



Progress of Ethiopian Cotton Producers toward Sustainability

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Abstract

'Sustainable Cotton Initiative Ethiopia (SCIE)' introduced pilot interventions of sustainable production principles on large and smallholder farms in the regional states of Afar and Tigray. Lessons were drawn during the implementation period to create a success case that can serve as an example for scaling-up similar support models to other cotton-growing regions in Ethiopia. A business case for production of sustainable and profitable cotton was established through the pilot project, resulting in quality produce that ensured market uptake of sustainable cotton. In 2017, at the beginning of the SCIE interventions, the level of compliance of the project farms toward the minimum requirements of the better cotton initiative ranged from 52% to 69%. The next year, compliance level reached 65% to 90%, with a 13% to 23% adoption rate of good agricultural practices. The remaining gap towards certification ranged from 10% to 35%, to be fulfilled depending on the commitment of the project farms and project interventions during 2018 cropping season.

Introduction

The Growth and Transformation Plans (GTP II) and Ethiopia's National Cotton Development Strategy (NCDS 2017) urge for a fivefold increase of lint production. The ambitious development plans incorporate global sustainability standards such as the Better Cotton Initiative (BCI) and Cotton made in Africa (CmiA), which are becoming mainstream production systems (BCI 2013 and CmiA 2014/15) due to the strong commitment of international brands and retailers like HandM, PVH, VF, Adidas, CandA, Nike and Timberland, who are committed to sourcing 100% of their cotton supplies from reliable sustainable sources by 2020 (FAO and ICAC 2015).

SCIE introduced pilot interventions of sustainable production principles on large and smallholder farms in the Ethiopian cities of Afar and Tigray. The pilot projects provided a robust proof-of-concept to create a success case that can serve as an example for scaling up similar support models to other cotton-growing regions in Ethiopia. The pilot interventions demonstrated a business case for producing high-quality cotton products in a sustainable and profitable manner to ensure market uptake of sustainable cotton as per the demands from the national and international markets. This approach is fully aligned

with government ambitions to boost cotton production in a sustainable way and contributing to the competitiveness of the textiles and garments industry. The fact that all the value chain actors are represented in this pilot project creates an opportunity to deliver this ambition to present a unique example of integrated value chains from fibre to fashion.

Currently, the number of 'better cotton initiative' pilot project farms are limited to Afar and Tigray, with rain-fed and irrigated commercial farms operated by 76 lead farmers on 1,166 hectares of better cotton area to produce 1,132 tonnes of sustainable cotton fibre that reaches the targeted supply chain.

The primary aims of the pilot intervention are to transform cotton into a sustainable, mainstream commodity through improvement of farmers' income and livelihoods. Improvement in environment variables and improved working conditions, health and safety.

Methodology

Both CmiA and BCI improvement requirements promote environmentally friendly cotton production systems as well as decent working conditions and realise their financial profitability (FAO and ICAC 2015) through contributions to a vibrant cotton sector by increasing the adoption of good agricultural practices, linking farmers to a secure and growing demand of retail partners for sustainable cotton. That is the path to achieving environmentally, socially and economically sustainable production systems. As per the requirement of Better Cotton Program, a baseline survey and progress of the project activities was evaluated by a team of experts from partner organizations (BCI 2014/2015). For the large-scale project farms, both pre- and post-intervention assessment was done based on the Better Cotton minimum and improvement requirements which included six production principles, 44 production criteria and eight result indicators. The total number of farm-level indicators of sustainability dimensions include environmental (16), social (22) and economic (6) sustainable production systems (FAO and ICAC 2015) and (BCI 2013). For the smallholder farmers under Dansha Aurora Multi-purpose farmers' cooperative union, both pre- and post-intervention self-assessment was done based on the CmiA improvement requirements of 30 farm-level sustainability indicators that included

environmental (10), social (16) and economic (4) sustainable production systems (FAO and ICAC 2015). Based on the assessment and identified gaps in 2016, the subsequent project activities were designed and implemented in 2017.

Sustainability Metrics

Water and Pesticide Usage

The average performance of the project farms showed significant progress in fulfilling the minimum requirements of 'better cotton' depending on their level of commitment. There were significant improvements on environmental variables, reduction of pesticides, improved water use efficiency, reduction in cost of cultivation and improved working conditions/health and safety due to use of bio-intensive practices and IPM compatible pesticides. Water management issues were very limited in Dansha, Tigray, except shortage of rainfall during the growing season (Fig. 1). Progress was made in irrigated project farms of Afar in terms of water scheduling and measurement.

Individual evaluation of the pilot project farms indicated that Dansha smallholder farmers were leading in fulfilling the minimum requirements, as they are the lowest consumers of pesticides due to highest rate of adoption of bio-intensive crop protection and good agricultural practices. The cost of pesticide use was 97% lower and the usage of active ingredient of hazardous pesticides was nil (Figures 2 & 3).

