positive change was observed for individual knowledge questions for both groups (see Appendix 6).

Figure 3.1 Change in knowledge score for the UTZ-Solidaridad trained group, between 2009 and 2011



A detailed analyses of the individual knowledge questions shows that large and significant negative changes (greater than 1.00) are observed for the UTZ-Solidaridad programme participants for the following questions:

- Benefits of PPE (-2.99)
- Benefits of a riparian strip (-2.50)
- Benefits of fertiliser application in tea (-1.98)
- Benefits of soil conservation measures (-1.92).
- Benefits of plucking green leaf every 7 or 8 days (-1.40)
- Benefits from infilling (-1.30)
- The potential dangers of applying agrochemicals and fertilisers near natural water bodies (-1.19).

Besides many knowledge scores decreasing significantly over time, 93% of all knowledge questions (14/15) score lower than 6 out of 10 in 2011 for the participants of the UTZ-Solidaridad programme, of which nine questions score lower than 4 out of 10.¹ One knowledge score is very high in 2011 but did not change

¹ Benefits of leaving prunings in the field, best height to prune mature tea, recommended methods to handle weeds in tea, benefits of fertiliser application in tea, benefits of infilling, benefits of a riparian strip, benefits of PPE, why application of fertilisers is discouraged in tea, methods to improve yield and quality of green leaf, benefits of applying soil conservation methods.

significantly over time: 'the best height for tipping in tea'. This means that there is still much room for improvement with regard to the knowledge levels of the farmers targeted by the UTZ-Solidaridad programme.

The decrease in the overall knowledge score and in most knowledge scores for the individual questions is a surprising result, as an increase in knowledge scores was expected following the theory of change and both focus group farmers and field officers mentioned a knowledge increase. It should be noted that in the workshop in which the results of the *baseline report* were discussed, the knowledge scores were seen as relatively high, compared with the knowledge scores in Kenya, but no explanation could be found why this would be the case. We explored potential reasons for the decrease in knowledge score:

- If farmers had received trainings prior to the UTZ-Solidaridad programme, this could be a reason for the decrease in knowledge scores (people tend to forget what they have learnt over time), but in this case, the farmers did not receive much other training prior to the UTZ-Solidaridad programme. Training on RA certification was introduced later than the UTZ-Solidaridad programme, and very few other trainings were implemented before the UTZ-Solidaridad programme started.
- Besides the unexplained relatively high scores in the baseline, another possible explanation for the unexpected decrease in knowledge could be that inadequate explanation by the enumerators led to lower results, although the mid-term survey enumerators received the same amount of training/instruction as the baseline survey enumerators and implemented the survey in the same manner.
- The decrease could also be explained by the scoring method: not knowing or forgetting one correct answer would already lead to a decrease of 2 points. If the enumerators did not press the farmers for more answers to the questions when they had already received one (the more answers given, the better the score) as instructed, this could have influenced the score. But as we cannot find a reason why the mid-term survey enumerators would have treated this question differently than the baseline survey enumerators, we do not think this is a likely explanation.
- Another explanation for the low knowledge score is the low education level of the respondents. Sixty-seven per cent of the respondents finished primary school, 20% never went to school or did not finish primary school. This low education level might have hindered their understanding of the lessons learnt, the questions asked and an articulation of correct answers, although

this is expected to have been similar in the baseline study. This is reflected in the large number of 'I don't know' answers to questions on 'the best height to prune bushes' (33%), 'the benefits of a riparian strip' (29%) and 'the best height for tipping in' (about 21%).

The respondents' knowledge on sustainable tea farming was measured using their answers to 15 questions concerning sustainable agricultural practices (see part E of the questionnaire). Each question has a number of correct answers that are desirable for sustainable tea production. The more right answers the respondents could provide, the higher his/her knowledge score for the question will be. For each question, the knowledge score is scaled between 0 and 10 based on the number of correct options chosen for each question and the maximum number of correction answers. The overall knowledge score is the average of the knowledge scores for all 15 questions.

3.3.3 Record keeping, better informed decision-making, farming as a business

Farmers were asked whether they keep records and which records they keep (e.g., on production/sales, inputs, both input and production etc.). Depending on their answer to the question, a score between 0 and 1 was assigned to indicate their level of record keeping, with 1 for keeping records on both input use and production and 0 for not keeping any records.

The overall score for record keeping did not improve for either groups. About 70% of the trained farmers (62% among generally trained, 55% among UTZ-trained) did start to keep records after 2009 (60% on paper, 10% in mind/memory). About 30% of the trained farmers and 25% of the UTZ-Solidaridad trained farmers did not keep records in 2011 while they kept records in 2009. This negative change offsets the positive change. It is worth noting here that the farmers spoken to in the focus group discussion included improved record keeping as a benefit of the programme, which is not confirmed by the quantitative analyses for the whole group of UTZ-Solidaridad programme participants. Furthermore, information from 31 farmers (15% of the matched households) was available for analyses on production figures and the number of bushes farmers have, which also indicates that not all farmers keep records (on paper or in their memory).

Farmers were also asked what kind of records they keep. Of all the trained respondents, about 36% keep records on production/sales in 2011 (and not on input use) while about 21% keep records both on input use and production.

About 10% of the trained farmers keep records in mind/memory. Among the UTZ-Solidaridad trained farmers, about 40% keep records on production/sales (and not on input use), about 23% keep records on both input use and production/sales and about 13% keep records in mind/memory.

Record keeping can be an important enabler for informed decision making and farming as a business. Ninety-three per cent of the generally trained and UTZ-Solidaridad trained farmers who keep records regularly used those records to take decisions on general farm management in the baseline situation as well as the mid-term situation; no change was observed. A minority of farmers only keeps records to comply with internal inspections.

To assess a change in decision making, we asked farmers how they make decisions on farm management, green leaf production, application of fertilisers and plucking frequency, and we asked them how they made such decisions in the baseline situation. The main ways of decision making on farm management in the mid-term situation are: 'applying what was taught during training' and 'following recommendations by the tea company'. Significantly more farmers use what they learn from the training for making decisions on green leaf production activities than in the baseline situation. No difference was found in the percentage of trained farmers who use records in their decision-making on general green leaf production aspects or specific activities such as the application of fertiliser and plucking frequency. For more details, see Appendix 10.

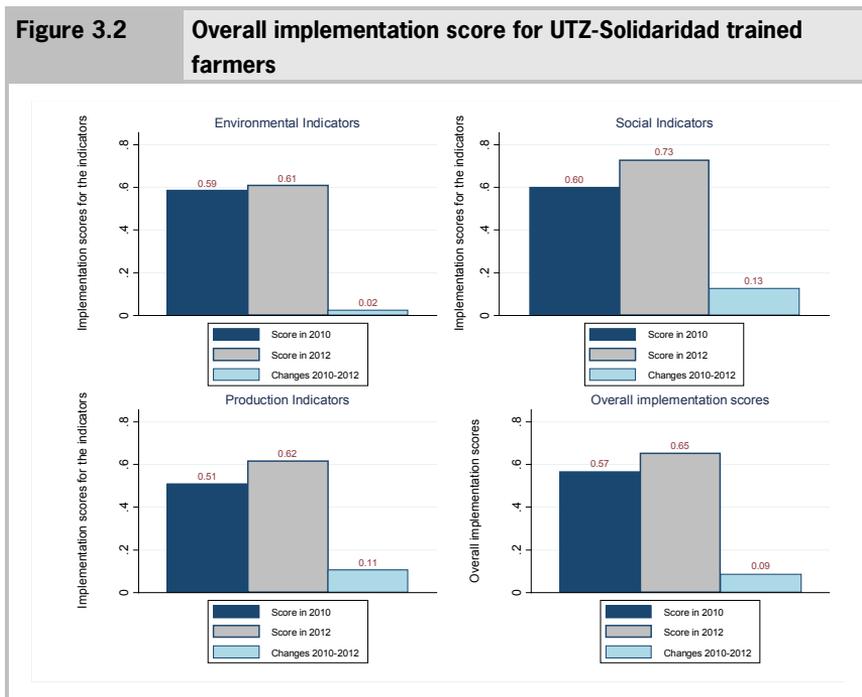
When considering farming as business, besides making informed decision on tea farming, it is relevant to consider other income strategies farmers use to diversify income risk of tea farming. About 83% of the trained farmers and 81% of the UTZ-Solidaridad trained farmers earn part of their income from other sources than tea, which is about 5% less than in 2009. This difference was not significant. The highest number of other sources of income mentioned was 6, which is one more than in 2009. No significant differences were found in the total gross income earned from other sources between 2009 and 2011.

In conclusion, farmers who participated in UTZ-Solidaridad training did not show an overall improvement in record keeping, as positive changes in record keeping were offset by negative changes. A high percentage of the UTZ-Solidaridad participants who keep records, already made decisions based on such records in the baseline situation and still do so in the mid-term situation. Significantly more farmers in the mid-term situation than in the baseline situation use what they learn in trainings for decision making. No significant difference was found in the percentage of trained farmers using records in their decision-

making on general or specific green leaf production aspects. No significant change was observed on the diversification of income between 2009 and 2011.

3.3.4 Implementation of sustainable practices

The overall score for sustainable practices has significantly increased from 2009 to 2011 (from 0.57 to 0.65 among both trained farmers and UTZ-Solidaridad trained farmers) although it is still relatively low in the mid-term situation. With regard to subsets of environmental, production, and social practices, farmers show a significantly positive change over time on social and production indicators while no change was found with regard to environmental indicators (see Figure 3.2). The detailed changes are presented in Appendix 7.



It appears that, even though knowledge scores decreased over time, farmers did improve their overall implementation score significantly. This contradicts

the theory of change in which an increase of knowledge is expected to lead to an increase in the implementation of practices.

Large positive and significant changes (>0.10) with regard to the implementation of practices were made for:

- Whether the farmer infills open areas (+0.32)
- Access to potable water and latrines for workers and family members (+0.26)
- The plucking frequency (+0.21)
- Who prunes the tea bushes and whether they are trained (+0.16)
- The number of indigenous trees at the farm (+0.16)
- The percentage of crop cover (+0.15)
- Leaf spillage (+0.14)
- Whether the farmer uses a plucking stick/wand and the table is even (+0.11)
- The application of composted manure (+0.10).

Two indicators showed a significant decrease for the UTZ-Solidaridad programme participants:

- How the farmers apply crop protection products in case of chemical control in their tea (-0.45).
- At what height the farmer tips in (-0.32)

While many scores showed a significant increase over time, many practices still score relatively low in 2011 (lower than 0.6 out of 1). These are recommended to take into account in future training programmes:

- The plucking frequency (0.50)
- When tea cuttings are planted (0.57)
- The percentage of crop cover (0.41)
- At what height the farmer prunes his bushes (0.55)
- At what height the farmer tips in (0.48)
- How often the farmers apply composted manure (0.28)
- Record keeping (0.41)
- Use of PPE (0.17)
- How the farmers apply crop protection products in case of chemical control in their tea (0.47)
- Whether the farmer has a riparian strip when bordering a water body (0.12)
- The number of indigenous trees on the farm (0.4)
- Area of conservation area on the farm (0.39)

We do not know why the scores for these practices are so low.

To assess farmers' level of implementation of sustainable practices, the respondents were asked a set of 31 questions on production, social and environmental aspects. For each answer to the question, a score was assigned (see Appendix 3) between 0 and 1. A score of 1 indicates that the farmer applies the desired practice, while a score of 0 suggests that he/she does not.

3.3.5 More transparent processes, producer groups are better organised, better services to group members

With regard to the indicator 'transparent processes', this study found that 68% of the UTZ-Solidaridad trained farmers, is satisfied and 10% is neutral with the information provided by their association on inspection results and corrective actions after internal and external inspections. Among the generally trained farmers, about 60% of the respondents is satisfied and 12% is neutral. About 8% is unsatisfied. This suggests that farmers are already quite satisfied with the transparency by the producer association, but that there is also some room for improvement. A change in this indicator could not be established as the baseline survey did not include questions addressing this issue.

With regard to service delivery by the producer groups to the farmers, 55% among the generally trained farmers and 65% among the UTZ-Solidaridad training participants are satisfied with the services delivered to them by their association. Also for this indicator, a change could not be established as the baseline survey did not include questions addressing this issue.

More than 50% of the respondents is satisfied with the following services:

- Training (84%)
- Market information on inputs (70%)
- Market information on sales and prices (60%)
- Access to fertiliser (80%)
- Access to planting material (75%)
- Commercial activities; sales and marketing (56%).

Some services need attention as more than 10% of the respondents is unsatisfied with them (see for a full overview Appendix 11):

- Insurance (about 40% is unsatisfied)
- Access to credit (about 27% is unsatisfied)
- Market information on sales and prices (17% is unsatisfied)
- Commercial activities; sales and marketing (13% is unsatisfied)
- Access to pesticides (17% is unsatisfied).

3.3.6 Improvement of relationships between farmers and managers

The relationship between farmers and the tea company has significantly improved over 2 years. The relationship between farmers and the tea company is one of the social indicators with which farmers were asked to indicate whether they are satisfied. About 91% of the farmers is satisfied or very satisfied in 2011, while in the baseline situation, 51% of the generally trained and 46% of the UTZ-Solidaridad trained farmers were satisfied or very satisfied.

3.3.7 Production, quality of tea, and productivity

No significant changes were observed in the level of production and the number of bushes among respondents who could provide production information for both 2009 and 2011 (who were mostly trained farmers). The average number of bushes per household was around 3,150 among the UTZ-Solidaridad trained respondents. There is however very high uncertainty about the information as more than 50% of the production data collected from the survey are incomplete and the information contains many errors. For example, based on the data provided by the companies and feedback from the validation workshop, it appears that many respondents have stated their production area in hectares instead of in acres. Productivity calculated as kg of tea leaves per acre is therefore highly unreliable.

Due to the incompleteness of data in the baseline and in the mid-term review, it was only possible to calculate changes in productivity for a small number of respondents (31 out of 203, of which 28 were trained farmers (17 UTZ-Solidaridad trained and 11 generally trained) as many could not provide information on both the kilograms of green leaves produced and the number of bushes. The comparison is therefore unlikely to be representative for the whole target group. The 31 respondents who provided production information both in the baseline and in the mid-term review had an average productivity of 0.92 kg/bush in 2011, which is slightly lower than their productivity in 2009 (1.1kg/bush). The changes were however not significant.

The proxy for quality used in the survey was the number of times green leaf was rejected by the leaf collection centre. The majority of the respondents (about 96% among trained farmers and 97% among UTZ-Solidaridad trained farmers) never experienced rejections of their green leaf in the last 12 months before the mid-term survey was conducted. The percentage of UTZ-Solidaridad trained respondents experiencing no rejection is slightly lower than in the base-

line situation (2 years ago, about 99%), but the difference is not significant. It is interesting to note that both farmers and field officers have indicated that leaf quality has improved over time, but that this is not confirmed by the quantitative analyses. But the field officers also indicated that there is still a lot of room for improving leaf quality by the farmers.

3.3.8 Child labour

Regarding child labour, the UTZ code of conduct makes a distinction between child works (being in accordance with national laws, not interfering with schooling and non-hazardous) and child labour, which is the term used to identify activities that are harmful for children to perform. Heavy and/or dangerous work is not allowed (e.g. pesticide application, carrying heavy loads, etc.). According to the UTZ code of conduct, children are not allowed to work on the farm during school hours. Because of this distinction, it is difficult to assess child labour in a household survey. We have asked the respondents in how far they are assisted by their children, and have included a question probing the farmers' knowledge on activities that are not appropriate for children to perform. In the baseline survey, this issue has not been addressed; therefore a comparison cannot be made between the situation in 2009 and 2011.

To assess farmers' knowledge on child labour issues, farmers were asked to mentioned activities not appropriate for children. A knowledge score between 0 and 10 is then calculated based on the number of correction answers the farmer provided and the total number of correct answers. In the baseline survey, child labour as defined in the UTZ Code of Conduct has not been addressed; therefore, a comparison cannot be made between the situations in 2010 and 2012.

The average knowledge score is about 3.42 among trained farmers and 3.39 among UTZ-Solidaridad trained farmers in the mid-term situation, implying that farmers are far from knowing all activities that are not appropriate for children. We do not know whether the knowledge levels were different in the baseline situation.

About 55% of the trained farmers (both generally trained and UTZ-Solidaridad trained) were aware that children should not work on the farm during school hours. About 44% of the trained farmers (both generally trained and UTZ-Solidaridad trained) mentioned carrying heavy loads and chemical fertiliser application as inappropriate for children. Between 30% and 40% of the trained farmers mentioned doing heavy work or using dangerous tools or equipment as

inappropriate for children. Much fewer trained farmers (between 10% to 20%) were aware that carrying loads for long distances and pesticide application are not appropriate for children as well. Only about 9% of the trained respondents mentioned working without company of an adult as an inappropriate activity for children. Four per cent of the UTZ-Solidaridad participants could not tell which activities are inappropriate for children to do.

We also asked farmers about whether their children assisted them in farming activities. About 9% of the trained farmers were assisted by children in plucking and weeding in the 2011 season and about 11% and 10% of the UTZ-Solidaridad trained farmers in plucking and weeding respectively (see details in Appendix 8). Between 5% and 8% of the trained farmers were assisted by children in land preparation and fertiliser application and between 2% and 4% were assisted by children in pruning and carrying green leaf to the buying centre. No farmer was assisted by children to apply pesticides. According to the answers by the respondents, the average distance the children walked to the leaf collection centre was about 0.5km, ranging from 100 meter to about 0.9km, which is not seen as heavy work by Kamanu (2012).

Based on the trained farmers' answer to the question whether their children go to school, almost all children (except 3 from the UTZ-Solidaridad trained farmers and in 1 other trained farmer) who assisted in farming activities and have the age to attend primary or secondary school, go to school. No information is available about whether or not they assisted their parents during school hours.

As mentioned, the household survey has limitations to monitor child labour, since it does not include first hand observations and relies on answers given by farmers. However, the survey shows that farmers' knowledge on child labour issues is still low in 2011. We thus recommend focussing on this issue in the future training programmes and include on site observations in a potential future assessment.

3.3.9 Correct use of fertiliser

Most trained farmers apply fertilisers correctly in the mid-term situation although they apply less than the recommended amount per bush. Fertiliser application methods were already quite satisfactory in 2009 and have not improved since then. The amount of fertiliser used (0.05kg/bush) has not changed significantly over time. Farmers apply less than the recommended amount of fertiliser per bush for optimal productivity.

To assess whether farmers apply fertiliser correctly, farmers were asked how often and when they applied fertiliser. In the same way as with other questions concerning the implementation of practices, a score between 0 and 1 is assigned to their answers. Trained farmers and UTZ-Solidaridad training participants have on average a high score on these questions (around 0.79 for the question on application frequency and 0.67 for the question on when they apply fertiliser), indicating that most of them apply fertilisers correctly. On average, the score for the question on application frequency in the mid-term situation is slightly higher than in the baseline but the difference is not significant. The score for the question on the timing of application showed a decrease of about 0.07 both for generally trained and UTZ/Solidaridad trained farmers, but the decrease is not significant.

We also measured fertiliser application (in kilogram per bush) and fertiliser input costs over time. The average application of fertilisers in kilogram per bush changed slightly over time, but the change was not significant, nor was the change in average fertiliser costs for both generally trained and UTZ-Solidaridad trained farmers. The respondents used on average a low level of fertiliser in the 2011 season (about 0.05kg/bush) while they applied on average 0.06 kg/bush in the baseline situation. The most used fertiliser is NPK (NPK 25:5:5, 23:20 and T Compound). Some farmers use Urea. More details on fertiliser use and costs can be found in Appendix 8. Factory staff as well as farmers mentioned that the farmers apply less fertilisers than in the baseline situation, reducing input costs. This is not confirmed by the survey results. In Malawi, farmers are probably recommended to apply 0.07Kgs NPK fertiliser per bush (Kamanu, 2012). This leads to the conclusion that farmers probably apply too little fertiliser per bush in 2011 for optimal productivity.

3.3.10 Crop protection products and improved use of PPEs

The percentage of UTZ-Solidaridad participants not applying crop protection products has significantly increased from 88% to 93%, even though most of them (88%) did not apply crop protection products in the 2009 season. The percentage of generally trained farmers decreased from 94% to 90%. Thus, there is significantly positive change in the application of crop protection products compared with the baseline situation. Four respondents (all trained, two of whom were UTZ-Solidaridad trained) used bio-pesticides or organic pesticides, of whom two used home-made and the other two bought bio pesticides. We do

not know what the reason is that so few farmers apply crop protection products. Reasons can be that there is no need to, or that they cannot afford it.

Another element to look at with regard to crop protection products was to analyse how farmers dispose of their empty containers and excess chemicals that were already mixed. No significant change was observed with regard to the handling of empty containers by the UTZ-Solidaridad participants: While 6% of the trained farmers (11, of which 7 were UTZ-Solidaridad trained) used to dispose the empty containers of crop protection products inappropriately by burning them, burying them or re-using them in the baseline situation, 3% (4 trained farmers of which two UTZ-Solidaridad trained) disposed empty containers by throwing them into garbage pit or burying them in the mid-term situation. With regard to the handling of excess crop protection products, there was no significant change with the situation in 2009. In both years, only one generally trained farmer threw the excess chemical into pit latrines.

Significantly more UTZ-Solidaridad trained farmers are using PPE items in the mid-term situation compared with the baseline situation, although PPE use is still low. About 32% of the farmers used some PPE items and less than 1% of them used all PPE in the mid-term situation. Twenty-two per cent of the farmers do not need PPE as they do not use crop protection products.

