ITC’s contribution to export competitiveness and farmer livelihoods

Verification of ITC's intervention logic in the avocado sector in Kenya

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List of abbreviations

CBI	Centre for Promotion of Exports From Developing Countries
EPC	Export Promotion Council
FO	Farmer Organization
FPEAK	Fresh Produce Exporters Association of Kenya.
HCD	Horticultural Crops Directorate
ITC	International Trade Centre
KEFE	Kenya Association of Small & Medium Scale Fruits and Vegetables Exporters
KOAN	Kenya Organic Agriculture Network.
NTFIII	Netherlands Trust Fund III
SMEs	Small- and Medium Enterprises
TSI	Trade Supporting Institution

Executive Summary

Evaluating the impact of the NTFIII project in the avocado sector in Kenya. Aiming to further improve its effectiveness as an organization, ITC saw the need for more robust and credible monitoring of outcomes and impact of their interventions. Therefore the PRIME-ITC research partnership was established in 2015 to develop and implement a methodology to monitor and evaluate the impact of two private-sector development support programmes. PRIME stands for Pioneering Real-time Impact Monitoring and Evaluation and is a research partnership between Wageningen Economic Research and Erasmus School of Economics. This report presents the contribution of ITC to the export competitiveness of the avocado sector in Kenya.

Various actors in the avocado sector are tackling challenges in this important export sector. Avocado is an important horticultural product on the Kenyan export market for smallholders. Production and land size cultivated with avocado have been increasing recently. However, compared to other major avocado exporters (e.g. Mexico and Peru), Kenya is only exporting a small share (14%) of its total production. The Kenyan avocado sector faces several challenges in increasing its export share including poor quality and regulatory standards, weak institutional capacity of small-scale producers, and inadequate capacity and coordination of fruit export. Various actors are active to address these challenges including the Kenyan government, various sector organisations and international donors.

The Netherlands Trust Fund Export Sector Competitiveness Programme (NTFIII – ESCP) aims to stimulate avocado export from Kenya. NTFIII is based on a collaboration between the International Trade Centre (ITC) and the Dutch Centre for Promotion of Exports from Developing Countries (CBI). The programme was implemented between August 2014 and July 2017 and aimed to build employment in the Kenya avocado sector through export competitiveness. ITC contributed to activities at the level of Technical Service Providers (TSIs), avocado firms and Farmer Organisations (FOs).

Five research questions were identified related to key assumptions in the intervention logic of NTFIII. We maximised the potential use of findings for steering ITC-support in other contexts by focusing on impact pathways that have potential to be replicated or scaled out. Based on the project documents, we defined five evaluation questions; each relating to one of the key assumptions underlying the projects' intervention logic. The questions focus on contribution of NTFIII to improvements in service delivery in the sector; network and sales of firms; food safety, traceability and product quality in the chain; contractual arrangements between different actors; and farmer livelihoods.

Over the period 2015-2018, data was collected at firm, FO and farm-household level. An inception phase was implemented to ensure optimal design of the evaluation. This resulted in data collection at three levels. At firm level, we collect data from 10 supported and 18 unsupported firms on key characteristics, knowledge, practices and (export) performance. At FO level, we use data from 23 farmer organisations; 10 are linked to the supported firms. Finally, we use data from 791 avocado producers, of which 16% are members of supported FOs that are linked to supported firms. A difference-in-difference design was used, comparing changes over time between NTFIII supported market actors and a control group of non-supported actors.

Different data sources and types of analyses were used to build a strong counterfactual in order to identify the contribution of NTFIII. The counterfactual at SME level builds on a descriptive comparison among SMEs supported by ITC and comparable SMEs not supported by ITC. At FO level we compare FOs linked to supported SMEs to other FOs. At farmer level we statistically compare members of ITC-supported farmer organisations and other avocado farmers in the region. Combined these analyses build a strong counterfactual showing what would have happened without ITC support. Caveats do exist but are mitigated as far as possible by using information from different sources.

NTFIII-supported firms were quite similar in 2015 compared to our sample of non-supported firms. Owners of NTFIII firms are aged between 30 and 50, highly educated and almost half are women; similar for non-supported firms. The supported avocado companies are more established in terms of years of existence and have a higher share of Kenyan ownership. Virtually all sales from the SMEs in our sample are meant for export; for supported as well as non-supported firms. Total avocado exports were similar among supported and non-supported firms. Combined this implies the selected non-supported firms are a good sample for counterfactual analysis.