The Hiwot farm is one of the leading rainfed commercial cotton farms in the country, complete with established pivot irrigation technology. To fulfil the minimum requirements, the farm increased the number of rotational crops and started implementing IPM to reduce pesticide and application costs by 39%. The load of active ingredient of hazardous pesticides was also reduced by 50%. Interestingly, the farm workers organised under a labour union had the fewest social issues.

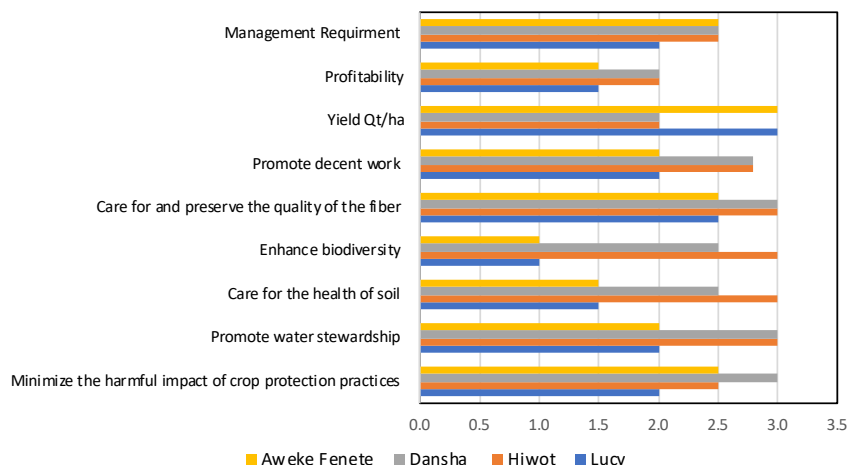


Figure 1. Sustainability performance of project farms

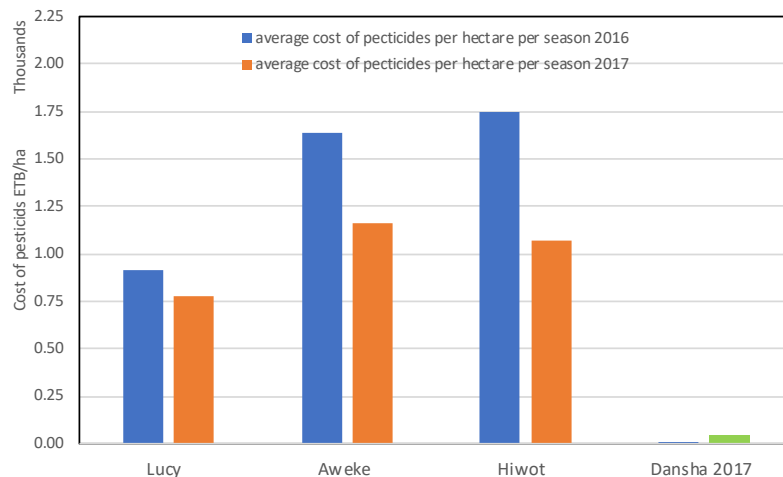


Figure 2. Reduction in pesticide cost

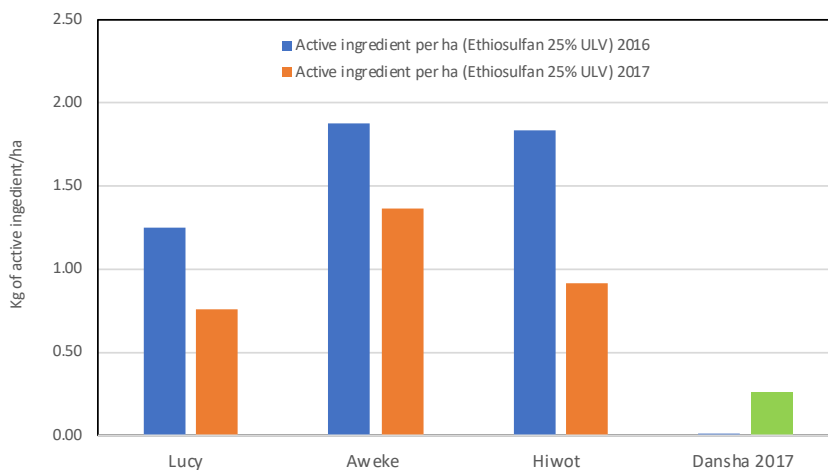


Figure 3. Reduction of insecticide active ingredient (a.i)

The Lucy farm is one of the leading irrigated commercial cotton farms in the Afar region. The farm is known for its high productivity and implementation of IPM, which resulted in a 34% reduction of pesticide application costs and a 5.3% reduction in the use of active ingredient of hazardous pesticides (Figures 2 and 3).

The Aweke Fente farm is one of the most stable commercial cotton farms in the Afar region. The farm joined SCIE after a few supervised training sessions. The farm is known for its productivity and started implementation of IPM, leading to a 25% reduction in pesticide application costs and a 25% reduction in the use of active ingredient of hazardous pesticides (Figures 2 and 3).