Even though PPE use significantly improved, about 45% of the UTZ-Solidaridad trained respondents does not own PPE items. 20% of the farmers would like to obtain PPE items for free. See Appendix 8 for more details. So even though PPE use improved over time, there is still room for improvement, if PPE items are indeed necessary for green leaf production activities.

About 15% of the trained farmers and about 17% of the UTZ-Solidaridad trained farmers bought one or more PPE items the year before the survey took place. When asked about the reasons to buy PPE in the previous season (2011), the primary two reasons among UTZ-Solidaridad trained farmers were that 'I was taught in training that I can benefit from it' (16%) and 'I need it for required practices for UTZ certification (16%)'. Among the generally trained farmers, the primary reason was indicated as 'It increases my status as a farmer' (28%). We did not ask this question in the baseline survey so we cannot compare the reasons for acquiring PPE over time.

3.3.11 Farm efficiency and income

No significant changes between 2009 could be established with regard to farm efficiency due to the high degree of uncertainty of data with regard to input use.

Farm efficiency entails both agronomic and economic efficiency. Agronomic efficiency refers to the condition in which the same level of output is realised with the lowest level of inputs possible. Economic efficiency refers to the increase of net income at the same level of production scale (e.g., number of bushes). Improved farm efficiency is reflected in decreased input-output ratios and increased net income per bush. To assess the agronomic efficiency of green leaf production, farmers were asked to provide information on their input use, namely information on labour, fertilisers, and other agro-chemicals. Based on the information provided on chemical fertiliser, we calculated input/output ratio for N, P, and K, respectively. The quantities of N, P, and K used were calculated based on the composition of the compound. Details on input use can be found in Appendix 8.

For respondents who provided information both for 2009 and for 2011 (in total 44 trained farmers, of which 27 were UTZ-Solidaridad trained, gross income from green leaf production increased by about 4,000MKW per year, although the increase is not significant. This result is however rather unreliable due to the small number of observations (information was not complete for all respondents) and the potential 'noise' in the data.

Information on the costs of hired labour was rather incomplete in the survey data and showed a large discrepancy from the information obtained in the validation workshop. For example, the average cost for plucking from the survey data was less than 10 MKW per kilo, while we learnt from the workshop that it should be around 22.5 MKW per kg in 2011 and 19.5 MWK per kg in 2011. Due to the high uncertainty about labour costs, comparisons of net incomes is rather unreliable and is therefore not presented.

3.3.12 Increase in investment and savings

Sixty-eight per cent of UTZ-Solidaridad trained farmers and 73% of the generally trained farmers have invested the income from their tea farm in farm management (including other crops than green leaf) and business the year before the mid-term situation. Since no information was available on investment in the baseline, it is unclear whether investments have increased over time.

The theory of change expects that increase in net income will lead to increase in investment and savings. To obtain insights into the realisation of this outcome, the farmers were asked whether they spent their income on investment in their farm or business (investments do not include variable costs such as labour).

Savings seems to have decreased as 42% of the generally trained farmers and 36% of the UTZ-Solidaridad trained farmers disagreed with the statement that the amount of their savings has increased compared with two years ago and 30% of the generally trained farmers and 37% of the UTZ-Solidaridad trained) farmers stated that there is no difference with two years ago.

3.3.13 Perceived changes

Two-thirds of the trained farmers experience a higher productivity than two years ago and a higher income from tea as 53% says net income went up. Community relationships also improved according to the farmers. The quantitative data about income and productivity is inconclusive.

To see how farmers perceive the changes that have or have not taken place, the questionnaire contained a number of statements on which the farmer could indicate whether they agree or disagree and why they disagree. These statements were made on a number of outcome indicators such as production, productivity, income, record keeping, and savings.

We also analysed perceived changes in impact indicators (see Table 3.5 on the next page and Appendix 10): The overall 'perception of livelihood quality' indicator showed a significantly positive change between 2009 and 2011 (the score increased by 0.83 on a scale of 1-5) for the UTZ-Solidaridad training participants. All livelihood indicators except one showed a positive change between 2009 and 2011: the relation with family members, which was already quite high (=4.65) in 2009, did not change significantly over time.

Significantly fewer respondents had loans in the mid-term situation than in the baseline situation: 16% of the trained farmers had loans in 2011, while 37% of them had loans in 2009. Forty-two per cent of the UTZ-Solidaridad participants had loans in 2009 while 19% of them had loans in 2011. The amounts borrowed increased for half of the general training participants and half of the UTZ-Solidaridad participants, while for the other half, the amounts stayed the same.

Table 3.5 Perceived changes	
Changes in the level of satisfaction with livelihood indicators for the UTZ-Solidaridad training participants a)	Change between 2009 and 2011
The relation with neighbours	0.28
The relation with your family members	0.06
The relationship with the tea factory	1.25
Knowledge on good tea management practices	1.05
Professional advice on fertiliser and pesticide use	1.32
Leadership skills	0.70
Access to information on agriculture commodity prices	0.90
Access to self-help activities like Village Savings Loans	0.94
Diversification of income/number of income sources	1.07
Your homestead (house, access to water/electricity etc)	0.53
Your families health	0.71
Possibility to send children to school	0.66
Family welfare	0.81
Family income	1.25
Total	0.84
a) satisfaction is measured on a scale between 1 and 5, with 1 = very unsatisfied and 5 = very satisfied	

3.3.14 Conclusion

Looking at the question 'to what extent have the objectives (outcome level) of the programme been realised as a result of the output', it can be concluded that positive changes on outcome level have been observed. One-third of the overall immediate outcome indicators have changed significantly in a positive way between 2010 and 2012 for farmers who participated in trainings generally and in the UTZ-Solidaridad programme: i) they make better informed decisions on farm management, ii) they improved their overall implementation of sustainable practices, iii) they have healthier and safer working and living conditions, iv) they improved use of personal protective equipment, v) they decreased the use of crop protection products and vi) the relationship between farmers and tea factory managers improved.

An unexpected finding is that in spite of the overall improvement in the implementation of sustainable practices, the overall knowledge level on sustainable farming practices has significantly decreased compared with the baseline situation. We could not find satisfactory explanations for this decrease.

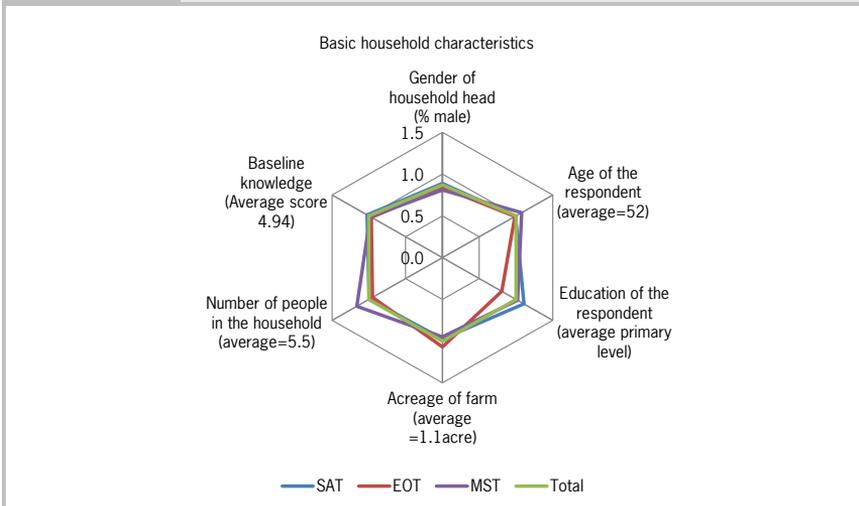
No significant changes were observed for the UTZ-Solidaridad participants with regard to i) record keeping, ii) farming as a business (diversification), iii) resource management and conservation practices, iv) safe use of crop protection products, v) productivity, vi) tea quality, vii) correct use of fertilisers, viii) gross income, ix) increase in investments and savings. Change could not be established for the indicators 'more transparent processes', 'groups are better organised', 'better services to group members' and 'no child labour (in line with International Labour Organisation standards)', 'farm efficiency' and 'net income'.

3.4 To what extent are the different target groups reached?

The target group to be reached with the programme were all 9.700 smallholder farmers who are member of the three associations (SAT, EOT, and MST) and supply green leaves to Lujeri Tea Estates, Eastern Produce Malawi (EPM), and Satemwa respectively. No specific target groups within these associations have been made except that 33% of the participants of the activities should be women (Kamanu, 2009). With regard to participation of women in UTZ-Solidaridad farmer trainings, this target has been reached: 42% of the participants in the sample were women. We do not know whether 33% of the lead farmers were women, as information on the gender of the lead farmers is not available.

About 60% of all smallholders of EOT have been trained in the UTZ-Solidaridad programme, while more than 60% of all farmers of Sukhambizi were trained. All 164 farmers of Msuwadzi association have been trained. This means that not all farmers have been trained by the programme to date, which can be explained by the fact that the programme was put on hold in May 2011.

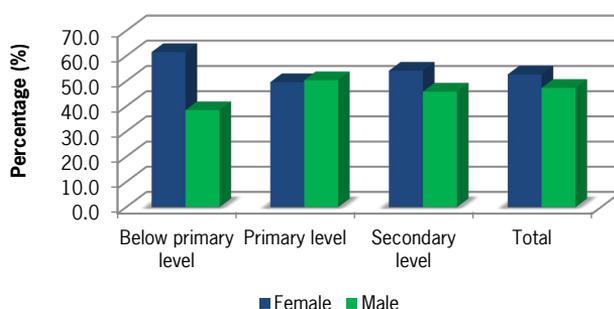
To describe the target groups, six basic characteristics of the respondents (representing their household) are summarised in a spider diagram (see Figure 3.4) for each association and for all sample households (Total). With the exception of gender of household head, the diagram shows the ratio of each indicator compared with the average value of the whole sample (i.e., the average value is set to 1). Detailed information on these characteristics can be found in Appendix 4.

Figure 3.4**Basic characteristics of the sample households and respondents**

As can be seen in Figure 3.4, farmers from the three associations are similar in most aspects. The exceptions are the household size of farmers from Mswadzi (more people in the household) and education level of farmers from EOT (lower education level). The education level of the farmers is in general low, with about 20% below primary level, 67% primary level. Only about 13% of the respondents has secondary level education. This corroborates the observation of the field officers and administrators on the illiteracy of the farmers. The average acreage of all sample groups was about 1.15acre (0.47ha). According to the field officers and administrators, these figures are representative for the 'average' tea smallholder in Malawi. Thus, the results of this mid-term evaluation study are representative for the whole target group.

Among all the respondents, 53% are female. There are however more females among respondents from the EOT (66%) and less (about 30%) among respondents from MST. As you can see from Figure 3.5, more women had an education below primary level than men. But for the sample as a whole, there is no significant difference with regard to the gender of the participants and thus we do not expect the participant's gender to influence the results.

Figure 1.5 Gender distribution at different education levels



When looking at to what extent the different target groups are reached it can be concluded that more than 60% of the households has been reached and that women participants counted for about 42% of the farmer training participants (which is higher than the target of 33%). We do not know whether 33% or more of the lead farmers are women as we do not have information on the gender of the lead farmers. Due to a lack of information, it is unclear how many households have been reached exactly. The programme approach was not biased in gender since no significant difference was found in the participation in training between women and men.

3.5 What are the main factors influencing the results of the actors?

In this section we present information on factors that influence the smallholder farmer performance, divided into internal factors (that can be related to the UTZ-Solidaridad programme) and external factors. The information stems from data from the questionnaire, and focus group discussions with farmers, field officers and administrators.

According to the theory of change, the tea programme is built around the training of field officers and promoter farmers, who in their turn train other farmers. Farmers appear to be in need of more training, as many of them indicated out of their own initiative to be in need of more training at the end of the questionnaire. The regression analyse confirmed the importance of training, as the level and education were found to influence the outcome indicator 'knowledge level'. Farmers' knowledge level in the baseline furthermore

influenced the outcome indicator 'implementation of sustainable practices'. The UTZ-Solidaridad programme thus addresses a problem of inadequate knowledge and implementation of practices by farmers through training. Based on the limited data available, the use of fertiliser was the main factor influencing changes in productivity and income. Farmers apply less than the recommended rate (see 3.3.9), and this affects their yields and income. Furthermore, farmers mention high PPE costs as an important element in their tea production costs, which is partly seen as a programme-related factor because of UTZ Code of Conduct requirements.

However, most of the factors influencing the results of the actors can be seen as external: farmers, both respondents and farmers in the focus group discussion, as well as field staff indicate that the following main factors influence green leaf production greatly (a detailed description of these issues can be found below):

1. High input costs for fertilisers, seedlings and PPE.
2. Climate change (especially droughts). Nursery establishment is part of the programme, but we are not sure whether this is related to climate change adaptation (drought resistant clones).
3. Food security (although diversification is part of the UTZ-Solidaridad training which is expected to contribute to food security)
4. Logistical problems in green leaf collection
5. Access to loans/credit (only mentioned by respondents of the questionnaire)
6. Low prices for green leaf (only mentioned by respondents of the questionnaire)
7. Illiteracy (only mentioned by field officers).

According to the farmers we spoke to from Sukhambizi association (in a Focus Group discussion), the biggest challenge in green leaf production is to buy or grow seedlings for infilling and expanding their tea fields. Seedlings are expensive, not only when bought from the factory but also when grown by farmers themselves (because materials such as crop protection products and PPE for nurseries¹ are expensive). Some farmers started nurseries because of the UTZ-Solidaridad training and regular extension services, but the expenses have kept adoption rates low. The issue of high seedling costs hampering infilling is con-

¹ Farmers do not need specific PPE for nurseries according to the UTZ-Solidaridad programme, but farmers perceived them as necessary for nursery establishment and management.

firmed by field officers who said that about 80% of all tea field contain gaps resulting in a lower productivity per hectare.

Furthermore, the farmers say that fertiliser costs are high leading to low net income from green leaf production (field officers and administrators disagree with this, though, see Chapter 3.9). Farmers often use loans to pay for fertilisers and are trapped in a loan spiral because after re-paying the loans not enough money is left for the next growing season and then they borrow again.¹

Climate change is also an important issue to tackle as they are experiencing more and more droughts. The farmers indicated that climate change adaptation was not part of the programme, but they think that they can adapt to climate change by buying new clones and uprooting old bushes², but buying new clones is costly (and new clones are not always available). The farmers also want to grow other crops and undertake different activities for when income from tea decreases because of climate change. They already buy 50% of all the food they consume on the market in the dry period and would like to increase their self-sufficiency in food production. This was part of the UTZ-Solidaridad training programme, but apparently the farmers still feel that this subject has not been given enough attention yet.

Another issue of importance to the farmers is the fact that they say that PPE costs are high, leading to the fact that not everyone has bought them. Also the farmers had some problems with logistics: sometimes leaf is collected by the estates very late, resulting in a decrease of green leaf quality and a loss of time that could be used for other activities. The last thing that field officers and administrators noted was that farmers are illiterate, which makes record keeping, amongst others, very difficult.

In conclusion, we note that many factors influence smallholder farmer performance. These factors are partly in the sphere of influence of the UTZ-Solidaridad programme, but many of these factors lie outside the scope of influence of the UTZ-Solidaridad tea programme.

¹ It should be noted here that association administrators mentioned that fertilisers can be bought at a discount at the associations, on credit. And that using credit to buy fertiliser from the association is a cheaper way of obtaining fertilisers than buying fertilisers on the market.

² There may be more ways to deal with climate change, but we present farmers' perceptions here.

3.6 To what extent is the UTZ-Solidaridad tea programme appropriate to the needs among the target group?

To answer the research question on the appropriateness of the UTZ-Solidaridad programme to the needs of the group, we asked farmers how they value the training and why they value it as they do, and whether they would recommend the training to a neighbour. Farmers were also asked whether they would like to see something changed in the organisation of UTZ-Solidaridad training activities or UTZ certification. Besides asking the farmers, we also asked field officers to give their opinion on whether some training needs were not met yet by the UTZ-Solidaridad programme.

3.6.1 Farmer satisfaction with the UTZ-Solidaridad programme

Eighty-four per cent of the respondents who participated in UTZ certification training were satisfied with the training,¹ mentioning a range of benefits which can be found in Section 3.8. The same share of the farmers would recommend the UTZ certification training to other tea farmers.

Sixty-two farmers (59%) made suggestions to improve the programme. Nineteen farmers would like to see more and more frequent trainings to be provided, while 17 farmers said that the price or bonus should be increased. The need for the provision of inputs (fertilisers, seedlings and PPE) was mentioned by 11 farmers and 9 farmers mentioned the provision of credits as an important need. The other recommendations were divided between: i) reimbursement for training participation, ii) provision of animals and iii) the provision of more services to the farmers. Apparently, even though the farmers are very satisfied with the UTZ-Solidaridad programme, they still have certain demands that have not been met yet, although such demands may be unrealistic from the training programme point of view.

The farmers in the focus group discussion indicated that quite some training needs are met by the programme, except two very important topics even though they both have been 'touched' by the programme:

1. How best to establish tea nurseries. This is also related to climate change issues where new drought resistant clones should be developed and planted

¹ Four respondents were unsatisfied with the training; they gave the following reasons: 'I attended only one training'; 'I see no profit', 'the training did not last long' and 'I wanted to be provided with things such as gumboots and raincoats'.

according to the farmers. They want the UTZ-Solidaridad programme to assist in establishing nurseries and accessing new clones to adapt to climate change. They were taught on nursery establishment but adoption is low due to the costs related to nurseries, and want further assistance in this matter. Climate change adaptation is also seen as a major challenge by the field officers.

2. Training on other types of farming than green leaf production. The farmers think that because UTZ also certifies other crops they can be assisted by UTZ to grow other crops. They are specifically interested to learn how to grow other cash crops and 'it would be nice if such crops would become certified too' (e.g. they mention macadamia and blue gum. As UTZ does not certify these crops, it may be that they are confused with RA or Fairtrade certification).

3.6.2 Field officer views on whether training needs are met

We also asked the field officers if they could mention training needs of the farmers and whether such needs were met by the UTZ-Solidaridad programme. They confirmed the training needs that were mentioned by the farmers and added training on leaf quality as they think farmers need to be reminded repeatedly to maintain and enhance leaf quality. Also they confirmed the need for a solution to record keeping because of the illiteracy of farmers.

Not only did we ask field officers about training of farmers, but also about training of lead farmers. They said that lead farmers need more training to train farmers in the UTZ-Solidaridad programme (they lack management and teaching skills), but they especially need to know what they are supposed to do as lead farmers and when they should do so, as this is not clear to them at the moment. This includes following up with the lead farmers regularly to see what progress they have made in training farmers. For the field officers from Eastern Produce and Lujeri this is extremely difficult to do, as their work is already fully programmed. Lead farmers also lack equipment to do their work effectively, according to the field officers. They expect that Solidaridad can now follow up, now a country manager will be appointed to work on the programme (there has been some discontinuity in personnel since the start of the programme).

3.6.3 Conclusion

Conclusion: with regard to training needs, most needs of the farmers are met although many farmers would like to receive more training and there are still topics that require attention in the future.

3.6.4 Other needs than training needs

Some major challenges found in this study to impact on farmers' performance, which indicate farmers' needs, can be seen as external factors because they are beyond of the scope of a training programme (see 3.5 for a list with such challenges).

3.7 To what extent are the methods and activities well chosen to attract the target group?

The best way to improve the trainings on certification is to combine trainings, according to field officers. Now the lead farmers who train farmers on certification may give similar trainings for various certificates. It would be most effective and efficient to combine trainings, inspections and audits.

When asked about what types of trainings are most suitable for them to learn and implement new practices, the SAT farmers indicated that learning can best be done in a 'club'. A club is a small group of between 10 and 20 farmers. This is confirmed by field officers and administrators, who indicated that the most effective training method is to train farmers in small groups (on club level). For the farmers, the most appropriate teacher would be the club leader (who is a farmer) after being trained well by the UTZ-Solidaridad programme. Now, the club leaders are the lead farmers who have been trained by the programme, and thus apt to train the farmers, and the SAT farmers are satisfied. But they would appreciate refresher trainings, as sometimes they learn something and forget about it after some time.

Training did not follow the same setup for all associations in Malawi. At two organisations, namely SAT and MST, training took place in clubs of between 12-30 people and 17-50 people respectively where lead farmers usually train two clubs. This indicates that for these two associations the training methods reflect the wishes of the farmers. However, at one of the associations, namely EOT, the training did not take place on 'club' level but on 'block' level because farm-

ers who are part of this association are scattered. This means that farmers were trained in groups of between 70 and 90 farmers. The block leaders are lead farmers, and they train the farmers on UTZ certification and GAPs. Thus, the EOT training takes place in a less intensive way as the trainings at the other two associations.

Also, field officers indicated that lead farmers do a voluntary job. Sometimes they are reluctant to train other farmers when they are on their own farm. It would be best for them to become compensated for the work they do to keep them motivated. This is an issue that has also arisen in RA trainings in Kenya. Finally, RA decided to pay a remuneration to the lead farmers in Kenya to keep them aboard.

With regard to the motivation(s) of farmers to become a lead farmers, 23% of the respondents who indicated to be a lead farmer indicated that they wanted to learn new skills etc. and 20% said that they wanted to train or teach fellow farmers to improve green leaf production. The special status of being a lead farmer seems to have played an important role as 16% of the farmers was proud to be a lead farmer. Ten per cent of the farmers indicated to have been asked or selected to become a lead farmer. Even though not all of the farmers who said to be a lead farmer in the survey can actually be a lead farmer in the UTZ-Solidaridad programme, these motivations and their hierarchy of importance appear true, according to Kamanu (2012).