Overall, households of the four NTF-supported FO members and non-NTF-supported FOs were quite similar at baseline. Avocado farmers are generally men with an average age of 63; NTFIII farmers have a slightly higher level of education (9 years versus 8) and a lower share of women (8% versus 23%). In terms of membership of farmer organisations we see that 42% of the farmers in our comparison sample was member of a farmer group. Fuerte and Hass are the most popular varieties and make up for 95% of avocado income; without significant differences between groups.

Service delivery of TSIs increased to all SMEs during the NTFIII period; even more so for supported SMEs. The share of SMEs making use of services from the three largest TSIs has increased; supported SMEs are member of more TSIs. In 2018, all SMEs had employees and/or managers participating in TSI trainings related to avocado. Among different types of trainings offered by TSIs, companies make most use of technical trainings. The share of SMEs with managers and employees receiving training from TSIs on other crops is highest among non-supported SMEs. Half of the avocado companies has participated in B2B Matching Events and a majority of supported SMEs found one or more export partners. There are almost no differences between supported and non-supported SMEs.

SMEs indicate a contribution of TSIs to two out of five key business problems; quality and quantity of supply. SMEs are moderately satisfied with 3 out of 5 TSIs and neutral or dissatisfied with 2 out of 5 TSIs. SMEs identify restrictive laws, competition, access to credit and insufficient quantity and quality of supply as key business problems. About half of the firms perceive a contribution of TSIs to challenges related to quality and quantity of supply. No or a very limited contribution was perceived for the other areas.

Contribution of NTFIII is highest in relation to knowledge or practices related to marketing techniques, quality requirements and improved product quality. Supported SMEs perceive higher knowledge levels in almost all areas. Overall, firms indicate an increase in knowledge; this is stronger for supported SMEs in marketing techniques. Unlike perceived knowledge, both supported SMEs and non-supported SMEs have similar levels of business practices, ranging from good to very good. They perceived an improvement in most fields, in particular related to the fields of marketing techniques, quality requirements and efficient ways of organising the business. Supported SMEs see the use of marketing techniques, quality requirements and improved product quality as the main contribution of NTFIII to business knowledge and practices.

Networks of all firms increased, but export increased more for NTFIII-supported firms. Results show that upported SMEs do have more intensive contact with farmer groups than non-supported SMEs. Furthermore, half of the supported SMEs is taking part in another project besides NTFIII while none of the comparison firms are. During NTFIII, the majority of supported SMEs found one or more export partners; no differences between supported and non-supported firms. Between 2015 and 2017, total sales increased among supported SMEs, while non-supported SMEs saw their total sales decline. Over the same period, avocado exports increased among supported SMEs, while non-supported SMEs saw their avocado exports decline.

ITC contributed to establishment of contracts between ten FOs and SMEs; at the same time other farming groups also remain effective. As a result of NTFIII contracts were established between 10 SMEs and 10 FOs which did not have contracts before. The content of the contracts however did not become more complete since 2017 and is similar among supported FOs and comparison FOs. Between 2015 and 2018, the capacity of farmer organisations has grown most in the fields of marketing, participation and advocacy. The measured capacity of supported farmer organisations increased more than the capacity of non-supported farmer organisations. The increase in capacity is also evident from the strong increase in quality control systems in FOs. However, challenges related to quality remain. The average volume of avocado FOs sold has increased until 2016, after which it decreased again. Avocado prices increased in the period 2014-2017 for both supported and non-supported FOs.

Knowledge and adoption of good practices improved for all farmers, but awareness on internal control is higher for supported FO members. Improved farmer knowledge and practices is a key step in the impact pathway to improved avocado income. Knowledge on benefits of pruning, record keeping and factors affecting quality increased between 2014 and 2016 with only small differences between members of supported FOs and other FOs. Farmers in both groups prune more often, have more records and better identify factors affecting quality. Knowledge levels on internal controls increased significantly more among farmers of supported FOs and half of the farmers knows internal controls can lead to corrective action. The quantity of avocado rejected decreased and remains lower for supported farmers. Continued support to farmer organizations (by government or NGO's) is needed to ensure the sustainability of the NTFIII program activities.

Improvements in prices have resulted in higher income for all farmers, despite lower production. Improved yield and income are pathways to improved livelihoods. The quantity of avocado harvested and sold decreased among supported farmers and increased among non-supported farmers. However, because of strong price increases income from avocado increases among both non-supported and supported farmers, with no significant differences. Still, the perceptions on working conditions, stability of income and overall satisfaction are better among supported farmers. Avocado income is used mostly for buying food, while other major uses are education and health care. The share of food secure farmers significantly increased among both supported and non-supported farmers. Nevertheless, the share of severely food insecure farmers also increased.