Both the Lucy and Aweke Fente farms at Afar are currently striving to solve water-management issues and are committed to improving workers' issues and the livelihood of the Afar community.

Compared to the base year 2016, the performance of the project farms in 2017 showed significant reductions in pesticide cost ranging from 34% to 97%, which is a gain of 395 -1,751 ETB (US\$13.40 to US\$59.50) per hectare (ha) per season. The smallholder farm of Dansha Aurora Union recorded the highest cost savings: 1,751 ETB (US\$59.50) on pesticide costs (Fig. 2)

Environmental and Social Benefits

In addition to the economic benefits for the farms, the reduction in pesticide usage of 4.5% to 99% had significant positive effects on the environment and health of farm workers (Figs. 2-4). Interestingly, smallholder farmers achieved significant reductions in pesticide use, with some achieving zero levels hazardous pesticide use.

There were improvements in irrigation water management of the project farms in Afar. The farms improved their record-keeping and usage from an excessive (but unknown) amount of water to measured distribution. Both farms consumed about 600 M³ water per ha. Even though the farms were not paying for the water they used, optimising irrigation water had the environmental impact of reducing salinity and enhancing energy use efficiency and productivity.

Empowering Implementing Partners

The staff of implementing partners including ETIDI, WARC, ECPGEA received training on basic sustainability principles. The staff of cooperative unions and the staff, of the Hiwot, Lucy and Aweke Fente Farms, received supervisory training on the implementation of sustainability production principles. The extension agents and lead farmers received special training during the crop-development stages of cotton production. About six training sessions on good agricultural practices (GAP) were given to 25 extension agents, 76 lead farmers and 12 management staff of commercial farms. The extension

agents and lead farmers conducted 'training camps' to share knowledge and train other farmers on good agricultural practices.

The training programmes focused on better practices for sustainable crop production such as:

- Timely land preparation and sourcing of inputs,
- Identification of pests, beneficial insects, bio-intensive, IPM and rational use of chemicals,
- Irrigation water management,
- Improved fibre quality,
- Reducing contamination,
- Minimising the cost of production, and
- Maximising productivity and profit.

Lead farmers were successful in the implementation of bio-intensive practices and IPM tools to manage pest populations, with the aim of reducing insecticide use whilst maintaining profitability through enhanced yields and fibre quality.

Facilitating Market Access

The project aimed to increase the supply of sustainable and traceable cotton by securing the type of quality fibre demanded by national and international markets. The project successfully facilitated a lint-marketing agreement between Dansha Aurora Union and Kanoria Africa Textiles PLC and Lucy and AYKA Addis.

Knowledge Sharing and Upscaling

The experience gained from the two pilot regions was encouraging, based on which strategies were upscaled in other cotton-growing regions, by disseminating best practices through regional field days, as well as national and international conferences.

Progress Towards Certification

In 2017, at the beginning of the SCIE interventions, the level of compliance of the project farms toward the minimum requirements of better cotton ranged from 52% to 69%. The next year, compliance levels reached 65% to 90%, with 13% to 23% adoption rates of good agricultural practices. The remaining gap toward certification ranged from 10% to 35% (Fig. 4) to be fulfilled depending on the commitment of the project farms and project interventions during 2018 cropping season.

The two rain-fed cotton-production units — the large scale Hiwot Agricultural Mechanization PLC and the representative of smallholder cotton producers, Dansha Aurora Multi-purpose farmers' cooperative union — were ready for certification under CmiA standards in the 2018 cropping season and to fulfil the remaining less-than-11% of the gap. The irrigated farms, such as Lucy and

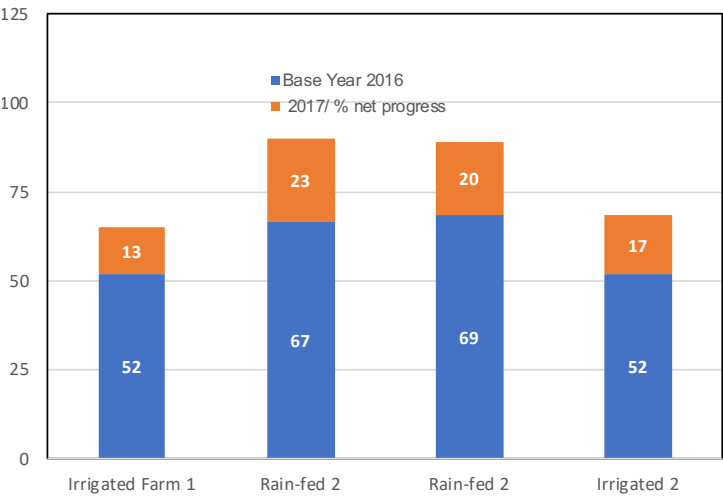


Figure 4. Progress of SCIE farms in 2016 and 2017

Aweke Fente Agricultural Development PLC in Afar, were committed to be certified by the BCI/SCS by 2018, fulfilling the remaining less-than-35% minimum requirement of better cotton.

acknowledgment

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