Conclusion: about 60% of the farmers trained in the UTZ-Solidaridad tea programme are trained according to what farmers and field officers consider the best training methodology (with regard to group size and the teacher). The other 40% is trained in a less optimal way. To enhance cost-effectiveness in the future, trainings should treat a combination of topics in one go; e.g. similar topics for different certificates. Specific attention should be given to whether lead farmers should receive a remuneration or not, to keep them motivated and continue training other farmers.

3.8 What, if any, is the added value for the various actors going through the certification process or being certified?

To answer this research question, farmers were asked about whether they experienced benefits because of participating in the programme and of their factory being certified. In focus group discussions, field officers and administrators were also asked to reflect on the added value of going through the certification

process or being certified for the farmers and the factory, and on whether the interventions of training and certification influence or strengthen each other.

3.8.1 Benefits of the UTZ-Solidaridad training programme

More than 87% of UTZ-Solidaridad training participants benefited from the programme. The most frequently mentioned benefits are increased knowledge on green leaf production, farm management and environmental preservation. About 51%, for instance, said that they improved their net income through participation in the UTZ-Solidaridad training or UTZ certification. A full list of the benefits can be found in Appendix 5.

Besides the information from the survey, we also asked farmers, field officers and administrators in focus group discussions about the benefits of the UTZ-Solidaridad training programme and UTZ certification. The entire list with benefits can be found in Appendix 5. Information on benefits that are interesting to mention here are:¹

- A change of mind-set: farmers now stick to what they learnt in the trainings and act more commercially. In the past, they did not see tea as a serious enterprise. Now they know that green leaf production is a serious business, which can enable them to earn money, and they now give more attention to farm management than before.
 - a. Farmers stopped fighting over community boundaries because the boundaries had to become clear because of certification. (This is probably related to the fact that, for the ICS, it is required to make a farm map.)
 - b. Farmers established buffer zones next to rivers and indicate that the water is no longer polluted because of the buffer zones.
 - c. A decrease of farmers needing a loan was observed.
 - d. The farmers increased productivity and income
 - e. Farmers made more profits than in the past but because the devaluation of the Malawi Kwacha, the profits cannot be seen: even though they say that they earn more Kwachas, the Kwacha is worth less and thus the real value of the total net income is less.
 - f. All certifications combined have resulted in better relationships in the communities. Especially Fair Trade led to better community relationships because the community needs to plan to spend the budget on community

¹ Information on benefits that are probably connected to RA certification has not been mentioned here but in Appendix 5.

projects. The UTZ-Solidaridad programme has led to farmers to share information on GAPs with each other which is seen as a social benefit.

3.8.2 Certification motivates to implement practices and retains markets

Farmers expect that certification helps them to find a market for their tea, which training by itself cannot do. Even though the association which they belong to is not certified yet, the process towards certification gives them encouragement and a sense of ownership, and motivates them to comply with all requirements and pass the audit.

Field officers and administrators also indicated that they think that buyers will demand UTZ certified tea because of commitments to source sustainably, and that if they will not obtain certification, such buyers will start buying from certified parties leading to them having problems in selling their tea. Thus they see that it is not an option for them to refrain from obtaining certification. They struggle to pay for certification at the moment and find that the financial perspectives of UTZ certification are not clear to them yet (whether benefits cover the costs). But they think that they will be able to negotiate with buyers to obtain a higher price for UTZ certified tea to cover the costs of certification. They see this happening now on a small scale even though such information is intransparent and they do not know how much extra is paid for UTZ certified tea.

3.8.3 Improved communication and company processes lead to better services

Lead farmers and extension services report improved effectiveness owing to an improved flow of information between the top management and farmers. Before the UTZ-Solidaridad programme (RA started later), there were very few field officers and the associations were not as extensive as they are now. Because of the programme, and later RA certification, the number of field officers increased and the associations became larger because of all work that needed to be done. This has resulted in more communication between the farmers and the company.

On tea company level, the establishment of the Internal Control System (ICS) has improved the way the organisations are run. Everyone now knows who does what, when and how. Since establishing the ICS, many jobs are planned in for the whole year, which makes the work more efficient, and easier to carry out for the field officers. In the past, the same jobs were done but not planned in formally. An aspect of factory operations that can be improved to better meet the

needs of smallholders is a timely collection of green tea leaf by the factory (see Section 3.5). Also, the company staff learnt about the 'do's and don'ts' from the UTZ code of conduct and about problem and conflict solving. This has enabled them to service the farmers in a better way. Finally, farmers are also more stably connected to a factory because of the chain of custody; they do not sell to other buyers anymore as far as the field officers know. This is of importance to the factories/companies as they can now better plan tea processing as they now know how much green leaf is coming in.

The administrators of the smallholder associations, on the other hand, do not report changes in their processes or activities as a result of the UTZ-Solidaridad training programme.

3.8.4 Conclusion

We conclude that certification offers farmers a motivation to implement the required practices and pass the audit and that certification is seen as a way to sell tea to the market and retain current clients, which training in itself cannot achieve. Certification is also expected to lead to a higher price for tea, enhancing the potential to cover the costs of the activities. Furthermore, the ICS led to an improvement of internal planning and processes of the tea companies, leading to more communication between the companies and farmers and better service delivery to the farmers. This does not, however, apply to the producer associations.

3.9 Can the changes observed this study be attributed to the UTZ-Solidaridad programme?

In attributing the changes to the Solidaridad/UTZ intervention, we have used both quantitative analysis of the survey data and qualitative information from interviews and focus group discussions with the farmers, field officers and administrators.

Since the UTZ-Solidaridad programme consists of trainings and the effect may be influenced by external factors such as rainfall patterns, we used regression analysis in which changes in different outcomes were used as the dependent variables. Explanatory variables include farmers' characteristics such as gender and education and dummy variables representing different training com-

binations and factories (which accounts for differences in rainfall patterns). We found that (See Appendix 12 for more information):

1. Although overall knowledge level has significantly decreased, UTZ-Solidaridad training and the combination of UTZ-Solidaridad training with RA and other training did show a positive impact on the knowledge scores of respondents who received the training. Over time, the knowledge level of untrained farmers decreased more than those who were trained.
2. The effect of UTZ-Solidaridad training on the knowledge level of the respondents is influenced by the respondents' level of education and knowledge level prior to the training (in the baseline). The lower the education and knowledge level prior to the training, the bigger the effect of the UTZ-Solidaridad training.
3. UTZ-Solidaridad training, both alone and in combination with RA and other training had a significantly positive impact on increasing the implementation of production related practices.
4. Due to insufficient data, no significant relationships could be found between changes in production, productivity, gross and net income and the type of training participated in.

We conclude that the farmers who have received more training on farming related practices scored better with regard to knowledge and implementation of practices than farmers who received less or no trainings. The changes observed were usually influenced by UTZ-Solidaridad training in combination with other trainings, except for the overall score for production-related practices. This makes it difficult to attribute the effects to the UTZ-Solidaridad programme alone, even though farmers, field staff and administrators had very positive perceptions of the benefits of the UTZ-Solidaridad tea programme.

3.10 External factors influencing mid-term results

In this study, external factors which may influence farmer performance have been taken into account in the analyses as explanatory variables, or through qualitative explanations by farmers and extension staff. The following external influencing factors have been found in this study:

- Climate change/weather conditions: farmers indicate that droughts negatively affects green leaf production

- Other training and certification programmes influenced knowledge levels and the implementation of practices in combination with the UTZ-Solidaridad tea programme activities
- Farmers indicate that labour availability is not a problem, and thus does not influence their production/productivity.
- Farmers indicate that high input costs negatively affect their net incomes
- Farmers indicate that inflation negatively influenced their real incomes (adjusted for inflation)
- There was limited market demand for UTZ certified tea from the smallholder associations under review at the time of the mid-term survey a less than 5% of all targeted smallholder farmers would become suppliers of D.E MASTER BLENDERS 1753. Msuwadzi Smallholders Trust (MST) did sell tea as UTZ certified at the time of the mid-term survey.
- Education levels positively influences the changes in farmers' knowledge scores (the higher the education, the higher the scores) but not their scores for the implementation of practices.

4 Conclusions, lessons learnt and recommendations

This concluding chapter follows the three areas addressed by this research: the effectiveness of the UTZ-Solidaridad tea programme in Malawi, the appropriateness and relevance of the UTZ-Solidaridad tea programme in Malawi, lessons learnt and recommendations.

4.1 The effectiveness of the tea programme in Malawi

4.1.1 To what extent have the activities led to the planned outputs?

This first evaluation question was addressed by investigating whether lead and other farmers were trained, and whether all producer associations had become UTZ certified at the time of the mid-term survey. All 304 planned lead farmers have been trained and minimally 60% of the target population of 9700 farmers has received training by the UTZ-Solidaridad programme, although the exact percentage is not clear. The rest probably was not trained because the programme was put on hold in May 2011. One out of three producer associations became UTZ Certified before the mid-term evaluation was carried out. It is not clear from the programme objectives whether all farmers should have been trained by the time of the mid-term survey. An estimated 3.880 smallholder tea farmers (40% of 9,700) have not yet been reached by the programme.

4.1.2 To what extent have the objectives (outcome level) of the programme been realised as a result of the outputs?

The theory of change of the UTZ-Solidaridad programme specifies the immediate and ultimate outcome indicators and their expected changes as a result of the programme outputs. In the report, results are presented for the group of all farmers who participated in trainings, but we specifically focus on its subset of farmers who participated in the UTZ-Solidaridad trainings.

Looking at the question 'to what extent have the objectives (outcome level) of the programme been realised as a result of the output', it can be concluded

that positive changes on outcome level have been observed. One-third of the overall immediate outcome indicators have changed significantly in a positive way between 2010 and 2012 for farmers who participated in trainings generally and in the UTZ-Solidaridad programme: i) they make better informed decisions on farm management, ii) they improved their overall implementation of sustainable practices, iii) they have healthier and safer working and living conditions, iv) they improved use of personal protective equipment, v) they decreased the use of crop protection products and vi) the relationship between farmers and tea factory managers improved,

An unexpected finding is that in spite of the overall improvement in the implementation of sustainable practices, the overall knowledge level on sustainable farming practices has significantly decreased compared with the baseline situation. We could not find satisfactory explanations for this decrease.

No significant changes were observed for the UTZ-Solidaridad participants with regard to i) record keeping, ii) farming as a business (diversification), iii) resource management and conservation practices, iv) safe use of crop protection products, v) productivity, vi) tea quality, vii) correct use of fertilisers, viii) gross income, ix) increase in investments and savings. Change could not be established for the indicators 'more transparent processes', 'groups are better organised', 'better services to group members' and 'no child labour (in line with International Labour Organisation standards)', 'farm efficiency' and 'net income'.

The mixed evidence on knowledge seems to challenge the causal sequence in the theory of change where improvement of knowledge is a prerequisite for an improvement in the implementation of practices.

4.1.3 To what extent are different target groups reached?

The target group of the UTZ-Solidaridad programme consists of all 9,700 farmers connected to the three producer associations that were to become UTZ certified. More than 60% of the targeted farmers have been reached, but there is a high degree of uncertainty about the actual percentage due to the lack training records information. In the programme setup, a specific objective was made with regard to the participation of women, as in Solidaridad's experience women usually hardly participate in training programmes even though they are involved in production activities. The programme was successful in attracting women to the training, as about 40% of the farmer-training participants were women. This exceeds the target of 33% of female participants aimed at. It is not clear

whether 33% or more of the lead farmers are women as no information on the gender of lead farmers is available.

4.1.4 What are the main factors influencing the results of the actors?

This study identified that important factors related to the UTZ-Solidaridad training programme that influence farmers' results are training, high fertiliser costs, seedling costs and costs for personal protective equipment.

External factors such as droughts, inflation, input costs, logistics in green leaf production, access to credit, low prices for green leaf, and illiteracy are beyond the scope of the programme, but also influence smallholder farmer performance. It is not clear which of the influencing factors identified in this study has the biggest influence on the performance of smallholder tea producers in Malawi.

4.1.5 Overall conclusion

Following the theory of change, this study has found that, halfway its implementation, the UTZ-Solidaridad tea programme has trained all promoter farmers and has reached at least 60% of the targeted farmers. Not all farmers were reached because the programme was put on hold in May 2012. The training was effective in attracting women to the trainings, and resulted in one of the three smallholder associations reaching UTZ certification by June 2012. Furthermore, one-third of the 20 outcome indicators showed significant positive changes since the baseline situation: trained farmers have improved decision making on farm management, the overall implementation of sustainable practices, the use of personal protective equipment. They have healthier and safer working and living conditions, decreased the use of crop protection products and also the relationship between farmers and tea factory managers improved,

An unexpected finding is that in spite of the overall improvement in the implementation of sustainable practices, the overall knowledge level on sustainable farming practices has significantly decreased compared with the baseline situation. We could not find satisfactory explanations for this decrease. Despite the UTZ-Solidaridad training programme, no significant changes were observed for the UTZ-Solidaridad participants with regard to i) record keeping, ii) farming as a business (diversification), iii) resource management and conservation practices, iv) safe use of crop protection products, v) productivity, vi) tea quality, vii) correct use of fertilisers, viii) gross income, ix) increase in invest-

ments and savings. Change could not be established for the indicators 'more transparent processes', 'groups are better organised', 'better services to group members' and 'no child labour (in line with International Labour Organisation standards)', 'farm efficiency' and 'net income'.

Finally, this study identified that important factors that influence farmer performance are training which are addressed by the UTZ-Solidaridad programme, as well as personal protective equipment costs. But the study also found that external factors which were not part of the training programme, influence farmer performance. Examples are: high fertiliser costs, climate change (droughts), green leaf logistics and illiteracy. It is not clear which of the identified influencing factors has the biggest influence on the performance of small-holder tea producers in Malawi.

4.2 Appropriateness and relevance of the tea programme in Malawi

4.2.1 To what extent is the UTZ-Solidaridad tea programme appropriate to the needs among the target group?

Most training needs of the farmers who participated in UTZ training were met as almost all participants said they were satisfied with the training and would recommend the training to other farmers. Farmers would like to see some training topics addressed in the future; e.g. how to establish nurseries and how best to grow food crops next to tea production. Field officers stress that leaf quality should be addressed in the future programme and that a solution to record keeping is needed to address the illiteracy of farmers.

Some major challenges, which can be seen as external factors because they have no direct link with training activities but nevertheless impact on farmers' performance, have not been addressed by the programme. Among these are: low prices for green leaf, high input prices, climate change, logistics in green leaf collection, access to loans/credit and illiteracy.

4.2.2 To what extent are the methods and activities well chosen to attract the target group?

With regard to the methods and activities chosen in the training programme, the best way to teach farmers is in small groups of farmers with similar backgrounds, led by well-trained, experienced and knowledgeable lead farmers. The

current lead farmer system as it is implemented in Malawi fits the 'perfect training method' profile (according to the farmers and field officers) for about 60% of the farmers trained in the UTZ-Solidaridad tea programme. The other 40% (farmers from Eastern Outgrowers Trust) is trained in a less optimal way as the training groups are larger, which is due to logistical constraints as the farmers are widely scattered around the estate.

For the lead farmer system to work, the motivation of lead farmers to teach other farmers is key. The lead farmers are still active in their role. However, field officers suggest giving the lead farmers a compensation because otherwise their motivation may decrease. Solidaridad mentions that financial payments would run the risk of lead farmers stopping training after the programme and payments end. It thus needs to be verified whether the voluntary lead farmer system is a sustainable way of training farmers in the future.

4.2.3 What, if any, is the added value for the various actors going through the certification process or being certified?

Almost all farmers who participated in UTZ training are satisfied with the training. The most frequently mentioned reasons were increased knowledge on green leaf production, farm management and environmental preservation. Certification offers farmers a motivation to implement the required practices and pass the audit and is seen as a way to sell tea to the market and retain current clients in the future, which training by itself cannot achieve. Certification is also expected to lead to a higher price for green leaf, enhancing the potential to cover the costs of the certification activities. Furthermore, the Internal Control System has led to an improvement of internal planning and processes at the tea companies, leading to better communication between farmers and the tea company and better service delivery to the farmers. Such changes were not observed for the producer associations.

4.2.4 Can the changes observed this study be attributed to the UTZ-Solidaridad programme?

The UTZ-Solidaridad programme has contributed to both the knowledge level of training participants and to their improved implementation of sustainable practices. As you may remember, knowledge scores generally decreased over time, but the knowledge score of the UTZ-Solidaridad programme participants decreased less than the knowledge score of untrained farmers. The combination

of the UTZ-Solidaridad training and Rainforest Alliance and Other trainings showed similar contributions to changes in knowledge levels and the implementation of, specifically, production practices. An interesting finding is that the effect of UTZ-Solidaridad training on the knowledge level of the respondents is influenced by the farmers' level of education and knowledge level in the baseline situation: the lower the education and knowledge level prior to the training, the bigger the effect of the UTZ-Solidaridad training. Due to insufficient data, no significant relationships could be found between changes in production, productivity, gross and net income and the type(s) of training participated in.

4.2.5 Overall conclusion

Overall, we conclude that UTZ-Solidaridad training alone and in combination with other training activities contributed to knowledge levels and the implementation of sustainable practices. Furthermore, the UTZ Solidaridad tea programme in Malawi has met most of the training needs of the target group, but some training needs still exist. Furthermore, farmers face challenges at the time of the mid-term survey that were beyond the scope of the programme. The training methodology could furthermore be adjusted for smallholders connected to Eastern Outgrowers Trust to better fit with the 'best training method' profile, although this may not be realistic from a logistical point of view. Finally, certification, including its potential for the farmers to retain their markets, and its potential for reaping market rewards, offers a motivation for farmers to implement the required practices and has improved organisational processes and planning at the tea companies (but not at the smallholder associations). This has led to improved communication between farmers and the companies and better service delivery to the smallholder farmers.

4.3 Major lessons learnt

Four major lessons learnt have been identified in this study.

First, even though their knowledge scores decreased over time, UTZ-Solidaridad training participants did improve their overall implementation score significantly. This contradicts the theory of change in which an increase of knowledge is expected to lead to an increase in the implementation of practices. Apparently, farmers may implement good agricultural practices correctly, without knowing why some implemented practices are better than others.

Second, challenges mentioned by the farmers and field staff have not been addressed in the theory of change, while they may constitute greater challenges to the target group than the problems addressed by the programme (improvement in knowledge and the implementation of practices). This means that a review of the scope of the programme is needed and that it might be necessary to adjust the programme goals and/or implementation approaches.

Third, the factories have a lot of data and other information which has not entirely been tapped into for this mid-term review. Such information could be used for potential future assessments.

Fourth, there is very high uncertainty about the information as more than 50% of the production data collected from the surveys are incomplete and the information contains many errors. This indicates that farmers have difficulties in answering the questions (which is linked to record keeping) or that enumerators did not coax farmers enough to answer all the questions.

4.4 Recommendations

4.4.1 Recommendations for the tea programme in Malawi

For the next phase in the programme, it is recommended to focus activities on those knowledge and implementation topics that have a low score in the mid-term situation. This can be done based on the scores applicable to the whole target group, the trained farmers, the UTZ-Solidaridad training participants, or the scores for farmers connected to each of the three producer associations. Furthermore, the needs of the farmers with regard to training topics and methodologies, indicated in this report, can also be used to adapt the programme.

An important success factor for the training cascade is the willingness of lead farmers to train other farmers. As it is not clear if lead farmers need some kind of reimbursement to continue training other farmers, while concerns exist that they may lose motivation without reimbursement, it is recommended to discuss how to keep lead farmers motivated in the future and to take action when required.

With regard to the training activities, lead farmers appeared to be in need of follow-up trainings during the mid-term survey. LEI understood that such trainings have been organised after the validation workshop took place. Second, it is recommended to regularly follow up the progress of the lead farmers and refresh the trainings as farmers who are trained irregularly or sometime in the

past tend to forget what was taught. Third, it is recommended to ensure that UTZ code of conduct requirements are understood well by the farmers as we found that farmers for instance misunderstood the requirements for the use of PPE. Fourth: as many smallholder tea producers in Malawi are illiterate, it is recommended to ensure that training tools are adapted for use by illiterate farmers. And finally, it is recommended to combine trainings on similar topics, for instance of different certificates, to enhance cost-effectiveness of the training programmes.

Another recommendation which is directly related to programme activities as it is a UTZ code of conduct requirement, is to make record keeping simpler for the farmers and illustrate the potential benefits of record keeping such as better informed decision making. This is particularly important for farmers in Malawi since many farmers are illiterate. A way to make record keeping simpler is for instance to provide them with booklets (such as Msuwadzi Smallholders Trust did with good results), which can be easily filled out. In such a booklet, for instance, use can be made of pictures and pictograms next to boxes which can be ticked or in which only a number need to be written. For instance, next to a pictogram of a bag of green leaf, the farmer can indicate the number he has brought to the leaf collection centre. Another option is to assist farmers to keep records, interpret them and use records in decision making.

As no detailed information was available on the training activities, it is recommended that in the next phase such activities are monitored, and especially to make sure that all targeted farmers participate in UTZ-Solidaridad trainings. Monitoring activities would include specifically defined outcome indicators so they can be measured in a good way and an indication of the time frame of the outcomes to be expected and the interdependencies of different outcome indicators. Such information could be used for programme evaluations, be it by programme staff itself, or an external party.