Overall, ITC contributed to the Sustainable Development Goals by promoting export performance of the avocado sector. This research provides evidence to support ITC's intervention logic for improving export competitiveness. First, capacity building of TSIs contributed to improved service delivery to the sector, but more can be done to address the needs of SMEs. Second, the NTFIII programme contributed to improved knowledge, practices, network and export performance of SMEs. Third, the activities of the NTFIII programme helped to develop and strengthen the capacity of farmer groups to improve accountability and quality. At the same time many other farming groups also remain effective, showing that the additionality of NTF-III is perhaps limited. Finally, we see that livelihoods of both supported and non-supported avocado farmers have improved in terms of income, working conditions and food security, thereby contributing to SDG 1 and 2.

Background of the evaluation of NTFIII in Kenya

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Chapter 1 Background of the evaluation of NTFIII in Kenya

Evaluating the impact of the NTFIII project in the avocado sector in Kenya. Based on the evaluations for the earlier phases of the Netherlands Trust Fund (NTF) programme, the International Trade Center (ITC) saw the need for more robust and credible monitoring of outcomes and impact of their interventions. The PRIME-ITC research partnership was established in 2015 to develop and implement a methodology to monitor and evaluate the impact of two private-sector development support programmes. ITC linked up with PRIME to improve the design and implementation of a more impact-oriented, robust and credible monitoring and evaluation system in ITC.

PRIME-ITC responds to the need for credible impact estimates of private-sector support. PRIME stands for Pioneering Real-time Impact Monitoring and Evaluation and is a research partnership between Wageningen Economic Research and Erasmus School of Economics implemented. The programme was implemented between 2013 and 2018 together with two Dutch private sector support instruments who are implementing activities that are similar to the ones of ITC. This report presents the contribution of ITC to the export competitiveness of the avocado sector in Kenya.

The avocado is an important horticultural product on the Kenyan export market. Kenya ranks among the eight-largest producers of avocados in the world (with Mexico being the biggest); Europe is an important market for Kenya (FAO, 2017). Avocado accounts for an important share of Kenyan horticultural exports, estimated around 7% (HCDA, 2015). Avocado is thus an important horticultural product on the Kenyan export market.

Most avocados in Kenya are grown by smallholder farmers for the local market. Local varieties dominate Kenyan avocado production, constituting about 70% of total production, whereas Fuerte and Hass, the improved avocado varieties that are suitable for the export market, made up approximately 20% and 10%, respectively in 2015 (HCDA, 2015). In recent years an increased dedication to Hass and Fuerte have been observed. Most avocados in Kenya are grown by smallholder farmers (World Economic Forum).

Production and land size cultivated with avocado have been increasing recently, but export share is low The total estimated area in Kenya cultivated under avocado was about 10,305 ha in 2016 and 176045 tonnes of production The avocado sector faces strong fluctuations although over time it is clearly growing. Avocado area and production increased by almost 30% and 70%, respectively, from 2006 to 2016 (FAO, 2017).

Compared to other major avocado exporters, Kenya is only exporting a small share of its total production. Only about 14% of the total production in 2013 was exported, while South Africa and Chile export about 60% and 55% of their production, respectively.

The Kenyan avocado sector faces several challenges in increasing the export share of produce. While Kenya is one of the largest avocado exporters worldwide, the sector faces several challenges (FAO, 2017). These challenges are often attributed to poor quality and regulatory standards, weak institutional capacity of small-scale producers, and inadequate capacity and coordination of fruit export (ITC, 2017).

The Kenyan government has played a strong role in boosting the avocado export market. Given the importance of the avocado sector it is perhaps not surprising that the Kenyan government has invested strongly in the sector. It invested in lower-cost sea transportation by helping to cut the travel time from Nairobi to Mombasa and investing in the infrastructure needed to facilitate refrigerated container transport over sea (ITC, 2017).

Different sector organisations have been active in the Kenyan avocado sector to promote its export competitiveness. Export competitiveness is promoted by various sector organisations. The Horticulture Crops Directorate (HCD) has helped to promote, develop and market avocados as an export crop in Kenya. The Kenyan Export Promotion Council (EPC) has played a key role in preparing avocado exporting companies for the export market. Finally, the Fresh Produce Exporters Association of Kenya (FPEAK) has assisted in providing training and information to farmer groups on export requirements.