From a strategic programme point of view, it is recommended to revisit the theory of change with regard to the assumption that improved knowledge leads to an improved implementation of sustainable practices. We also recommend focusing on external factors and their potential influence on the outcomes and how they will be addressed when they arise. An important issue to be discussed is the assumption underlying the theory of change that more knowledge leads to a better implementation of practices, as in this study knowledge levels decreased while the implementation of practices improved.

For potential future assessments, it is recommended to use tea company data for parts of the analyses and cross validation. When available, accessible

and of good quality, such tea company data could assist in the analysis of changes in core production and income figures for the whole population and, potentially, assessment costs could be decreased.

There is a scope to improve the logistics of green leaf collection by the factory companies. Smallholder tea producers can benefit at least in two ways from reduced waiting time at collection centres: improved green leaf quality and more time for other productive activities. This could be taken up in the next phase of the programme, or other future programmes.

Finally, it is recommended to communicate the study results to the farmers so they can learn from it. Around ten survey respondents indicated that they would like to know the outcomes of the survey.

4.4.2 Recommendations for other (future) programmes

For the development and execution of future other programmes, it is recommended to:

- Assess the needs of the target group before the programme is developed and to develop the programme accordingly. When a needs assessment is conducted prior to the development of a programme, to update it during the implementation of the programme and to adjust the programme's intervention strategy if required
- Critically test the rationale of the theory of change with relevant stakeholders and potential evaluators prior to implementing the programme, and to assess whether the programme addresses the main challenge(s). This includes choosing very specific indicators (e.g. 'income adjusted for inflation' instead of 'income') that reflect the targeted outcomes, assessing how external factors may influence programme outcomes, and how to address such factors when they arise.
- Set up a monitoring system at the start of the programme and record activities in the field throughout the programme duration. This can be relatively simple through an excel spread sheet although it does takes time to monitor and record the activities. Based on such monitoring data, evaluations by programme staff or external parties can be conducted in a much better way than without such data.
- Communicate to the companies and (lead) farmers involved what they can expect during the programme and regularly follow up on their progress, especially when extension work is not a large part of the day-to-day activities of

the field officers and lead farmers and thus a tension exists between extension work and other activities.

- Find out whether or not lead farmers should be remunerated to train other farmers for a long period of time.
- When an evaluation takes place, assess the availability of data at various value chain actors for the purpose of evaluation as this could potentially decrease the assessment costs.

Literature and websites

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Appendix 1 Theory of change

Detailed information on the theory of change

Demarcation of the theory of change in this report

There are several aspects left out in the theory of change figure in this report (Figure 1), which were discussed during the meeting because the mid-term review focuses on deriving information on farm level impacts. These aspects are explained below in the text. Examples of such aspects are issues which will not be addressed in the mid-term review (e.g. training of factory staff on processing, hygiene etc.). The tea programmes in Kenya and Malawi thus encompass more than just the farmer trainings and ICS establishment and management depicted in the theory of change. We also discussed detailed impact logics of how improvements in various practices are expected to lead to certain impacts on farm-level. These detailed impact logics on practices are captured in the 'improvement of practices' box in Figure 1, and are described below in more detail.

External factors may influence programme outcomes as well. Examples could be: climate, rainfall patters, development programmes in the same region as the intervention, etc. Since they are not explicitly a part of the rationale behind the theory of change (why a certain impact is reached through the programmes), they are not displayed in it. However, in the workshop, we derived a list with such external factors, which are described in Section 2.2.6 below. We will try as much as possible to gather data on these factors, to use in the mid-term review analyses. Usually, such external factors are accounted for by conducting an impact assessment with a treatment and control group. As this is not the case in this research, however, we hope to be able to find easily accessible data to back up our assessments.

Detailed description of the impact logic of the improvement of practices

In a workshop, the implementation of practices and their expected outcomes and impacts were discussed in detail. These details are described below.

The following practices to be improved by the programmes were identified

1. Record keeping
2. Regular plucking

3. Fertiliser application
4. Pruning
5. Infilling
6. Weeding
7. Less application and safe handling of crop protection products and fertilisers
8. Relationship between management and farmers.

Record keeping, of inputs and yields, is expected, together with discussing gross margins of different crops during the trainings, to lead to informed decision making on farming and then to farmers farming as a business. This is expected to lead to farm efficiency (economic and agronomic).

Regular plucking leads to farmers spending more time on plucking but it also leads to better table maintenance, better leaf quality and higher productivity. This is expected to lead to an increase in the net income of farmers.

Fertiliser application is improved by the factories/estates, as they conduct soil and leaf analyses and give advice to farmers which fertiliser to apply and how and when to apply it. Application of fertiliser ensures nutrients to be added back to the soil (plucking extracts nutrients) and leads to an increase in the quality of green leaf and an increase in productivity. Both are expected to lead to an increase in gross income and finally also to net income.

Pruning leads to even tables (ensure easy plucking), making sure tables will not increase in height and leading to an increase in productivity and quality. Such an increase in productivity and quality is expected to lead to an increase in gross and finally also to net income.

Infilling and weeding leads to less infestation of weeds and thus less time needed for weeding. This is expected to lead to less use of labour, and thus a higher farm efficiency, increasing the net income of the farmers.

Better relationship between farmers and management/leaders is expected to lead to better interaction and make it easier for farmers to ask for services and thus lead to better services.

Other activities mentioned were

1. Planting indigenous trees
2. Removing harmful trees and crops from river banks

Nurseries at factory level are established, to facilitate the planting of indigenous trees by farmers who receive seedlings for free and by factories themselves. This may lead to soil conservation when planted on areas that are too

steep for green leaf production, but also leads to the preservation of indigenous tree species (avoid extinction) and thus biodiversity preservation and increase.

Farmers also remove harmful trees from river banks to protect these river banks. Removing such trees encourages growth of natural vegetation and protects river beds and the water catchment area. This is expected to lead to soil and water conservation.

Impact logic of ICS establishment and management

Before the ICS (Internal Control System) could be established, training material was developed to be able to train estate outgrowers managers and association leaders (in Malawi) and factory company staff (in Kenya). Training materials consisted of ICS manual and Applicable Checklist for smallholder farmers. Training materials needed to be developed to facilitate understanding of the ICS.

After the training has been given, the organisation leaders approve the ICS and the bylaws¹ agreed upon (in Kenya). Through the ICS management, the groups (in Malawi, the associations) have a better administration, become better organised and organisational structures and finances become more transparent. Groups that have a better and transparent administration and better access to markets and information are expected to be more financially healthy and have better access to credits and services. This leads to the groups delivering better services to the group members and an improvement of the relationship between farmers and managers (albeit indirectly). Implementation and enforcement of the bylaws and awareness raising also lead to a situation where child labour (defined according to ILO and the UTZ code of conduct) is prevented and monitored.

When the ICS is established and managed well, and producers comply with the requirements of the code, this is expected to lead to passing internal inspections, the external audit and obtaining certification of the producer group. Certification is expected to lead to market rewards for certified products, which contributes to increasing the net income of farmers.

Impact of training factory staff

After the factories/estates have agreed to participate in the programme, training materials are developed to train factory staff on a variety of topics (hygiene,

¹ Bylaws are a set of regulations governing the relations between members of a group and the sanctions and penalties to be subjected to members who violate the regulations. The bylaws are agreed by members together and approved by the leadership of the group. In some cases, they are registered with the court to become legally abiding.

health and safety, quality, waste management, energy use, in line with the UTZ code of conduct for the factory). Training factory staff leads to an increased awareness and knowledge of factory staff on these topics which in turn leads to improved management practices in the factory.

Improved factory management practices are expected to lead to:

1. Workers benefit from labour rights and basic services (housing, water, sanitation, healthcare)
2. Equitable distribution of roles and income between men and women
3. Increase in tea quality
4. More efficient processes;
5. efficient energy use; use of wood and energy from sustainable sources (reduced deforestation)
6. Improved health and safety of factory staff
7. Reduction in volumes of waste and treatment of wastewater
8. Better relationships between workers and management.

Access of more and a consistent quality of green leaf, the increase in tea quality, more efficient processes, less work related accidents, a better trained and more motivated workforce, and reduction of waste are expected to lead to an increased and long-term economic viability of the estate/factory. This is expected to contribute to the security of income of farmers, and could improve the price and/or services the farmers receive and then to the impacts described in Section 2.2.2.

The improvement of working conditions and management of waste and waste water is expected to contribute the following impact: a more healthy living environment and improved health of farmers and workers.

External factors potentially influencing programme outcomes

In the research setup, it was important to identify external factors that can potentially influence programme outcomes. As the mid-term review cannot compare treatment groups (the programme groups) with comparison groups, we cannot use such a comparison to account for external influencing factors. Thus the LEI research team wanted to gather additional data on such potentially influencing external factors, to use in the analysis as explanatory variables.

During the workshop, several external factors which can influence programme outcomes were identified to take into account during the mid-term review. They are:

14. Rainfall and rainfall patterns/climate change
15. Market prices
16. Governmental stability
17. Other trainings and certification programmes
18. Labour availability (including health of farmers and family members)
19. Relationship between farmers and factory/estate
20. Market demand for certified products
21. Services or subsidies by government
22. Access to credit
23. Plagues, diseases on tea
24. Input costs
25. Age and education of farmers
26. Land ownership/tenure issues: if land is legally owned by men, but women do the work, they may not adopt the knowledge learnt fully as they believe they are not fully benefitting
27. Inflation.

Appendix 2 Indicators used

Indicators used in the mid-term review

Table A2.1 Indicators for mid-term review tea programmes from the theory of change		
Outcomes	Indicator for MTR	Baseline study
Improved farm efficiency	Input - output ratios (agro/economic)	-
Improved green leaf quality	Number and volume of rejects	Yield per bush
Improved productivity	Yield per bush/hectare/yr	-
No child labour	Knowledge, child labour as input used	-
Improved working conditions	Perception on working conditions (qualitative)	
Market rewards for certified products	Price premium, volumes of certified tea sold	
Improved use of PPE	Knowledge, implementation, input use	Idem
Safe handling and storage of agrochemicals	Knowledge, implementation, input use	Idem
Correct use of CCPs and fertilisers	Knowledge, implementation, input use	Knowledge, implementation
Better services to group members	Satisfaction with services	-
Ultimate outcomes		
Increase in net incomes from tea of farmers	Gross income, input costs, net income	Gross/net income, costs
Increase in investments and savings by farmers	Questions on farm investments/savings (change with 2 years ago)	Loans
Impacts		
Increased resilience and economic viability of farmers	Trend in net income (tea/household)/time Use of farm records and market information for decisions	Trend in net income over time

Increased workers' pay*	Other income sources + income earned	
Improved health of farmers and workers	Perception of farmers (qualitative) Labour costs per person/day Number of injuries on the farm	Labour cost person/day Number of injuries on the farm Illness from agro-chemicals (farmer/family members) Self-assessment livelihood
Improved livelihoods: Children go to school, meeting the needs of children, less stress and wellbeing, housing, water, sanitation, access to healthcare, food security. Improvement of the environment, natural resources and biodiversity.	Qualitative questions, potentially based on self-assessment indicators from baseline Implementation of practices (e.g. efficient water use, water sources) Soil quality/soil fertility (when possible) Perception	Implementation of practices
Better community relationships	Perception	
a) In the smallholder context not expected as an direct impact of the programmes, but interesting to analyse.		

Table A2.2 Indicators for mid-term review tea programmes from the research questions + external factors

Evaluation questions	Indicator for MTR	Indicators baseline study
1 Activities lead to outputs?	Do farmers think they have been adequately trained? Quality of training Incentives for lead farmers to teach	- - -
2 Realisation of objectives?	See outcome and impact indicators above	-
3 Reaching target groups?	Farmer characteristics	Farmer characteristics
4 Factors influencing results?	Factors influencing results (qualitative explanation by farmers/factory/group staff, data on external factors)	-
5 Needs target group met?	Training needs met/Usefulness of training (qualitative) Proposed improvement for training (qual.)	- -
6 Method good for target group?	Incentive for farmers to implement practices +reinforcement of continuation of practices (qualitative)	-
7 Added value certification process	Qualitative questions on added value/benefits of certification Questions on if certification aspects of the programme affect the implementation, such as ICS, inspections and peer pressure Info other training + certification	
8 Contribution/attribution	Evaluation by farmers/producer group (qualitative)	
9 Lessons learnt	Conclusions of research	

External factors	Indicators for MTR	Indicators base-line study
Other trainings	Other training participated in	Other trainings
Rainfall and rainfall patterns/climate change	Rainfall and rainfall patterns	
Market prices	Trend in market price over time (2008-2012)	Prices for 2008 - 2010
Governmental stability	Information from programme staff Info from questionnaire + programme staff	-
Other certification programmes		Info from programme staff
Labour availability (including health of farmers & family)	Qualitative questions to farmers	-
Relationship between farmers and factory	Qualitative questions to farmers/factory staff	Perception on relationship
Market demands for certified products	Information from UTZ	-
Services or subsidies by the government	Information from programme staff	-
Access to credit	Info from questionnaire	Info from questionnaire
Plagues, diseases in tea	Info from programme staff/questionnaire	-
Input costs	Info from questionnaire	Info from questionnaire
Age and education of farmers	Info from questionnaire	Info from questionnaire
Land ownership/tenure issues	Info from questionnaire	Info from questionnaire

Appendix 3A: Mid-term questionnaire

Mid-term questionnaire for Malawi

UTZ training for sustainable tea production

Instruction for enumerators: Interview the person who is mentioned on your list, or his or her spouse. When both are not available, come back later for the interview. **Thank you!**

Remember to write down -999 when a farmer does not know and thus does not give an answer!

A: Household identification

- 01 Date of interview (dd-mm-yyyy):.....
- 02 Name of enumerator.....
- 2b What is your name?
- 1 Farmer ID
- 2a To which company do you sell your green leaf?
1 Lujeri Tea Estates
2 Eastern Produce
3 Satemwa Tea Estates
Other.....
- 2c Did you sell tea in the period January 2011 - December 2012 financial year?
0 No
1 Yes

If the answers to question 2c is NO, then stop with the interview and go to another farmer on your list

3 Which persons have responsibilities for tea? (tick, multiple ticks in a row are possible)

	1	2	3	4
Responsibilities for tea	Household head	Spouse	Respondent (tick only when the respondent is neither household head nor spouse)	Other, please specify (child, other family member, farm worker)
Management/Supervision of work in the tea plot	1a	1b	1c	1d
Highest workload in tea (plucking)	2a	2b	2c	2d
Owens the land/tea plot	3a	3b	3c	3d
Receives the tea income/payment	4a	4b	4c	4d

4 How many people are part of your household?

- 5 Please provide us with information on the respondent and his/her spouse
(Enumerators: when respondent is neither household head nor spouse, please also collect information on household head and spouse):
(Enumerators: -999 is I do not know)

#	1	2	3
Person in household	Household head	Spouse	Respondent (Fill in only when the respondent is neither household head nor spouse)
Is he/she the respondent? (0=No; 1=Yes)	1a	1b	1c
Full name	2a	2b	2c
Gender (0 =Female; 1 =Male)	3a	3b	3c
Year of birth	4a	4b	4c
Education level (/certificate reached) 0 = I do not know, 1 = below primary level, 2 = primary level, 3 = secondary level, 4 = college level, 5 = university level 6 = never went to school 7 = adult education	5a	5b	5c

C: Tea production

1. Tea production

Enumerators: please note -999 when the farmer does not know! Note down -888 when the farmer does not want to tell.

Year (1a)	What is the area in acre on which you grow tea?	What is the total number of bushes owned?	What is the total amount of green leaf you produced in the last 12 months in kilograms? (Jan-Dec 2011)	Average Price paid by the company per kilogram in the last 12 months in MWK (without bonus)	Bonus paid by the company per kilogram?
Jan 2011 - Dec 2011 (last 12 months)	1a.....	1b.....	1c.....	1d.....	1e.....
Jan 2010 - Dec 2010	2a.....	2b.....	2c.....	2d.....	2e.....

1b How many times was your tea rejected by the buying centre the last 12 months (January 2011 - December 2011)?

0 Never → **Please skip question 1d**

1 Less than 3 times

2 More than 3 times

3 I do not know

- 1c How many times was your tea rejected by the buying centre 2 years ago, (January 2010 - December 2010)?
 0 Never → **Please skip question 1e**
 1 Less than 3 times
 2 More than 3 times
 3 I do not know
- 1d How many kilograms of your tea was rejected by the buying centre in the last 12 months, in the January 2011 - December 2011 period?

- 1e How many kilograms of your tea was rejected by the buying centre 2 years ago, in the January 2010 - December 2010 period?

- 1f Indicate whether you agree or disagree with the following statement:
 I think my farm has higher productivity than two years ago:
 0 I agree
 1 I do not agree, my farm has lower productivity than two years ago
 2 I do not agree, my farm has average productivity
 3 I don't know

2. Labour for tea

- 1) *How much time was spent on tea production in the January 2011 - December 2011 period? This can be both family and hired labour. We ask these questions for the following four activities. The unit is different per activity. Example: for weeding we ask the days per year. **Please not down the number of days the family or hired labour spent on weeding, the number of bushes pruned by family/workers and the number of bags applied last year by family/workers.***
- 2) *Costs of hired labour are in different units. Tea plucking is cost per kg of green leaves, while for other activities the costs per day should be stated. You do not have to state costs of family labour*

Please write down -999 when the farmer does not know the amount or cost!

2a Activity January 2011 - December 2011	Quantity hired labour	Quantity family labour	Unit	Cost for hired labour per unit	Per unit:
Plucking				1b.....	Kg green tea leaves
Weeding	3a.....	3aa.....	Man days per year last year	3b.....	Per day
Pruning	4a.....	4aa.....	Number of bushes pruned last year	4b.....	Per bush
Applying fertiliser	5a.....	5aa.....	Number of bags applied last year	5b.....	MWK/bag applied

- 2b. Do you hire more people than 2 years ago for plucking, weeding, pruning, fertiliser application?
- 0 Yes, I hire more people than 2 years ago
 - 1 No, I hire less people than 2 years ago
 - 2 No, I hire the same number of people as 2 years ago
 - 3 I do not hire people now, and did not hire people 2 years ago either
 - 4 I do not know
- 2c. Do you, your family and/or your workers spend more time on fertiliser application last year than two years ago?
- 0 Yes, I/my family and/or my workers spent more time on fertiliser application last year than two years ago
 - 1 No, I/my family and/or my workers spent less time on fertiliser application last year than two years ago
 - 2 No, I/my family and/or my workers spent the same time on fertiliser application last year as two years ago
 - 3 I do not know
 - 4 I do not apply fertiliser

- 2d Has a child/children (<18 years old) assisted you or your workers in tea production activities last year?
- 0 No → **Please go to question 3 below**
 - 1 Yes → **Please go to question 2e**
 - 2 I do not know → **Please go to question 3 below**
- 2e If yes, what did they do? **(Enumerators: multiple options are possible, but do not read the options aloud to the farmers)**
- a) Plucking
 - b) Weeding
 - c) Pruning
 - d) Carrying green leaf to the Buying Centre
 - e) Pesticide application
 - f) Fertiliser application
 - g) Land preparation
 - h) I do not know
- 2f If the child/children (<18 years old) carried green leaf to the Buying Centre, how far did they walk?
- a) N/A (they did not carry green leaf to the Buying Centre last year)
 - b)kilometres
 - c) I do not know

Questions 3 until 5: Inputs used for tea production

- 1) *Please state the inputs used for your total tea area in the January 2011 - December 2011 financial year. If the respondent has difficulties answering this question ask him/her how much of these inputs they have bought and if they finished all these inputs.*
- 2) *As different people might use different measures this question allows for different units in question 5 and 6: for example quantity 1, unit kg or quantity 0,5, unit litre.*
- 3) *Write down the cost for one unit*
- 4) *Give respondent time to think about any other inputs used for tea*
- 5) ***Write down -999 when the farmer does not know***

3. Fertiliser (chemical) List common/trade names including composition (N,P,K):	Quantity used in last 12 months 1, 2, 3, ½, ¼, ¾ etc.	Unit:	Cost per unit input in MWK. (this may be a cost of zero: if so fill out 0)	Number of bushes receiving input
1a	1b	Bag	1d	1e
2a	2b	Bag	2d	2e
3a	3b	Bag	3d	3e
4a	4b	Bag	4d	4e
...				
4. Organic fertilisers, compost, manure List types, if any:	Quantity used in last 12 months 1, 2, 3, ½, ¼, ¾ etc.	Unit:	Cost per unit input in MWK. (this may be a cost of zero: if so fill out 0)	Number of bushes receiving input
1a	1b	1c	1d	1e
2a	2b	2c	2d	2e
3a	3b	3c	3d	3e
4a	4b	4c	4d	4e
...				
...				
5. Other chemicals (pesticides/herbicides/insecticides), if any: List common/trade names:	Quantity used in last 12 months 1, 2, 3, ½, ¼, ¾ etc.	Unit:	Cost per unit input in MWK. (this may be a cost of zero: if so fill out 0)	Number of bushes receiving input
1a	1b	1c	1d	1e
2a	2b	2c	2d	2e
3a	3b	3c	3d	3e
4a	4b	4c	4d	4e
...				

6. New tea plants, if any List the name of the variety	Number of plants bought last year		Cost per plant (last year)	
1a	1b		1d	
2a	2b		2d	
3a	3b		3d	
4a	4b		4d	
...				
7. Other input used on tea:				
1a	1b	1c	1d	1e
2a	2b	2c	2d	2e

- 9 Do you use bio-pesticides/organic pesticides?
0 No → **Please go to question 11**
1 Yes
- 10 Do you use bought or home- made bio-pesticides?
1 Bought bio pesticides (include pesticide in question above)
2 Home-made
- 11 Have you bought any Personal Protective Equipment for your tea or other production in the January 2011 - December 2011 financial year?
→ **Enumerators; if the answer is NO, please go to question 14**

Please fill out -999 when the farmer does not know.

If yes, what did you buy?	How many?		Cost per piece
1 Overall	1a.....	Piece	1d.....
2 Hat	2a.....	Piece	2d.....
3 Mask/respirator	3a.....	Piece	3d.....
4 Gumboots	4a.....	Piece	4d.....
5 Goggles	5a.....	Piece	5d.....
6 Apron/plucking cape/nylon bags/raincoat	6a.....	Piece	6d.....
7 Full PPE set	7a.....	Piece	7d.....

- 12 If you **bought** protective equipment (PPE) last year, why did you buy it?
(Instruction to the enumerator: multiple answers are possible but do not read aloud to respondent)
- 0 I was taught in training that I can benefit from it
 - 1 I need it for required practises for UTZ Certification
 - 2 I have seen my neighbour/colleague farmer using it
 - 3 I wanted to buy it for a long time but just recently got the required funds
 - 4 It increases my status as a farmer
 - 5 Other
- 13 Deleted from impact assessment questionnaire
- 14 Do you have any loans at this moment?
- 0 No → **Please go to question 17**
 - 1 Yes
 - 2 I do not want to tell → **Please go to question 17**
- 15 Deleted from the impact assessment questionnaire

- 16a If yes, did the amount of money your household borrowed change between now and 2 years ago?
- 0 The amount decreased
 - 1 The amount stayed the same
 - 3 The amount increased
 - 4 I did not borrow money 2 years ago
 - 3 I don't know

- 16b For what do you use the money you borrowed?
(Instruction to the enumerator: ask all options and tick the relevant answer box).

Nr	Item	Yes	No
0	Buying inputs/equipment for tea production		
1	Buying inputs/equipment for other crops/animals		
2	Hire labour for tea production		
3	Hire labour for other crops/animals		
4	Buy food		
5	Medical bills for family		
6	Education fees for children		
7	Investment in business		
8	Mobile phones		
9	Buy home use items e.g. Radio/TV/sofa set		
10	Other, please specify		

- 16c Is it easier for you to access credits NOW compared with 2 years ago?
(Instruction to the enumerator: multiple answers are possible but do not read aloud to respondent)
- 0 No, nothing changed
 - 1 No, it is more difficult now to access credits than 2 years ago
 - 2 Yes, it improved because our tea production has gone up
 - 3 Yes, it improved, because my records shows my production and costs
 - 4 Yes, it improved because the project's staff assists us in gaining access to credits
 - 5 Yes, it improved because I am part of a tea certification programme

- 6 Yes, because of other reason:
- 7 I don't know

17 How did you use the income from your tea farm last year?
(Instruction to the enumerator: ask all options and tick the relevant answer box).

Nr	Item	Yes	No
0	Buying inputs/equipment for tea production		
1	Buying inputs/equipment for other crops/animals		
2	Hire labour for tea production		
3	Hire labour for other crops/animals		
4	Buy food		
5	Medical bills for family		
6	Education fees for children		
7	Investment in business		
8	Mobile phones		
9	Buy home use items e.g. Radio/TV/sofa set		
10	Other, please specify		

D: Other sources of income

Can you state your families' most important sources of income, starting with the most important income generation activity (excluding tea)?

Can you give an approximation of the yearly income from this activity? Enumerator can use the bottom of the sheet to take notes before filling the table.

Help respondents with possible sources of income: vegetables, fruit, grain, dairy, calves, pigs, rabbit, chicken. Remittances, retirement, business, employment, teaching, and more.

Enumerators: write down -999 when the farmer does not know.

And -888 when the farmer does not want to answer!

1	Income generating activities <i>from most to least income generating activity</i>	Harvest/sale (amount/ number)	Yearly gross income from this activity (last 12 months)	Yearly costs from this activity (last 12 months)
1.	a.....	B	c	d
2.	a.....	b	C	d
3.	a.....	b	C	d
4.	a.....	b	C	d
5.	a.....	b	C	d
6.	a.....	b	C	d
7.	a.....	b	C	d
8.	a.....	b	C	d
9.	a.....	b	C	d

2a. Has the area of your farmland used for tea production changed between now and 2 years ago?

- 0 The area used for tea production decreased → **Please go to question 2b**
- 1 the area used for tea production stayed the same → **Please go to question 3**
- 2 the area used for tea production increased → **Please go to question 2b**
- 3 I don't know → **Please go to question 3**

2b If there was a change in area of farmland used for tea production, why did it change?

.....

.....

3 Please indicate whether you agree or disagree with the following statements:

3a I earn more income from tea production now than two years ago:

- 0 I do not agree, I earn less income from tea now than 2 year ago
- 1 I do not agree, I earn the same amount from tea now as 2 years ago
- 2 I agree
- 3 I don't know

3b I earn more income from other sources of income than tea production than two years ago:

- 0 I do not agree, I earn less income from other sources now than 2 year ago
- 1 I do not agree, I earn the same amount from other sources as 2 years ago
- 2 I agree

3c I have more savings now than two years ago:

- 0 I do not agree, I have less savings now than 2 year ago
- 1 I do not agree, I have a similar amount of savings now as 2 years ago
- 2 I agree

Now we would like to ask you some questions about training and certification.

A UTZ CERTIFICATION

6a Have you been trained for UTZ **as a** leader farmer, training other farmers on good agricultural practices and the UTZ Code of Conduct?

- 0 No → **Please go to question 7**
- 1 Yes → **Please go to question 6b**

6b What was your motivation to be a leader farmer?

.....

7 Have you, or any person from your household attended UTZ certification training?

- 0 Nobody → **Please continue with question 8e**
- 1 Yes, me → **Please continue with question 8a**
- 2 Yes, somebody else → **Please continue with question 8e**
- 3 I do not know → **Please continue with question 8e**

8a If you participated in UTZ certification training, how do you value the training?

- 0 Unsatisfied → **Please go to 8b**
- 1 Neutral → **Please go to 8d**
- 2 Satisfied → **Please go to 8c**
- 3 I did not participate in UTZ certification training → **Please go to question 8e**
- 4 I do not know → **Please go to question 8d**

8b If you are not satisfied, why not?

.....

8c If you are satisfied, why are you satisfied?

.....

- 8d Would you recommend the UTZ Certification training to other tea farmers?
- 0 No
 - 1 Yes
 - 2 I don't know
- 8e Do you think it is good that your producer group is UTZ certified?
- 0 No → **Please go to question 8f**
 - 1 Yes → **Please go to question 8g**
 - 2 I don't know → **Please go to question 8h**
 - 3 I do not know if my producer group is UTZ certified → **Please go to question 8o**
- 8f Why don't you think that it is good that your producer organisation is UTZ certified?

.....

→ Enumerators, Please go to question 8h

- 8g What are the benefits of your producer group to be UTZ certified?
(Enumerators: multiple answers are possible!)
- 1 The producer group will provide bonus/premium to us
 - 2 The producer group will provide more information to us
 - 3 The producer group will provide more services to us
 - 4 Other reasons, please specify.....
 - 5 I do not know
- 8h** Have you or your household benefitted from **participating in the UTZ certification training or UTZ certification**?
- 0 No → **Please go to question 8i**
 - 1 Yes → **Please go to question 8j**
 - 2 I do not know → **Please go to question 8k**
- 8i If you have not benefitted from **participating in the UTZ certification training or UTZ certification, why not?**

.....

8j What benefits have you or your household realised from participating in UTZ certification training or UTZ certification?

.....

.....

.....

.....

.....

8k Have you improved your net income through participation in the UTZ certification training or UTZ certification?

- 0 No → **Please go to question 8m**
- 1 Yes → **Please go to question 8l**
- 2 I do not know → **Please go to question 8m**

8l What did you do with the additional income?
(Instruction to the enumerator: read aloud all answers to respondent and tick relevant box)

Nr	Item	Yes	No
0	Buying inputs/equipment for tea production		
1	Buying inputs/equipment for other crops/animals		
2	Hire labour for tea production		
3	Hire labour for other crops/animals		
4	Buy food		
5	Medical bills for family		
6	Education fees for children		
7	Investment in business		
8	Mobile phones		
9	Buy home use items e.g. Radio/TV/sofa set		
10	Other, please specify		

8m Would you like to see something changed in the organisation of the UTZ certification training activities or UTZ certification?

- 0 No → **Please go to question 8o**
- 1 Yes → **Please go to question 8n**
- 2 I do not know → **Please go to question 8o**

8n What would you like to see changed in the organisation of UTZ certification training activities or UTZ certification to improve on its functioning in the future? **(Enumerator: write down maximum 3 changes)**

.....

.....

.....

8o Apart from information provided in the trainings, does your extension staff provide you with information or services that helps you with your tea production?

- 0 No → **Please go to question 9a**
- 1 Yes → **Please go to question 8p**
- 2 I don't know → **Please go to question 9a**

8p Can you name the services the producer group provides you and if you are satisfied with it/them?

(Instructions for enumerators: please read the options to the farmers and tick the boxes applicable for their answers)

Services of the producer group				I do not know	Not applicable
	Satisfied	Neutral	unsatisfied		
Training					
Market information on inputs					
Market information on sales and prices (e.g. also of other crops than tea)					
Providing information about inspection results and corrective actions after Internal Inspections (ICS)					
Providing information about the external Inspections (audit)					
Providing access to fertiliser					
Providing access to seedlings, planting material					
Providing access to pesticides					
Providing access to credits					
Insurance					
Commercial activities; sales and marketing					

We also would like to ask you some questions on how you make decisions about tea production activities and how you made such decisions two years ago **(Enumerator: multiple options are possible, read the options aloud to the farmers and tick the relevant box).**

9a How do you generally make decisions on tea production activities?

Nr	Way for decision-making	Yes	No
0	Based on advice from my parents/friends/neighbours		
1	Based on what I did last year		
2	I do the same each year		
3	Based on the state of my tea bushes/field(s)		
4	Based on recommendations by the company		
5	I regularly check my records to see whether my farm is doing well		
6	I compare my records with the records of my neighbours/friends/other farmer to see how my farm is doing		
7	I use what I learned from the training to make my decisions		
8	Based on information on prices for tea and other crops		
9	I compare my production with figures on tea production in Malawi to see how my farm is doing		
10	Own experience		
11	Other, please specify		
12	I do not know		

9b How did you generally make decisions on tea production activities *two years ago*?

Nr	Way for decision-making	Yes	No
0	Based on advice from my parents/friends/neighbours		
1	Based on what I did last year		
2	I do the same each year		
3	Based on the state of my tea bushes/field(s)		
4	Based on recommendations by the company		
5	I regularly check my records to see whether my farm is doing well		
6	I compare my records with the records of my neighbours/friends/other farmer to see how my farm is doing		
7	I use what I learned from the training to make my decisions		
8	Based on information on prices for tea and other crops		
9	I compare my production with figures on tea production in Malawi to see how my farm is doing		
10	Own experience		
11	Other, please specify		
12	I do not know		

9c **Enumerator: If the answers are not the same for questions 9a and 9b above, ask:** Why did you change the way you make decisions since two years ago?

.....

10a How do you decide how much fertiliser to apply?

Nr	Way for decision-making	Yes	No
0	I do not apply fertilisers		
1	I apply the same amount per bush/hectare as my parents/neighbours do		
2	I apply the same as last year		
3	I always apply the same amount		
4	On basis of the state of the tea bushes		
5	On the basis of recommendations by the company		
6	On the basis of recommendations obtained in the training		
7	On the basis of the records that I kept last year (analysed fertiliser input and yield relations)		
8	On the basis of my own experience		
9	Other, please specify		
10	I do not know		

10b How did you decide how much fertiliser to apply *two years ago*?

Nr	Way for decision-making	Yes	No
0	I do not apply fertilisers		
1	I apply the same amount per bush/hectare as my parents/neighbours do		
2	I apply the same as last year		
3	I always apply the same amount		
4	On basis of the state of the tea bushes		
5	On the basis of recommendations by the company		
6	On the basis of recommendations obtained in the training		
7	On the basis of the records that I kept last year (analysed fertiliser input and yield relations)		
8	On the basis of my own experience		
9	Other, please specify		
10	I do not know		

11a How do you decide how often to pluck (plucking frequency)?

Nr	Way for decision-making	Yes	No
0	I pluck as often as my parents/neighbours/friends do		
1	My plucking frequency is the same as last year		
2	On the basis of the state of the tea bushes		
3	On the basis of recommendations by the company		
4	On the basis of recommendations obtained in the training		
5	On the basis of the records that I kept last year		
6	On the basis of my own experience		
7	Other, please specify		
8	I do not know		

11b How did you decide how often to pluck (plucking frequency) *two years ago*?

Nr	Way for decision-making	Yes	No
0	I pluck as often as my parents/neighbours/friends do		
1	My plucking frequency is the same as last year		
2	On the basis of the state of the tea bushes		
3	On the basis of recommendations by the company		
4	On the basis of recommendations obtained in the training		
5	On the basis of the records that I kept last year		
6	On the basis of my own experience		
7	Other, please specify		
8	I do not know		

12a How do you decide how to handle (apply, store etc.) agro-chemicals?

Nr	Way for decision-making	Yes	No
0	I do not handle/apply/store agro-chemicals		
1	Based on advice from my parents/friends/neighbours		
2	Based on what I did last year		
3	I do the same each year		
4	Based on recommendations by the company		
5	Based on requirements for UTZ certification		
6	I use what I learned from the training to make my decisions		
7	On the basis of my own experience		
8	Other, please specify		
9	I do not know		

12b How did you decide how to handle (apply, store etc.) agro-chemicals *two years ago*?

Nr	Way for decision-making	Yes	No
0	I do not handle/apply/store agro-chemicals		
1	Based on advice from my parents/friends/neighbours		
2	Based on what I did last year		
3	I do the same each year		
4	Based on recommendations by the company		
5	Based on requirements for UTZ certification		
6	I use what I learned from the training to make my decisions		
7	On the basis of my own experience		
8	Other, please specify		
9	I do not know		

Other training and certification

- 13 Are you a member of an extension service?
- 0 No
 - 1 Yes
 - 2 Not anymore
 - 3 I do not know
 - 4 I never heard about an extension service
- 14 Have you been trained for Rainforest Alliance certification **as a** lead farmer by Rainforest Alliance?
- 0 No
 - 1 Yes → **Please go to question 15b**
- 15 Have you been trained for Rainforest Alliance certification **by a** lead farmer?
- 0 No
 - 1 Yes
 - 2 N/A (trained as lead farmers by Rainforest)
- 15b Have you or any member of your household participated in any *non-certification* scheme training or workshops over the past 12 months (trainings defined as educational events; for instance, one-on-one training, group training, workshop, demonstration, field day, field visit, training during visit)?
- 0 No → **Please go to question 15c**
 - 1 Yes → **Please go to question 16**
- 15c If **no**, what was the reason?
- a) No training offered
 - b) Offered, but could not get to training, no transportation or resources
 - c) Offered, but other reasons for not attending (no time, not interested in topic).
 - x) Other, (specify)
- **Go to section B (skip question 16 and 17)**

- 16 If **yes**, how much training (trainings defined as educational events; for instance, one on one training, group training, workshop, demonstration, field day, field visit, training during visit) have you attended in the past 12 months?
- a) 1 training
 - b) Between 1-5
 - c) More than 5 trainings
 - d) I do not know

- 17 Did the person(s) that participated in training follow the following topics?
(Enumerators, fill in -999 when farmer does not know the answer)

Topics	Attended training on this topic? [1 = Yes; 0 = No; 2= Do not know]	Who gave the training? (mention organisation name)	Name the type of organisation (see below for options)
Crop production (for instance new crops)	a1.....	a2.....	A3.....
Health and safety (for instance HIV/AIDS, house-keeping, food)	b1.....	b2.....	b3.....
Farm management skills (for instance record keeping, economic decision making)	c1.....	c2.....	c3.....
Chemical application (chemicals used for all farm activities)	d1.....	d2.....	d3.....
Others/combination of topics	e1.....	e2.....	e3.....
	0 = no 1 = yes 2 = I do not know		1= company 2= government 3= NGO 4= input supplier 5= Local individual (e.g. neighbour) 6= others 7 = I do not know

B: Implementation of sustainable practices

1. *Answering options should not be read out to the households, options are for enumerators' convenience only!*
2. *Select one answer option per question by circling the corresponding letter.*
3. *Do not give any additional information about the 'right' answers as we will be questioning knowledge later on.*

- 1 How many times do you pluck the same plot of tea per month (this refers to a normal month- when there is no drought and it is not very cold)?
 - a) 4 times per month (= every 7-8 days)
 - b) 3 times per month (= every 10- 14 days)
 - c) 2 times per month (= every 14 days)
 - d) Once a month (= every 21-28 days)
 - x) I don't know

- 2 Do you experience leaf spillage at the farm, during transport to buying centre or at the buying centre?
 - a) No spillage at all places
 - b) Spillage in all three places
 - c) Spillage at home only
 - d) Spillage at buying centre only
 - e) Spillage during transport
 - y) Spillage at 2 places
 - x) I don't know

- 3 Do you use a plucking stick/wand? Is the table even? (**Enumerator to ask & if possible observe**)
 - a) Use stick & table even
 - b) Use stick table not even
 - c) No stick table even
 - d) No stick table not even
 - x) I don't know

- 4 If you raise your own planting material what is the success rate in your nursery?
- a) High (More than 80% success rate)
 - b) Mediate (Between 80% and 50% success rate)
 - c) Low (Less than 50% success rate)
 - d) N/A - i.e. I do not have a nursery/I do not raise my own planting material
 - x) I do not know
- 5 If you planted clones, what clones have you planted in the nursery last year?
- a) N/A, did not plant clones last year
 - b) PC81
 - c) PC105
 - d) PC108
 - e) PC114
 - f) PC117 clones
 - g) PC168
 - h) SFS150
 - i) SFS205
 - j) MFS87
 - k) Any other/mixed clones
 - l) I do not know which
- 6 If you plant tea cuttings, when do you plant the tea cuttings?
- a) During heavy rains
 - b) During moderate/light rains
 - c) During dry season
 - d) N/A
 - x) I don't know
- 7 What is the % crop cover (absence of gaps in the tea) on the farm (Interviewer to ask and observe)?
- a) 100%
 - b) From 90% to 100%
 - c) From 75% to 90%
 - d) Less than 75%
 - x) I don't know
- 8 At what height do you prune mature tea (from the ground)?
- a) 12 inches with young tea, 1/2 inches higher every year.
 - b) Below 12 inches
 - x) I do not know

- 9 In which period do you prune your tea bushes?
- a) Dry season (January - March)
 - b) Wet season (April - May/October - December)
 - c) Cold season (June - August)
 - d) Warm season (September)
 - y) Any time/I do not prune in a specific period
 - x) I don't know
- 10 How often do you prune the same tea plot/block?
- a) Prune every 5 (or more) years
 - b) Prune every 3-4 years
 - c) Prune every 1 or 2 years
 - d) Never
 - x) I don't know
- 11 What tools are used to prune your tea?
- a) Use pruning knife
 - b) Use pruning machine
 - c) Other tools
- 12 Who prunes the tea bushes and have they been trained?
- a) Untrained Family member.
 - b) Trained family member.
 - c) Untrained non family member.
 - d) Trained non family member
 - x) Experienced family member
 - y) Experience non-family member
- 13 At what height do you tip in?
- a) More than 15 centimetres inches above pruning height (leaving 3 leaves)
 - b) 10 to 15 centimetres inches above pruning height (leaving 2 - 3 leaves)
 - c) Less than 10 centimetres above pruning height (leaving less than 2 leaves)
 - d) I do not tip in
 - x) I do not know

- 14 How frequently do you apply composted manure?
- Never
 - Less than once every three years
 - Every three years
 - More often than once every three years
 - I do not know
- 15 How frequently do you apply fertiliser?
- Once per year
 - Twice a year
 - More than twice per year
 - Never
- 16 Do you keep records on input use and production (besides the payslip)?
- Only records on production/sales
 - Only records on inputs
 - Records on input use and production
 - I do not keep records → **Please go to question 17**
 - I keep records in my mind/memory, not on paper → **Please go to question 17**
- 16a Indicate whether you agree or disagree with the following statements:
- I regularly look at my records on input use and/or production to see whether I need to change farm management:
- I do not agree, I don't keep records
 - I do not agree, I only keep records for the inspections (internal/external/audit)
 - I agree
- 16b Two years ago, I regularly looked at my records on input use and/or production to see whether I needed to change farm management:
- I do not agree, I did not keep records
 - I do not agree, I only kept records for the inspections (internal/external/audit)
 - I agree

- 17 Who plucks your tea?
- a) Family members
 - b) Regular workers
 - c) Casual workers
 - d) Mixture of family and regular workers
 - e) Mixture of family and casual workers
- 18 Do you have a fixed agreement with hired workers about pay and timing of payment?
- a) Yes
 - b) No
 - c) N/A (I do not hire workers)
- 19 Do your workers and family members have access to good quality drinking water and latrines?
- a) Access to good quality drinking water
 - b) Access to latrines
 - c) Access to both
 - d) Neither
- 20 How often did your family or any of your workers need medical attention after injury *on the farm* for example fractures or wounds requiring stitches, in the last 12 months?
- a) More than three occasions
 - b) On one or two occasions
 - c) No occasions
- 20b How often were you, your family or any of your workers ill because of use of or contact with agro-chemicals in the last 12 months?
- a) More than three occasions
 - b) On one or two occasions
 - c) No occasions
 - x) I do not know
 - y) Never (also not more than 12 months ago) → **Please go to question 21**

20c Indicate whether you agree or disagree with the following statement:

The number of people (you, family members, workers) that fell ill because of use or contact with agro-chemicals was lower last year than *two years ago*:

- a) I do not agree, more people became ill last year than 2 year ago
 - b) I do not agree, the same number of people became ill as 2 years ago
 - c) I do not agree, no-one fell ill two years ago
 - d) I agree
- 21 Which personal protective equipment (PPE) does your family or your workers use?
- a) All PPE (Mask, gloves, boots, overall, goggles)
 - b) Some of the above PPE
 - c) No PPE
 - x) Not applicable, I do not use any chemicals
- 22 Do you group together with other farmers to carry out certain activities?
- a) Yes
 - b) No
- 23 Do you turn to company extension staff if you experience any problems in your tea production?
- a) Yes
 - b) No
- 24 If you have children, do they go to school?
- a) N/A, farmer has no children, or children are too young or too old to go to school
 - b) No, some children are not going to school although they have the age to attend primary or secondary school
 - c) Yes, all children in the age to attend primary or secondary school are attending school
 - d) Yes, all children in the age to attend primary or secondary school are attending school and/or one or more children are following college or university

- 25 Deleted from impact questionnaire
- 26 Deleted from impact questionnaire
- 27 Do you collect prunings from the tea field?
- No
 - Yes - use as mulch elsewhere on farm
 - Yes - use as fuel
- 28 Do you infill open areas in your tea?
- Yes
 - No
 - N/A (I do not have gaps/open areas in my tea)
- 28b What soil conservation measures (e.g. Contour planting, micro-catchments/retention ditches, terraces, cut-off drains, napier grass, mulching, good crop canopy establishment) have you put in place (Interviewer to ask and observe)?
- Most soil conservation measures
 - Some soil conservation measures
 - No soil conservation measures
- 29 When did you apply fertiliser to your tea in the last 12 months?
- Apply fertiliser during moderate rains
 - Apply fertiliser during heavy rains
 - Apply fertiliser during dry periods
 - Other moment
 - Do not use fertiliser
 - In the month **(Enumerator: try to probe whether the farmer means answer options a, b or c!)**
- 29b. How do you manage problems of pests, diseases and weeds on your farm?
- Use chemicals without IPM (Integrated Pest Management) program
 - Use IPM (Integrated Pest Management) methods (chemical and biological)
 - Manually
 - Biologically

- 30 In case of chemical control in your tea (pesticides/herbicides/insecticides) how do you apply?
- a) Blanket spraying
 - b) Edges/spot spraying
 - c) Other
 - d) Do not use chemical control
- 32 Do you have indigenous trees on your farm? If so how many in total on your land?
- a) From 10 native trees
 - b) From 5 to 10
 - c) Less than 5
 - d) No native trees
 - x) I do not know
- 31 Does your farm border a river or water body? If so, do you have a Riparian strip covered by indigenous/perennial vegetation and how wide is it (Interviewer to ask and observe)?
- a) No; farm does not border a river or water body → **Please go to question 35 below!**
 - b) Yes, farm borders a river/water body, but no Riparian strip/strip < than 10 meter.
 - c) Riparian strip wider than 10 meters, but smaller than 30 meters
 - d) Riparian strip wider than 30 meter
 - x) I don't know what a Riparian-strip is
- 34 If your farm borders a water body, what distance do you leave out without applying agrochemicals and fertiliser;
- a) No area is left
 - b) 0 - 5 metres
 - c) 5 - 15 metres
 - d) Over 15 metres
 - e) N/A farm does not border a river

- 35 How much area of the total farm is conservation area (area under indigenous trees/vegetation)?
- a) More than 10%
 - b) Between 2% and 10%
 - c) 0.1 to 2%
 - d) Zero
 - x) I do not know

36-40 Deleted from the questionnaire

41a What do you do with empty containers of agro-chemicals (pesticides, herbicides, insecticides)?

- a) N/A: I do not use agro-chemicals
- b) Dispose by burying in the ground
- c) Dispose by burning
- d) Throw into garbage pit
- d) Throw into pit latrines
- e) Return to the supplier of chemical
- f) Return to company
- g) Re-use (e.g. for storage)
- h) Any other (specify)

41b What did you do with empty containers of agro-chemicals (pesticides, herbicides, insecticides) *two years ago*?

- a) N/A: I did not use agro-chemicals two years ago
- b) Dispose by burying in the ground
- c) Dispose by burning
- d) Throw into garbage pit
- d) Throw into pit latrines
- e) Return to the supplier of chemical
- f) Return to company
- g) Re-use (e.g. for storage)
- h) Any other (specify)

- 42a What do you do with excess agro-chemicals that were already mixed (diluted) e.g. in the application tank (pesticides, herbicides, or insecticides)?
- a) N/AI do not use such agro-chemicals
 - b) N/A, I do not have excess chemicals (I always make just enough)
 - c) I store the left over agro-chemicals (diluted in water) for later use
 - d) Dispose by burying in the ground
 - e) Throw into pit latrines
 - f) Throw into water stream/water body
 - g) Return to supplier of chemical
 - h) Return to company
 - i) Apply on fallow land or untreated part of the crop **(Enumerator please turn over)**
 - j) Any other (specify)
- 42b What did you do with excess agro-chemicals that were already mixed (diluted) e.g. in the application tank (pesticides, herbicides, or insecticides) *two years ago*?
- a) N/AI do not use such agro-chemicals
 - b) N/A, I do not have excess chemicals (I always make just enough)
 - c) I store the left over agro-chemicals (diluted in water) for later use
 - d) Dispose by burying in the ground
 - e) Throw into pit latrines
 - f) Throw into water stream/water body
 - g) Return to supplier of chemical
 - h) Return to company
 - i) Apply on fallow land or untreated part of the crop
 - j) Any other (specify)

E: Knowledge and skills learned

1. *Answering options should not be read out to the households, options are for enumerators' convenience only!*
2. *In this part it is encouraged that the enumerators stimulate the farmers to give more options (time to think), but never mention the options!*

3. *Select the given option by circling the corresponding letter, more answer options can be selected*

- 1 Can you mention some benefits of leaving prunings in the field?
 - a) To suppress weeds
 - b) To prevent soil erosion
 - c) To improve soil structure
 - d) Releases nutrients into the top soil at decomposition
 - e) Reduces loss of water by evaporation (mulch)
 - f) Reduces pests
 - x) Other
 - y) I do not know

- 2 Can you mention the best height to prune mature tea?
 - a) Never below 20 inches/50 centimetres
 - b) 2 inches/5 centimetres above the former height
 - c) After reaching 28 inches (70 centimetres), the bush should be down pruned to 21 inches (52.5 centimetres)
 - x) Other
 - y) I do not know

- 3 Can you mention reasons to prune tea?
 - a) To maintain a manageable plucking table
 - b) To rejuvenate the bush/increase the yield
 - c) To remove diseased, dead and knotted branches

 - x) Other,
 - y) I do not know

- 4 Can you mention some recommended methods to handle weeds in tea?
 - a) Slashing using panga
 - b) Use of plain hoe
 - c) Uprooting using hands (**Enumerator please turn over**)
 - d) Use of round up for perennial weeds such as couch grass (new fields and young tea only)
 - x) Other
 - y) I do not know

- 5 Can you mention benefits of fertiliser application to tea?
- a) Get better yields of green leaf.
 - b) Get better quality of green leaf
 - c) Maintain the tea bush for a long time
 - d) Increase nutrients to soil/improve soil fertility.
 - x) Other,(specify)
 - y) I do not know
- 6 Can you mention any benefits of plucking tea every 7 to 8 days (during normal weather)?
- a) To maintain good quality (older tea is of less quality; more than 2 leaves per bud)
 - b) To maintain enough yield (if leaves are plucked frequently, high yield; 2 leaves per bud)
 - c) To maintain good plucking table
 - x) Other, specify.....
 - y) I do not know
- 7 Can you mention any benefits of maintaining a plucking table?
- a) Yields increase when shoots can grow because they are not hindered by shade
 - b) Shoots are not missed during plucking
 - c) Plucking goes faster with an even plucking table
 - x) Other
 - y) I do not know
- 8 Can you mention benefits from infilling?
- a) Maximises the yield of land in tea production/increases yield
 - b) Reduces weeding efforts
 - x) Other,(specify)
 - y) I do not know
- 9 Can you mention the best height for tipping-in tea?
- a) 4 inches above pruning height
 - x) Other
 - y) I do not know

- 10 A buffer zone is a strip of indigenous vegetation between rivers or other water bodies and cultivated field. Can you mention benefits of a buffer zone?
- a) A buffer zone helps protect and conserve wetlands
 - b) A buffer zone helps prevent soil erosion
 - c) A buffer zone enriches biodiversity
 - d) A Buffer zone forms a buffer so that pollution cannot reach the water
 - x) Other
 - y) I do not know
- 11 What are the benefits of personal protective equipment (PPE)?
- a) Protects your skin from being in contact with chemicals
 - b) Protects you from inhaling chemicals
 - c) Protects your feet from chemicals
 - d) Prevents illness
 - x) Other
 - y) I do not know
- 12 What are the potential dangers of applying agrochemicals and fertiliser near the natural water bodies like rivers, streams, pools, ponds etc?
- a) Kill the aquatic life (water plants and animals)
 - b) Kill the plants growing near the water body
 - c) Poison the people drinking water downstream
 - x) Other
 - y) I do not know
- 13 Why is application of agrochemicals discouraged in tea?
- a) High cost of agrochemicals
 - b) Harmful effect on people
 - c) Risk of getting into made tea
 - d) Loss of market of tea
 - e) Harmful effect on environment
 - x) Other
 - y) I do not know

- 14 What methods can you use to improve the yield and quality of tea in your farm?
- a) Application of the right fertiliser at the right time.
 - b) Regular plucking rounds
 - c) Maintaining the plucking table.
 - d) Training of pluckers
 - x) Other
 - y) I do not know
- 15 What are the benefits of applying soil conservation measures?
- a) Preserve soil fertility
 - b) Prevent loss of soil
 - c) Get high production
 - d) Prevent contamination of water bodies
 - x) Other
 - y) I do not know
- 16 Which food safety measures in the cultivation of tea do you know?
- a) No use of crop protection products not prescribed by the company
 - b) Adherence to Maximum Residue Levels (MRL's)
 - c) Respect Pre-harvest intervals
 - d) No use of sewage or sewage water on tea
 - e) Hygienic practices during harvest (risk assessment, cleaning and maintenance of tools/machines/containers/bags/baskets/vehicles)
 - x) Other
 - y) I do not know
- 16a Can you mention activities that are *not appropriate* for children to implement?
- (Enumerators: farmers should mention as many options as possible but do not read them aloud to the farmer)**
- a) Carrying heavy loads
 - b) Carrying loads for long distances
 - c) Pesticide application
 - d) Chemical fertiliser application
 - e) Using dangerous tools or equipment
 - f) Doing heavy work

- g) Work on the farm during school hours **(Enumerator please turn over)**
- h) Working without company of an adult
- x) Other, namely(please specify)
- y) I do not know

F: Experiments

1. Have you experimented (or started) with any *new agricultural practices* or tools on your land (for example new crops, other fertiliser) in the last 12 months?
 - 0 No → **Skip question 2, continue from question 3**
 - 1 Yes

2. What did you experiment?
 - 1) *Fill in any practices the farmer has experimented with, for instance new crop varieties, other fertiliser, more/less frequent maintenance, new tools, and new income generating activities). Begin with tea-related experiments, then not tea related.*
 - 2) *Fill in if the farmer experimented alone or in a group.*

What did the farmer experiment?	0=Alone or 1= in group	Reason (e.g. learned from neighbour, training or because of certification)
Tea related		
1a	1b	1c
2a	2b	2d
3a	3b	3b
4a	4b	4b
Not tea-related		
5a	5b	
6a	6b	
7a	7b	
8a	8b	

- 3a Did you share information on good agricultural practices that you or your household member were taught during the training (UTZ training) over the last year?
0 No → **Please go to question 5**
1 Yes
- 3b Did any of your friends, relatives or neighbours that you shared information with (on UTZ training) change their tea production practices due to information they got from you?
0 No
1 Yes
2 I do not know

- 4 How often did you share information on good practices with your neighbours last year?
- 1 Daily
 - 2 Weekly
 - 3 Monthly
 - 4 Yearly
 - 5 Never
 - 6 Half yearly
 - 7 Quarter yearly
 - 8 I do not know
- 5 How often did your neighbours share information on good practices with you last year?
- 1 Daily
 - 2 Weekly
 - 3 Monthly
 - 4 Yearly
 - 5 Never
 - 6 Half yearly
 - 7 Quarter yearly
 - 8 I do not know

G: Social indicators

1 Can you indicate to what extent you are satisfied with the following issues.

How satisfied are you with:	 Very satisfied	 Satisfied	 Neutral	 Unsatisfied	 Very unsatisfied	I do not want to answer
a) The relation with your neighbours						
b) The relation with your family members						
c) The relation with the tea company						
d) Knowledge on good tea management practices						
d2) professional advice on fertiliser and pesticide use						
e) Leadership skills						
f) Access to information on agriculture commodity prices						
g) Access to self-help activities like Village Savings Loans						
h) Diversification of income/number of income sources						
i) Your homestead (house, access to water/electricity etc.)						
j) Your families health						
k) Possibility to send children to school						
l) Family welfare						
m) Family income						

Please indicate whether you agree or disagree with the following statement

- 2 Community relationships have improved compared with 2 years ago.
- 0 I do not agree, community relationships are not different from two years ago
 - 1 I do not agree, community relations are worse than two years ago
 - 2 I agree
 - 3 I do not know

Enumerators, please finalise the questionnaire by saying to the farmer: That was the last question in this questionnaire. Thank you very much for your time and effort to help us understand more about tea production. Is there anything else you would like to tell us or ask us?

Comments

.....

.....

Enumerator: please read through questionnaire to make sure no questions were left unanswered before leaving your farmer!

H. Signatures (after finishing questionnaire)

Signature farmer

Signature block leader

Name:.....

Name:.....

Date:.....

Date:.....

Appendix 3B: Scoring methods

Scores for implementation of practices

Table A3B.1	Scores assigned to each answer given							
Implementation questions	Answers							
	a	b	c	d	e	f	x	y
b1	1	0.7	0.2	0	0	0	0	0
b2	1	0	0.3	0.3	0.3	0	0	0.2
b3	1	0.5	0.8	0	0	0	0	0
b4	1	0.5	0	N/A	0	0	0	0
b6	0.5	1	0	N/A	0	0	0	0
B7	1	0.8	0.4	0	0	0	0	0
B8	1	0	0	0	0	0	0	0
b9	0	0	1	0	0	0	0	0
b10	0.4	1	0.6	0	0	0	0	0
b11	0.6	1	0	0	0	0	0.4	0.6
b12	0	1	0	1	0	0	1	1
b13	0.2	1	0.2	0	0	0	0	0
b14	0	0.4	1	0.6	0	0	0	0
b15	1	0.5	0	0	0	0	0	0
b16	0.5	0.5	1	0	0	0	0	0
b17	1	1	0	1	0.5	0	0	0
b18	1	0	N/A	0	0	0	0	0
b19	0.5	0.5	1	0	0	0	0	0
b20	0	0.2	1	0	0	0	0	0
b21	1	0.5	0	0	0	0	0	0
b22	1	0	0	0	0	0	0	0
b23	1	0	0	0	0	0	0	0
b24	0.5	0	0.8	1	0	0	0	0
b25 a)	1	0.5	0	0	0	0	0	0
b26 a)	1	0.5	0	0	0	0	0	0
b27	1	0.5	0	0	0	0	0	0
b28	1	0	0.5	0	0	0	0	0
b29	1	0	0	0	0	0	0	0

b30	1	0	0.5	0.5	0	0	0	0
b31	N/A	0	0.8	1	0	0	0	0
b32	1	0.6	0.3	0	0	0	0	0
b33	0	0	0.2	0.5	1	N/A	0	0
b34	0	0.2	0.8	1	0	0	0	0
b35	1	0.8	0.4	0	0	0	0	0

a) Questions are not asked in the mid-term review.

N/A: The answer is not included in the calculation of the implementation score.

Appendix 4 Basic Characteristics

Basic Characteristics of the sample farmers

Table A4.1		Overview of basic characteristics					
Small-holder Association	Gender of the household head (% male)	Age of the respondent	Education level of the respondent	Area of tea production (acre)	Number of people in the household	Knowledge score in baseline	Gender of the respondent (% female)
SAT	89%	51.8	1.03	1.12	5.51	5.02	50%
EOT	84%	51.4	0.75	1.26	5.27	4.73	34%
MST	81%	56.2	0.95	1.09	6.45	4.81	70%
Total	87%	52.1	0.93	1.16	5.54	4.90	47%

Table A4.2		Percentage of respondents having the responsibility		
Responsibilities for tea	Gender of the respondent			Total
	Male	Female		
Management/Supervision	46%	52%		98%
Highest workload	45%	53%		98%
Owns the land/tea plot	43%	52%		95%
Receives the tea income/payment	44%	51%		95%

Table A4.3		Participation of Non-certification scheme training (percentage >50% in red and bold)			
Topic	SAT	EOT	MST	Total	
Crop production	51%	27%	41%	42%	
Health and safety	56%	23%	27%	43%	
Farm management skills (record keeping, economic decision making)	27%	11%	50%	25%	
Chemical application (whole farm)	33%	11%	14%	24%	
Combination of topics	4%	2%	5%	3%	

Appendix 5 UTZ certification

Status of UTZ certification and benefits from participating in UTZ certification training or UTZ certification

Other certification

Table A5.1 Status of other certification						
Smallholder Association	Whether smallholders UTZ Certified	Date of UTZ Certification day-month-year	Smallholder s RA certified, 1=Yes	Date of RA certification	Smallholders Fairtrade certified	Date of Fairtrade certification
Sukhambizi Association Trust (SAT)	0	N/A	1	7-12-2011	1	15-9-2008
Eastern Outgrowers Trust (EOT)	1	1-1-2011	1	1-11-2011	1	1-1-2009
Msuwadzi Smallholders Trust (MST)	0	N/A	0	N/A	1	8-6-2007

Table A5.2		Overview of trainings attended by the respondents a)					
Company to which the respondent sells tea	Trained for UTZ as a lead farmer	Attended UTZ-Solidaridad trainings	Member of an extension service	Trained as a lead farmer by Rainforest Alliance	Trained for RA by a lead farmer (RA)	Participated in non-certification scheme trainings	Actually trained for UTZ as a lead b)
SAT c)	51%	63%	65%	75%	72%	61%	3%
N	59	62	73	46	80	69	187
N	116	99	113	61	111	113	6,750
EOT	35%	52%	52%	43%	53%	45%	2%
N	22	29	33	16	33	29	99
N	63	56	63	37	62	64	4,882
MST	50%	48%	64%	70%	67%	64%	11%
n	11	10	14	7	14	14	18
N	22	21	22	10	21	22	164
Total	46%	57%	61%	64%	65%	56%	3%
n	92	100	121	69	126	111	304
N	201	176	198	108	194	199	11,796
<p>a) The overview is based on information provided by the survey respondents. b) The information is provided by the association through SECAEC. c) The percentage is based on the number of participants who participated in the training (n) and the total number of responses (N), not including respondents who didn't provide answer or indicated that they didn't know.</p>							

Table A5.3 Combinations of trainings participated by the respondents		
	Percentage of all respondents	Percentage of subgroups
No training	10%	
Trained	90%	
Affirmed UTZ-Solidaridad trained		58%
Other trainings		42%
Affirmed UTZ-Solidaridad trained (including lead farmer)		
UTZ only	1%	2%
UTZ + Extension service	5%	5%
UTZ + Extension service +Other training	1%	1%
UTZ + RA	4%	4%
UTZ + RA + Other training	6%	7%
UTZ + RA + Extension service	13%	14%
UTZ + RA + Extension service + Other training	22%	24%
Total	52%	58%
Other trainings		
Other training only	1%	1.1%
Extension service only	2%	2.2%
RA only	5%	5.5%
RA+Other training	10%	10.9%
RA+Extension service	5%	5.5%
RA+Extension service + Other training	15%	17.0%
Total	38%	42%

Table A5.4 Training (event/activity/visit/meeting etc) January-December 2011 or July2011-June 2012 by SAT and Lujeri

Name of training	Number of participants each training	Total number of participants for factory/company	Percentage of smallholder farmers participating in training (percentage of all smallholders connected to factory/company)	Frequency of training (times per year)	Duration per training event (hours)	Training topics ^{a)}	Training method ^{b)}	Who gave the training? ^{c)}	Location of the training ^{d)}
SANS Agricultural Standard	42	5460	81	12	5	6	2	2	1
Strategic Planning	24	24	0.4	1	8	3	3	3	4
Health and Safety	55	55	0.8	1	40	2	2	3	4
Good Agricultural Practices	25	6250	93	12	4	1,3,4,5,6	1,2,4	1,2	1,2
First Aid	46	43	7	1	40	2	2	3	4

a) 1 = crop production; 2 = health and safety; 3 = farm management skills (record keeping, economic decision making); 4 = chemical application (whole farm); 5 = UTZ certification; 6 = RA certification; 7 = combination of topics; 8 = other, please specify
b) 1 = 1 to 1 training; 2 = lecture; 3 = workshop; 4 = field visit; 5 = other, please specify
c) 1 = factory/company extension staff; 2 = leader/promoter farmer/farmer facilitator; 3 = hired trainer (professional); 4 = resource person/expert; 4 = government; 5 NGO.
d) 1 = leaf collection centre; 2 = community house; 3 = field; 4 = conference hall; 5 = other

Table A5.5 Training (event/activity/visit/meeting etc) January-December 2011 or July2011-June 2012 by Satemwa and MST

Name of training	Number of participants each training	Total number of participants for factory/company	Percentage of smallholder farmers participating in training (percentage of all smallholders connected to factory/company)	Frequency of training (times per year)	Duration per training event (hours)	Training topics ^{a)}	Training method ^{b)}	Who gave the training? ^{c)}	Location of the training ^{d)}
TRF Field Days	60	3	5	1	5	1	4	3	3
Pruning	152	164	93	1	2	1,2,3	1,2,4	1,4	3
Plucking	152	164	93	3	1	1,3,5,6	1,2,4	1,2,4	3
Weeding	152	164	93	3	2	1,3,4	2,4	1	3
Soil Conservation	152	164	93	1		1,5,6	2,4	1	3
Chemical Handling	124	164	76	1	1	2,4,5,6	2,4	1	3
Land Preparation	124	164	76	1	1	2,4,5,6	2,4	1	1,3
Tipping	18	164	11	1	2	1	4	1	3
Certification/UTZ, RA, FLO	124	164	76	1	1	5,6	2	1	1

a) 1 = crop production; 2 = health and safety; 3 = farm management skills (record keeping, economic decision making); 4 = chemical application (whole farm); 5 = UTZ certification; 6 = RA certification; 7 = combination of topics; 8 = other, please specify
b) 1 = 1 to 1 training; 2 = lecture; 3 = workshop; 4 = field visit; 5 = other, please specify
c) 1 = factory/company extension staff; 2 = leader/promoter farmer/farmer facilitator; 3 = hired trainer (professional); 4 = resource person/expert; 4 = government; 5 NGO.
d) 1 = leaf collection centre; 2 = community house; 3 = field; 4 = conference hall; 5 = other

Table A5.6 Training (event/activity/visit/meeting etc) January-December 2011 or July 2011-June 2012 by EOT (Limbuli)

Name of training	Number of participants each training	Total number of participants for factory/company	Percentage of smallholder farmers participating in training (percentage of all smallholders connected to factory/company)	Frequency of training (times per year)	Duration per training event (hours)	Training topics ^{a)}	Training method ^{b)}	Who gave the training? ^{c)}	Location of the training ^{d)}
EOT Field day	29	881	3.3	1	8	1-Crop production; 2-healthy and Safety; 3-Farm management skills;	1-group training and 4- Field Visiting	1-Factory, field and company extension staff	Estate hall and field
Leaf Checker training	16	881	1.8	3	4	1-Good leaf quality checking	1-One to one training, 2- field visit	1- Company staff	Field
Digital scale weighing system usage	881	881	100	2	8	1-Good usage of digital scales	1-Field visit; 2- One to one training	1- Company Staff	Field

a) 1 = crop production; 2 = health and safety; 3 = farm management skills (record keeping, economic decision making); 4 = chemical application (whole farm); 5 = UTZ certification; 6 = RA certification; 7 = combination of topics; 8 = other, please specify

b) 1 = 1 to 1 training; 2 = lecture; 3 = workshop; 4 = field visit; 5 = other, please specify

c) 1 = factory/company extension staff; 2 = leader/promoter farmer/farmer facilitator; 3 = hired trainer (professional); 4 = resource person/expert; 4 = government; 5 NGO.

d) 1 = leaf collection centre; 2 = community house; 3 = field; 4 = conference hall; 5 = other

Table A5.7 **Benefits realised from participating in UTZ certification training or UTZ certification**

SAT	yields have increased
SAT	we were taught how to take care of tea
SAT	we should not plant near a river, how to mulch in our field
SAT	we managed to buy iron sheets; it has improved our hygiene at home
SAT	we learnt to pluck tea with care, to protect & take care of our environment, how to prepare a nursery
SAT	we learnt good hygiene and good practices in tea production.
SAT	we learnt a lot.
SAT	we have gained knowledge on tea production
SAT	we do the proper way of tea planting, to know how the tea in dustry is.
SAT	we are practising hygiene & having high production from our farms.
SAT	we are now able to manage our tea fields very well
SAT	through that training, we are protecting the environment, we have learnt good hygiene.
SAT	they taught us more on certification and I gained more knowledge on tea production.
SAT	they gave us additional skills on how to take care of our tea
SAT	they encourage us to keep farm records, encourage us to ensure the transport to the buying centre comes on time.
SAT	the lessons offerd
SAT	tea yield increased
SAT	tea production has increased
SAT	tea production has increased
SAT	taught us how we can take care of our tea and how to apply fertiliser
SAT	taught us how to plant nurseries; and how to conserve the environment
SAT	taught us environmental conservation
SAT	since the training, I now know the dangers of using chemicals in tea production
SAT	regular plucking, maintaining good methods of tea practise
SAT	provide farmers with more training
SAT	now able to manage my tea farm very well
SAT	learnt on how to take care of farmers
SAT	learnt not to burn fire along the bush.
SAT	learnt how to protect the environment
SAT	learnt how to make a nursery, how to protect the environment, the safety & health of HIV/AIDS house keeping & food

Table A5.7 (continued)	Benefits realised from participating in UTZ certification training or UTZ certification
SAT	learnt how to contain soil erosion and conserve vegetation
SAT	learnt about good hygiene, dug rubbish pit
SAT	learnt about good hygiene, bought a farm
SAT	knowledge on how to take care of the farm
SAT	knowledge on farm management, hygiene and environmental conservation
SAT	knowledge on farm management
SAT	knowledge on environmental protection
SAT	know the good things about tea production
SAT	improved tea production by applying fertiliser, weeding and plucking
SAT	I now keep records on input use and tea production, I have learnt on importance of working together with other farmers
SAT	i learnt good management of my farm.
SAT	i know how to take care of tea better than before.
SAT	i have learnt about soil conservation
SAT	i have increased revenue
SAT	i have been able to harvest tea regularly
SAT	i have a nursery
SAT	i harvest good quality leaves; i have controlled soil erosion
SAT	i earn more
SAT	i do not poach
SAT	i can now protect the environment
SAT	i can now produce better quality tea
SAT	i am now able to keep some of natural resources surrounding my area
SAT	i acquired more skills on tea production
SAT	high yield and quality of tea
SAT	have trained me not to cut trees in my tea farm because they help in conserving the farm
SAT	have been able to identify good quality tea
SAT	good field management
SAT	farm field changes and farm status changes.
SAT	environmental preservation, better farming practices
SAT	environmental conservation
SAT	better farm management, yields and profits
SAT	benefited from maintaining good tea practices

Table A5.7 (continued)	Benefits realised from participating in UTZ certification training or UTZ certification
SAT	able to raise a nursery, practicing good hygiene
MST	we have learnt how to conserve water & the entire environment & good tea management skills
MST	they taught us how we can take care of our farms & good fertiliser application techniques.
MST	they are able to produce high yields and known the dangers of using chemicals in tea farm.
MST	the productivity has increased
MST	the person does not know since there was no training offered to him
MST	record keeping knowledge, knowledge on plucking
MST	knowledge in farm management, soil conservation and environmental conservation.
MST	i was taught the benefits of keeping records and how to follow up your farm. i was also taught the benefits of planting trees in the field.
MST	i learnt how to conserve natural resources
MST	i have learnt about soil conservation and dangers of using other chemicals
MST	i have known the importance of trees on the farm
MST	i have been taught that it is not proper to apply chemicals in tea fields; i have been taught how i can preserve all natural resources
MST	gotten encouragement
MST	good management skills, preserving the environment like not cutting trees
MST	followed what was taught by UTZ and as a result the harvest was good
MST	environmental preservation, better chemical use
MST	dangers of using agrochemicals; how to keep PPE; good plucking methods; soil conservation measures
MST	better farm management, environmental preservation, plucking methods
EOT	we learnt how to take care of tea & several methods of conserving soil in our plots
EOT	we learnt good ways of taking care of tea. we are yielding more than before.
EOT	we have learnt how to take care of our tea.
EOT	we have known ways of taking care of our tea & we are yielding good quality tea than before
EOT	we get more info on tea prod., better soil conservation
EOT	to raise our nursery so that we won't buy tea plants anymore.
EOT	tea is changing after learning several methods in tea production
EOT	taught how to start a business, environmental conservation, record keeping

Table A5.7 (continued)	Benefits realised from participating in UTZ certification training or UTZ certification
EOT	raised their own nursery and follows new procedures in tea farming
EOT	learnt good farming practices
EOT	knowledge on nursery establishment, tea farming and transport
EOT	knowledge on good plucking methods, fertiliser application and soil conservation
EOT	knowledge on better planting methods
EOT	i was taught to use soil conservation measures
EOT	i was taught some things i didn't know. training has changed my life
EOT	i saw a difference after attending UTZ training .my farm is improving
EOT	i learnt good field management skills and soil conservation.
EOT	i learnt about round plucking, nursery management and chemical handling
EOT	i have more yields after learning from the training
EOT	i have learnt how to conserve the soil and importance of planting trees
EOT	i have a higher income
EOT	i have a higher income
EOT	i got information on how to follow plucking table and about weeding i was taught good methods of weeding
EOT	helping us with skills for us to produce quality tea.
EOT	have known good agricultural practices in tea/conserve environment such as water and soil
EOT	gained field management and environmental preservation knowledge
EOT	from attending the training the tea farm is our source of everything in our home
EOT	every one of my household have knowledge of producing high quality green leaf.
EOT	company is providing more services to us based on UTZ certification procedures and by doing so we will have more yields
EOT	better farm management, environmental preservation, plucking methods
EOT	better farm management
EOT	benefitted from skills learnt on tea production
EOT	advised to raise tree nurseries after training and now i have

Information from the Focus Group discussions and interviews

- g. Farmers say that they stopped fighting over community boundaries because the boundaries had to become clear because of certification. (LEI does not know whether this is indeed required for UTZ certification.)

- h. Farmers say that they have established buffer zones next to rivers and say that as they avoid pollution of the rivers, the water is no longer polluted.
- i. They do not burn everything anymore, they take their waste and discharge it in a hole in the field. They compost organic material for application in their tea field. They are proud that the environment is protected because they do not burn waste anymore (Questions on practices with regard to waste management were taken out of the questionnaire as the baseline questionnaire contained questions which were irrelevant for UTZ certification, e.g. household waste. So this cannot be confirmed by results from our survey).
- j. They were taught to plant trees 2 years ago and thus they planted more trees (even though the planting of trees is in itself not requirement for UTZ certification this was mentioned as such. Maybe the farmers were confused with RA certification)
- k. They pluck good quality tea (the study did not confirm that quality increased since the start of the programme)
- l. The quantity produced is higher, because of more frequent plucking rounds.
- m. They were making profits but because the devaluation of the Malawi Kwacha, the profits cannot be seen (even though they say that they earn more Kwachas, the Kwacha is worth less and thus the real value of the total net income is less.
- n. The companies provide them with fertilisers on credit, and after paying back these credits through green leaf sales something is still left as they increased productivity and income (although they still do not earn enough to buy fertilisers themselves).
- o. Almost everyone has a loan, but some have completed their loans and do not need another loan anymore, and thus enjoy profits in full. (The associations state, however, that fertilisers on credit from the associations is cheaper than fertilisers bought on the normal market and thus all farmers take fertilisers on credit which they repay by selling green leaf.

The field officers and administrators mentioned the following benefits of training and certification

- Knowledge on GAP in tea production has improved, resulting in increase in productivity (Attributed to the UTZ-Solidaridad programme)
- Environmental: control of soil erosion (Attributed to the UTZ-Solidaridad programme) and RA certification)
- Water is healthier (Attributed to the UTZ-Solidaridad programme) and RA certification)

- Better management of waste (Attributed to the UTZ-Solidaridad programme) but mainly to RA certification)
- Nursery establishment (Attributed to the UTZ-Solidaridad programme))
- Farmers now understand the difference between bad and good quality leaf (Attributed to the UTZ-Solidaridad programme + regular extension)
- The field officers have seen an increase in quality bonus, and return (profits) because of the UTZ-Solidaridad programme
- Record keeping: they are trying to improve it at MST; now they have a booklet which is used to record the kilograms of leaf delivers after weighing
- Lead farmers and extension services have improved their effectiveness because of an improved flow of information between the top and the farmers. Before the UTZ-Solidaridad programme (RA started later), there were very few field officers and the associations did not exist as extensive as they do now. Because of the programme, and later RA certification, the number of field officers increased and the associations became larger because of all work that needed to be done. This has resulted in more communication between the farmers and the company.
- Training lead to knowledgeable farmers, resulting in productivity increase.
- Social benefits: this was difficult to answer. All certifications combined have resulted in better relationships in the communities. Especially Fair Trade lead to better community relationships because the community needs to plan on spending the budget on community projects. The UTZ-Solidaridad programme has led to farmers to share info on GAPs with each other.
- There are tea buyers behind certification programmes, they demand for UTZ certified tea. They expect that in the future there will be enough buyers because of the commitments of large companies (from 2015, certification is a 'license to sell' as the large companies have vowed that all/most of the tea they source and sell will be certified by then). This is not yet the case.

Motivation to be a lead farmer	Smallholder Association
to gain more skills in tea production and practice new agricultural practices	EOT
was selected to take part	EOT
learn new ways of tea farming	EOT
Chosen by the management	EOT
to help other farmers	EOT
Farmers not getting enough from tea	EOT
Was very proud to be a lead farmer	EOT
wanted to be a lead farmer	EOT
wanted to be a lead farmer	EOT
IT was very good	EOT
eager to learn new things	EOT
Helps to improve yields	EOT
I wanted to be among the best tea growers	EOT
Was very proud to be a lead farmer	EOT
I was motivated by another farmer	EOT
the motivation came from heart	EOT
Was told by our chairman	EOT
got motivated by our chairman	EOT
I wanted to train other farmers	EOT
Helps to improve yields	EOT
I wanted to be among the best tea growers	EOT
Was very proud to be a lead farmer	EOT
I was motivated by another farmer	EOT
the motivation came from heart	EOT
Was told by our chairman	EOT
got motivated by our chairman	EOT
I wanted to train other farmers	EOT
encourage other farmers to plant trees, soil conservation	MST
proud to be a leader farmer	MST
Soil conservation and other management practices	MST
better farm practices	MST
Very proud to be a lead farmer	MST
good soil conservation measures and field management	MST
good farming practices	MST

Motivation to be a lead farmer	Smallholder Association
wanted to be a lead farmer	MST
wanted to be a lead farmer	MST
very happy to be a leader farmer	MST
wanted to be a lead farmer	MST
very happy to be a leader farmer	MST
wanted to be a lead farmer	MST
I was trying to teach other farmers on good agricultural practises.	SAT
I want to learn new things	SAT
she was happy to learn things that he did not know.	SAT
Need to teach other farmers new skills	SAT
I was able to teach other farmers about good farming practices	SAT
It was good to him and he appreciated it	SAT
I acquired new skills	SAT
I wanted to learn about record keeping	SAT
the farmer was knowledgeable	SAT
I wanted to train other farmers	SAT
Need to gain knowledge.	SAT
I was chosen	SAT
Encouraged to attend	SAT
wanted to learn more	SAT
Taught us to keep vegetation	SAT
good farming practices	SAT
I wanted to obtain more knowledge	SAT
to know how to keep crops in the garden	SAT
I was selected for training	SAT
I always advice the other farmers to follow good agricultural practises of tea production	SAT
Wanted to know how to manage tea	SAT
I was chosen	SAT
I was very interested	SAT
Advised to join	SAT
it was good and they encouraged us how we can take care of our land	SAT

Motivation to be a lead farmer	Smallholder Association
Need to teach other farmers new skills	SAT
Need to teach other farmers new skills	SAT
We were inspired	SAT
It encourage us	SAT
I was happy to teach my fellow farmers to care for the environment	SAT
Learnt new skills especially on hygiene	SAT
I learnt new skills on tea production.	SAT
I learnt how to protect the environment	SAT
Learnt tea production skills	SAT
Their encouragement was good	SAT
We were asked to do so.	SAT
Encouraged to attend	SAT
learn new ways of farming	SAT
To gain more knowledge	SAT
good farming practices	SAT
Avoid poaching	SAT
I wanted to train other farmers	SAT
gained skill on how to make individual tea variety	SAT
The need to see change & improve our farms	SAT
Encouraged by the farmers	SAT
it benefited us from tea production	SAT
To encourage farmers on good practises of tea production	SAT
I have a farm so it motivated me to learn new things on my tea production	SAT
good farming practices	SAT
I wanted to improve tea production	SAT
I learnt what I did not know	SAT
To train other farmers	SAT
Advice farmers on good farming practices	SAT
I was chosen	SAT
I was very interested	SAT
Advised to join	SAT
it was good and they encouraged us how we can take care of our land	SAT

Motivation to be a lead farmer	Smallholder Association
Need to teach other farmers new skills	SAT
Need to teach other farmers new skills	SAT
We were inspired	SAT
It encourage us	SAT
I was happy to teach my fellow farmers to care for the environment	SAT
Learnt new skills especially on hygiene	SAT
I learnt new skills on tea production.	SAT
I learnt how to protect the environment	SAT
Learnt tea production skills	SAT
Their encouragement was good	SAT
We were asked to do so.	SAT
Encouraged to attend	SAT
learn new ways of farming	SAT
To gain more knowledge	SAT
good farming practices	SAT
Avoid poaching	SAT
I wanted to train other farmers	SAT
gained skill on how to make individual tea variety	SAT
The need to see change & improve our farms	SAT
Encouraged by the farmers	SAT
it benefited us from tea production	SAT
To encourage farmers on good practises of tea production	SAT
I have a farm so it motivated me to learn new things on my tea production	SAT
good farming practices	SAT
I wanted to improve tea production	SAT
I learnt what I did not know	SAT
To train other farmers	SAT
Advice farmers on good farming practices	SAT

Appendix 6 Knowledge score

Knowledge score

Knowledge questions	Changes (2012-2010) *=significant at 0.05 level	2012 (mid-term)	2010 (baseline)
E1 Why not to remove prunnings from field	-0.11	3.29	3.40
E2 What is the best height to prune tea	-0.77*	2.18	2.95
E3 What are the reasons to prune tea	-0.92*	4.25	5.17
E4 What are the recommended methods to handle weeds	0.19	2.86	2.67
E5 What are the benefits of fertiliser application to tea	-1.98*	3.83	5.81
E6 What are the benefits plucking frequency 7-8 days	-1.40*	4.63	6.03
E7 What are the benefits of maintaining a plucking table	-0.51	4.49	5.00
E8 What are the main benefits from infilling	-1.30*	5.53	6.83
E9 What is the best height for tipping-in tea	-0.59	8.24	8.82
E10 What is the benefit of a Riparian strip	-2.50*	1.85	4.35
E11 What are the benefits of PPE	-2.99*	2.84	5.83
E12 What are the potential dangers agro-chemicals and water	-1.19*	4.13	5.31
E13 Agro-chemicals discouraged in tea	-0.76*	2.62	3.38
E14 Methods to improve yield and quality	-0.80*	3.88	4.68
E15 Benefits of soil conservations methods	-1.92*	3.11	5.02
Total (knowledge)	-1.18*	3.85	5.03

Table A6.2 Knowledge scores among all trained respondents			
Knowledge questions	Changes (2012- 2010) * =significant at 0.05 level	2012 (mid-term)	2010 (baseline)
E1 Why not to remove prunings from field	0.03	3.26	3.23
E2 What is the best height to prune tea	-0.83*	2.06	2.89
E3 What are the reasons to prune tea	-1.10*	4.16	5.27
E4 What are the recommended methods to handle weeds	0.14	2.82	2.68
E5 What are the benefits of fertiliser application to tea	-1.94*	3.88	5.82
E6 What are the benefits plucking frequency 7-8 days	-1.21*	4.74	5.95
E7 What are the benefits of maintaining a plucking table	-0.84*	4.19	5.03
E8 What are the main benefits from infilling	-1.24*	5.44	6.69
E9 What is the best height for tipping-in tea	-1.64*	7.23	8.87
E10 What is the benefit of a Riparian strip	-2.13*	1.94	4.07
E11 What are the benefits of PPE	-3.07*	2.68	5.75
E12 What are the potential dangers agro-chemicals and water	-0.89*	4.15	5.04
E13 Agro-chemicals discouraged in tea	-0.73*	2.54	3.26
E14 Methods to improve yield and quality	-0.82*	3.70	4.53
E15 Benefits of soil conservations methods	-1.77*	3.15	4.92
Total (knowledge)	-1.21*	3.73	4.94

Appendix 7 Implementation score

Question on sustainable practices		Changes (= 2012- 2011)	2012 (mid-term)	2010 (baseline)
No.	Implementation question	*=significant at 0.05 level		
B1	How often pluck per month?	0.21 *	0.50	0.29
B2	Experience leaf spillage at farm or buying centre?	0.14 *	0.68	0.54
B3	Use plucking stick/wand, table firm?	0.11 *	0.80	0.70
B4	Success rate of your nursery?	0.42 *	0.67	0.25
B6	When do you plant VP plants?	-0.07	0.57	0.64
B7	What is the % of crop cover?	0.15 *	0.41	0.26
B8	At what height do you prune?	0.10	0.55	0.46
B9	At what period do you prune	0.80 *	0.90	0.10
B10	How often do you prune same tea plot/block?	0.00	0.61	0.61
B11	What tools are used to prune your tea?	0.00	0.60	0.60
B12	Who prunes the tea and have they been trained?	0.16 *	0.96	0.80
B13	At what height do you tip in?	-0.32 *	0.48	0.80
B14	How often apply composted manure t?	0.10 *	0.28	0.17
B15	How frequently do you apply fertiliser	0.04	0.79	0.75
B16	Do you keep records?	-0.05	0.41	0.47
B17	Who plucks your tea?	-0.02	0.84	0.86
B18	Do you have a fixed agreement with employees?	-0.13	0.65	0.77
B19	Do your workers have access to potable water and latrines	0.26 *	0.75	0.50

Table A7.1 Implementation scores of sustainable practices among (continued) UTZ Solidaridad trained respondents

Question on sustainable practices		Changes (= 2012-2011)	2012 (mid-term)	2010 (baseline)
No.	Implementation question	*=significant at 0.05 level		
B20	How often did your family or workers need medical attention	0.00	0.79	0.79
B21	Do you use any personal protective equipment (PPE)?	0.07*	0.17	0.10
B22	Do you group together with others farmers to carry out activities	0.30*	0.93	0.63
B23	Do you turn to KTDA if you experience any problems in your tea production?	0.30*	0.88	0.57
B24	Do your children go to school?	0.07*	0.78	0.70
B27	Do you collect prunnings from the field?	0.05	0.94	0.89
B28	Do you infill open areas	0.32*	0.90	0.58
B29	When do you apply fertiliser to your tea?	-0.11	0.64	0.75
B30	How do you spray?	-0.45*	0.47	0.91
B31	Does your farm border a river or water body? If so, do you have a Riparian strip	0.12	0.12	0.00
B32	Do you have indigenous trees on you farm; if so how many	0.16*	0.40	0.24
B34	If your farm borders a water body, distance spray from water?	0.12	0.68	0.55
B35	How much area of the total farm is conservation area?	0.09	0.39	0.31

Table A7. 2 Implementation scores of sustainable practices among all trained respondents

Question on sustainable practices		Changes (= 2012-2011)	2012 (mid-term)	2010 (baseline)
No.	Implementation question	*=significant at 0.05 level		
B1	How often pluck per month?	0.17*	0.46	0.29
B2	Experience leaf spillage at farm or buying centre?	0.16*	0.65	0.49
B3	Use plucking stick/wand, table firm?	0.13*	0.82	0.69
B4	Success rate of your nursery?	0.57*	0.77	0.20
B6	When do you plant VP plants?	0.01	0.61	0.61
B7	What is the % of crop cover?	0.12*	0.42	0.29
B8	At what height do you prune?	0.06	0.51	0.46
B9	At what period do you prune	0.82*	0.91	0.09
B10	How often do you prune same tea plot/block?	0.01	0.61	0.61
B11	What tools are used to prune your tea?	0.00	0.60	0.60
B12	Who prunes the tea and have they been trained?	0.16*	0.97	0.80
B13	At what height do you tip in?	-0.29*	0.49	0.78
B14	How often apply composted manure t?	0.05	0.26	0.21
B15	How frequently do you apply fertiliser	0.03	0.79	0.76
B16	Do you keep records?	-0.06	0.42	0.48
B17	Who plucks your tea?	-0.03	0.85	0.88
B18	Do you have a fixed agreement with employees?	-0.04	0.71	0.75
B19	Do your workers have access to potable water and latrines	0.28*	0.74	0.46
B20	How often did your family or workers need medical attention	-0.02	0.80	0.83
B21	Do you use any personal protective equipment (PPE)?	0.10*	0.17	0.07

Table A7.2 Implementation scores of sustainable practices among all (continued) trained respondents

Question on sustainable practices		Changes (= 2012-2011)	2012 (mid-term)	2010 (baseline)
No.	Implementation question	*=significant at 0.05 level		
B22	Do you group together with others farmers to carry out activities	0.28*	0.89	0.61
B23	Do you turn to KTDA if you experience any problems in your tea production?	0.30*	0.89	0.59
B24	Do your children go to school?	0.07*	0.78	0.71
B27	Do you collect prunings from the field?	0.03	0.94	0.91
B28	Do you infill open areas	0.27*	0.90	0.63
B29	When do you apply fertiliser to you tea?	-0.12*	0.67	0.79
B30	How do you spray?	-0.46*	0.46	0.91
B31	Does your farm border a river or water body? If so, do you have a Riparian strip	0.21*	0.23	0.03
B32	Do you have indigenous trees on you farm; if so how many	0.09*	0.36	0.28
B34	If your farm borders a water body, distance spray from water?	0.13*	0.63	0.50
B35	How much area of the total farm is conservation area?	0.04	0.38	0.34

Appendix 8 Production, input use and Income

Table A8.1 Basic production indicators among UTZ-Solidaridad trained respondents						
Indicators	Mean		Standard deviation		Number of Observations	
	2011	2009	2011	2009	2011	2009
Production area per household (acre)	1.2	-	1.1	-	85	0
Number of tea bushes	3150	2646	2447	1684	39	106
Tea production per household (kg tea green leaves)	2642	2325	2373	2427	55	106
Factory price (MKW/kg)	19.5	17	0	0	106	106
Bonus (MKW/kg)	8.0	5	0	0	106	106
Gross income (in MKWKSH per household) a)	72.7	55	65	55	55	58
Net income (in 1000MKW per household) b)	62.9	36	56	36	50	43
- Information not available.						
a) Calculated as tea green leaf production x (factory price + bonus);						
b) Calculated as gross income minus costs for fertiliser costs and labour, assuming no cost when no information was given. The net income is therefore likely to be an overestimation of the actual net income.						

Table A8.2 Labour use and costs among UTZ-Solidaridad trained respondents

Labour activities	Mean		Standard deviation		Number of observations	
	2011	2009	2011	2009	2011	2009
Plucking (MKW/kg green tea leaves)	8.6	6.6	1.7	0.9	68	80
Weeding (days hired labour)	4.0	.	5.7	.	52	0
Weeding (days own labour)	2.9	.	6.1	.	72	0
Weeding cost (MKW/day)	205.2	161.6	69.0	43.7	55	65
Pruning (bushes pruned by hired labour)	166.7	.	485.2	.	67	0
Pruning (bushes pruned by own labour)	139.7	.	457.4	.	49	0
Pruning cost (MKW/bush)	2.7	2.6	0.7	1.2	61	81
Application of fertiliser (bags applied by hired labour)	1.7	.	1.4	.	30	0
Application of fertiliser (bags applied by own labour)	1.5	.	1.1	.	81	0
Cost for applying fertiliser (MKW/day)	103.7	.	98.5	.	29	0
Total labour costs (MKW/household) a)	15,891.1	22,204.4	49,178.2	20,816.9	115	115

- No information.
a) When no information was provided by the respondent, the cost was assumed to be zero.

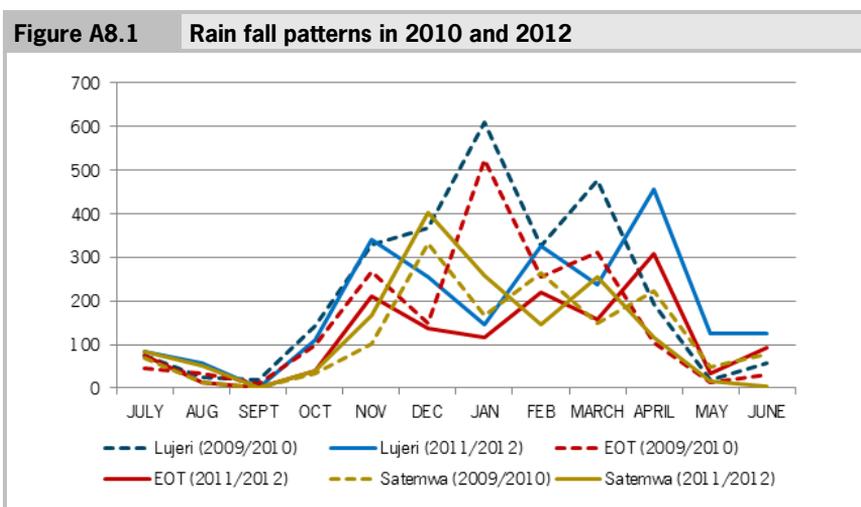
Table A8.3		Use of fertiliser and costs among UTZ-Solidaridad trained respondents				
Indicators related to fertiliser use	Mean		Standard deviation		Number of observations	
	2011	2009	2011	2009	2011	2009
Fertiliser cost per bush a) (MKW/bush)	6.5	6.5	5.49	9.72	35	104
Fertiliser use per bush (kg/bush)	0.1	0.1	0.05	0.12	35	104
Kg Nitrogen (N)/bush	0.014	0.009	0.011	0.007	14	49
Kg Phosphorus (P)/bush	0.003	0.002	0.002	0.002	14	49
Kg Potassium (K)/bush	0.003	0.002	0.002	0.002	14	49

- No information.
a) When no information was provided by the respondent, the cost was assumed to be zero.

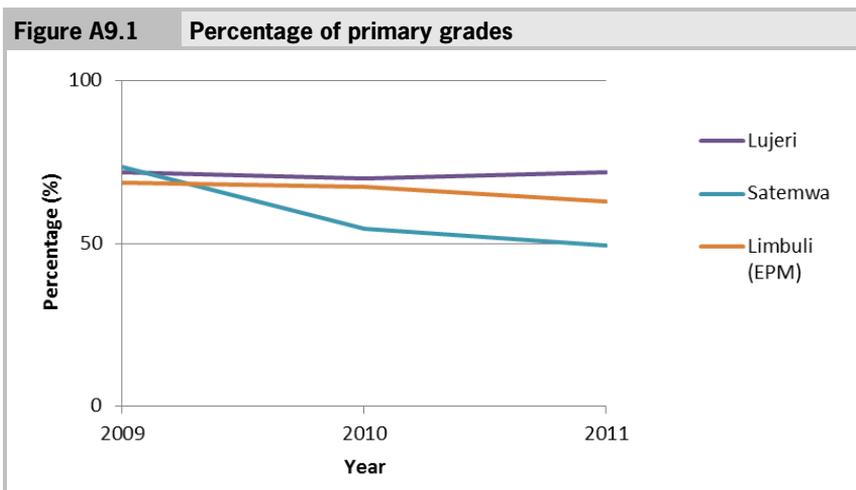
Table A8.4		Purchase of Personal Protection Equipment (PPE) items						
PPE Items	Percentage among UTZ-Solidaridad trained respondents (N=106)				Number of PPE items bought			
	2011		2009		2011		2009	
PPE			Mean	Min	Max	Mean	Min	Max
Overall	2%	3%	4.3	1	0	1.0	1	1
Hat	1%	2%	1.0	1	Max	1.0	1	1
Mask/respirator	0%	1%	0.0	0	0	1.0	1	1
Gumboots	6%	4%	1.2	1	1	1.3	1	2
Goggles	0%	2%	10.0	10	1	1.0	1	1
Apron/plucking cape/nylon bags/raincoat	12%	9%	2.1	1	1	1.0	1	1
Full PPE set	0%	0%	0.0	0	1	0.0	0	0

Activities done by children	Percentage among UTZ-Solidaridad trained respondents	Percentage among all trained respondents
Plucking	11%	9%
Weeding	10%	9%
Pruning	2%	1%
Carrying green leaf to the Buying Centre	4%	4%
Pesticide application	0%	0%
Fertiliser application	6%	5%
Land preparation	8%	5%

a) Percentage of farmers who indicated that they are assisted by children for the activity.



Appendix 9 Quality of tea



Appendix 10 Perceived changes and decision-making

Table A10.1 Percentages a) of responses on the statement among UTZ-Solidaridad trained respondents					
Statement with regard to the changes	Agree	Disagree: the opposite is true	Disagree: no change	I don't know/ N/A	Number of Observations
The farm has higher productivity than two years ago	67%	27%	6%	0%	106
The farmer hires more people than 2 years ago	10%	9%	28%	54%	105
The household spends more time on fertiliser application	21%	15%	60%	4%	105
The area of the farm has increased	39%	10%	51%	0%	105
Income from tea has increased	46%	37%	16%	1%	104
Income from other sources has increased	44%	40%	17%	0%	103
Saving has increased	27%	36%	37%	0%	105
Community relationships have improved	81%	17%	1%	1%	106

a) Percentages were rounded off to whole numbers.

Table A10. 2 Scores on the social indicators among UTZ-Solidaridad trained respondents

Social indicators	Changes (2012-2010)	2012	2010
	*=significant at 0.05 level	Mid-term	Baseline
The relation with neighbours	0.28*	4.53	4.25
The relation with your family members	0.06	4.68	4.62
The relationship with the tea factory	1.25*	4.48	3.24
Knowledge on good tea management practices	1.05*	4.44	3.39
Professional advice on fertiliser and pesticide use	1.32*	4.37	3.05
Leadership skills	0.70*	4.31	3.62
Access to information on agriculture commodity prices	0.90*	3.93	3.03
Access to self-help activities like Village Savings Loans	0.94*	3.50	2.56
Diversification of income/number of income sources	1.07*	3.67	2.60
Your homestead (house, access to water/electricity etc)	0.53*	3.79	3.26
Your families health	0.71*	4.30	3.60
Possibility to send children to school	0.66*	4.43	3.77
Family welfare	0.81*	4.14	3.32
Family income	1.25*	3.92	2.67
Total	0.84*	4.19	3.35

Table A10.3 Way of decision making on tea production activities in general among UTZ-Solidaridad trained respondents

Nr	Way of decision-making	Two years ago		Now		Change (Now-Past) * = significant at 0.05 level
		Total answers	Yes (%)	Total answers	Yes (%)	
0	Based on advice from my parents/friends/neighbours	101	39%	100	29%	-10%
1	Based on what I did last year	101	52%	101	47%	-5%
2	I do the same each year	101	45%	101	37%	-8%
3	Based on the state of my tea bushes/field(s)	101	53%	101	53%	0%
4	Based on recommendations by the company	100	60%	100	67%	7%
5	I regularly check my records to see whether my farm is doing well	101	40%	100	43%	3%
6	I compare my records with the records of my neighbours/friends/other farmer to see how my farm is doing	100	28%	101	27%	-1%
7	I use what I learnt from the training to make my decisions	101	69%	101	80%	11%*
8	Based on information on prices for tea and other crops	100	41%	98	38%	-3%
9	I compare my production with figures on tea production in Kenya to see how my farm is doing	100	28%	99	27%	-1%
10	Own experience	95	66%	99	59%	-7%
11	Other	12	0%	13	0%	0%
12	I do not know	16	0%	18	0%	0%

Table A10.4 Way of decision making on how much fertiliser to apply among UTZ-Solidaridad trained respondents

Nr	Way of decision-making	Two years ago		Now		Change (Now-Past) * = significant at 0.05 level
		Total answers	Yes (%)	Total answers	Yes (%)	
0	I do not apply fertilisers	94	17%	89	14%	-3%
1	I apply the same amount per bush/hectare as my parents/neighbours do	96	30%	97	27%	-3%
2	I apply the same as last year	98	61%	97	54%	-7%
3	I always apply the same amount	98	65%	97	62%	-3%
4	On basis of the state of the tea bushes	98	48%	97	49%	1%
5	On the basis of recommendations by the company	98	62%	98	71%	9%
6	On the basis of recommendations obtained in the training	96	70%	97	80%	10%*
7	On the basis of the records that I kept last year (analysed fertiliser input and yield relations)	97	35%	97	32%	-3%
8	On the basis of my own experience	91	68%	91	60%	-8%
9	Other	13	17%	12	15%	-2%
10	I do not know	17	0%	16	0%	0%

Table A10.5 Way of decision making on how often to pluck among UTZ-Solidaridad trained respondents

Nr	Way of decision-making	Two years ago		Now		Change (Now-Past)
		Total answers	Yes (%)	Total answers	Yes (%)	* = significant at 0.05 level
0	I pluck as often as my parents/neighbours/friends do	98	26%	96	18%	-8%
1	My plucking frequency is the same as last year	99	49%	97	43%	-6%
2	On the basis of the state of the tea bushes	99	60%	98	57%	-3%
3	On the basis of recommendations by the company	99	61%	97	69%	8%
4	On the basis of recommendations obtained in the training	98	67%	98	80%	13%*
5	On the basis of the records that I kept last year	98	32%	97	31%	-1%
6	On the basis of my own experience	98	60%	97	54%	-6%
7	Other	12	8%	12	0%	-8%
8	I do not know	14	0%	16	0%	0%

Table A10.6 Way of decision making on how to handle (apply, store etc.) agrochemicals among UTZ-Solidaridad trained respondents

Nr	Way of decision-making	Two years ago		Now		Change (Now-Past) * = significant at 0.05 level
		Total answers	Yes (%)	Total answers	Yes (%)	
0	I do not handle/apply/store agrochemicals	50	66%	53	74%	8%
1	Based on advice from my parents/friends/neighbours	36	22%	42	5%	-17%
2	Based on what I did last year	36	17%	40	5%	-12%*
3	I do the same each year	36	14%	40	3%	-11%
4	Based on recommendations by the company	39	31%	42	21%	-10%
5	Based on requirements for UTZ certification	38	26%	42	26%	0%
6	I use what I learnt from the training to make my decisions	38	21%	41	15%	-6%
7	On the basis of my own experience	35	14%	40	10%	-4%
8	Other	8	0%	8	0%	0%
9	I do not know	13	0%	14	14%	14%

Appendix 11 Services of the producer group

Unsatisfied with service provided on	Among UTZ-Solidaridad trained respondents		Among all trained respondents	
	Percentage	Number of observations	Percentage	Number of observations
Insurance	39%	84	40%	139
Providing access to credits	27%	95	27%	160
Market information on sales and prices (e.g. also of other crops than tea)	17%	98	17%	167
Providing access to pesticides	17%	75	16%	124
Commercial activities; sales and marketing	13%	94	17%	156
Providing access to seedlings, planting material	9%	99	9%	169
Providing information about the external Inspections (audit)	8%	89	9%	149
Market information on inputs	7%	100	9%	171
Providing information about inspection results and corrective actions after Internal Inspections (ICS)	7%	91	9%	151
Providing access to fertiliser	6%	100	8%	170
Training	1%	100	1%	171

Appendix 12 Regression outputs

Table A12.1		Regression analysis on the change of knowledge score and explanatory variables	
Explanatory variables	Description of the explanatory variable	Coefficients (Standard errors in parentheses)	
_ltraining_2	Other training only	-0.110	(0.59)
_ltraining_3	Extension service only	0.582	(0.43)
_ltraining_4	RA only	0.647 b)	(0.32)
_ltraining_5	RA+ Other training	0.494 a)	(0.26)
_ltraining_6	RA+ Extension service	0.290	(0.34)
_ltraining_7	RA+ Extension service + Other training	0.659 c)	(0.24)
_ltraining_8	UTZ only	0.313	(0.59)
_ltraining_9	UTZ +Extension service	0.778 b)	(0.34)
_ltraining_10	UTZ+ Extension service +Other training	0.214	(0.59)
_ltraining_11	UTZ+RA	1.254 c)	(0.36)
_ltraining_12	UTZ+RA + Other training	0.669 b)	(0.29)
_ltraining_13	UTZ+RA + Extension service	1.062 c)	(0.25)
_ltraining_14	UTZ+RA+ Extension service + Other training	0.686 c)	(0.23)
L.knowledge	Knowledge score in the baseline	-1.077 c)	(0.051)
a6_edu	Level of education	0.177a)	(0.11)
_lfact_2	Dummy variable indicating association 2 (EOT)	0.00948	(0.13)
_lfact_3	Dummy variable indicating association 3 (MST)	0.498 c)	(0.19)
Constant	Constant	3.172 c)	(0.32)

a) $p < 0.1$; b) $p < 0.05$; c) $p < 0.01$.

Table A12.2		Regression analysis on the change of implementation score on production indicators and explanatory variables	
Explanatory variables	Description of the explanatory variable	Coefficients (Standard errors in parentheses)	
_ltraining_2	Other training only	0.0571	(0.074)
_ltraining_3	Extension service only	0.0505	(0.054)
_ltraining_4	RA only	0.0434	(0.039)
_ltraining_5	RA+Other training	0.0464	(0.032)
_ltraining_6	RA+Extension service	0.0659 a)	(0.039)
_ltraining_7	RA+Extension service + Other training	0.0423	(0.029)
_ltraining_8	UTZ only	0.149 b)	(0.061)
_ltraining_9	UTZ +Extension service	0.0150	(0.039)
_ltraining_10	UTZ+ Extension service +Other training	0.0630	(0.073)
_ltraining_11	UTZ+RA	0.0393	(0.042)
_ltraining_12	UTZ+RA + Other training	0.0561	(0.035)
_ltraining_13	UTZ+RA + Extension service	0.0866 c)	(0.030)
_ltraining_14	UTZ+RA+ Extension service + Other training	0.0535 a)	(0.028)
L.bscore_production	Implementation score on production indicators in the baseline	-0.990 c)	(0.071)
_lfact_2	Dummy variable indicating association 2 (EOT)	-0.0445***	(0.016)
_lfact_3	Dummy variable indicating association 3 (MST)	-0.000357	(0.023)
Constant	Constant	0.565***	(0.044)

a) p<0.1; b) p<0.05; c) p<0.01

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