Various donor projects are active in the Kenyan avocado sector. Aside from the Kenyan government various donor programmes are active in the sector. First, the Micro Enterprise Support Programme Trust (MESPT), a DANIDA funded programme provided financial and business development services to improve the performance of avocado exporting enterprises. Second, PIP, an EU-funded fruit & vegetable programme aimed at increasing horticulture exports to Europe was implemented by the European civil society organisation COLEACP. Finally, the comprehensive NTFIII programme, funded by the Dutch government and implemented by the International Trade Sector, provided a range of activities aiming to enhance the export competitiveness of the sector.

Netherlands Trust Fund Export Sector Competitiveness Programme (NTFIII-ESCP) also became active in the avocado sector. The NTFIII programme is based on a collaboration between the International Trade Centre (ITC) and the Dutch Centre for Promotion of Exports from Developing Countries (CBI). The activities of NTFIII build on earlier programmes in which ITC and CBI collaborated: the Netherlands Trust Fund I (NTFI), which ended in 2009, and Netherlands Trust Fund II (NTFII), which lasted from 2009 to 2013. After NTFII, the NTFIII programme was implemented between August 2014 and July 2017.

Building employment in the Kenya avocado sector through export competitiveness. The NTFIII programme was designed to be an Export Sector Competitiveness Programme (ECSP). The objective of this ESCP was the enhancement of export competitiveness in four countries: Bangladesh, Kenya, Myanmar and Uganda. By increasing the export competitiveness NTFIII aims to create employment in these sectors. One of the sector projects under the NTFIII programme was the NTFIII Kenya Project aimed at enhancing the export competitiveness of the avocado sector. The project was budgeted at USD 1 million and was implemented together with sector organisations HCDA, EPC and FPEAK.

ITC contributed to activities at the level of TSIs, SMEs and farmer groups. To achieve this outcome, the NTFIII Kenya project implemented activities at different levels in the sector. At sector level, the NTFIII programme helped in updating and implementing the existing Avocado Commodity Business Plan. Moreover, it trained TSIs in upgrading their service portfolio and provided suggestions on how to better meet the needs of SMEs. At SME level, the programme trained companies in export promotion, marketing and market development. The programme also shared market information and intelligence and helped to develop an actionable marketing plan for each SME. Moreover, it trained SMEs in preparation skills for trade fairs, negotiating with potential buyers, and creating useful business linkages. Finally, the programme was active in supporting avocado farmer groups. This was done by helping to to transform existing groups of farmers into farmer organisations, strengthen existing groups, while training its farmers on farm management, production techniques, post-harvest handling and traceability and by preparing them for Global GAP certification. Finally, farmers were coached on how to access finance and linked to MFIs.

The structure of this report follows the key elements of the intervention logic for the NTFIII Kenya project. This report verifies whether the assumptions about the impact pathways of the NTFIII project hold in practice. Chapter 2 describes the theory of change, activities of the NTFIII project, and the methods used to verify the intervention logic. Chapter 3 introduces some of the major trends in the Kenyan avocado sector and describes its key players. Chapter 4 reports on the role of the NTFIII programme in strengthening service delivery of TSIs active in the sector. Chapter 5 describes the findings concerning the NTFIII contribution to SME knowledge, business practices, sales and export performance. Chapter 6 shows the contribution of the project to capacity building of farmer groups. Chapter 7 reports how the NTFIII activities translated into improvements in the livelihoods of avocado farmers. The conclusions and recommendations of this study are presented in Chapters 8 and 9.

Testing key assumptions using a multi-level mixed method design

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Chapter 2 Testing key assumptions using a multi-level mixed method design

2.1 Theory of Change

Selecting the right key assumptions to ensure relevance of research. Measuring impact in complex interventions, like export coaching and improving the enabling environment for SMEs is challenging. The 'treatment' is very diverse in context, content and intensity. The findings will therefore always be context-specific. However, we maximised the generalisation domain of the findings in order to make it useful to steer ITC support in other contexts by focusing on impact pathways that have potential to be replicated or scaled out.

Identify impact pathways to guide development of research questions. For the design of an impact evaluation this demands understanding of the dynamics in the intervention and the conditions that are expected to influence the effectiveness of the support: the intervention logic or theory of change (see Figure 2.1). Based on the project documents, we identified several outcome areas. Development impact (e.g. poverty) will result from changes in company performance. This performance is influenced by the technology, skills and knowledge in the persons working in or with the company. The support that ITC provides is especially targeted on this level of knowledge and skills, and the enabling environment for SME export practices. Thus the changes in knowledge and business practices are likely to be the outcomes which are directly attributable to ITC.

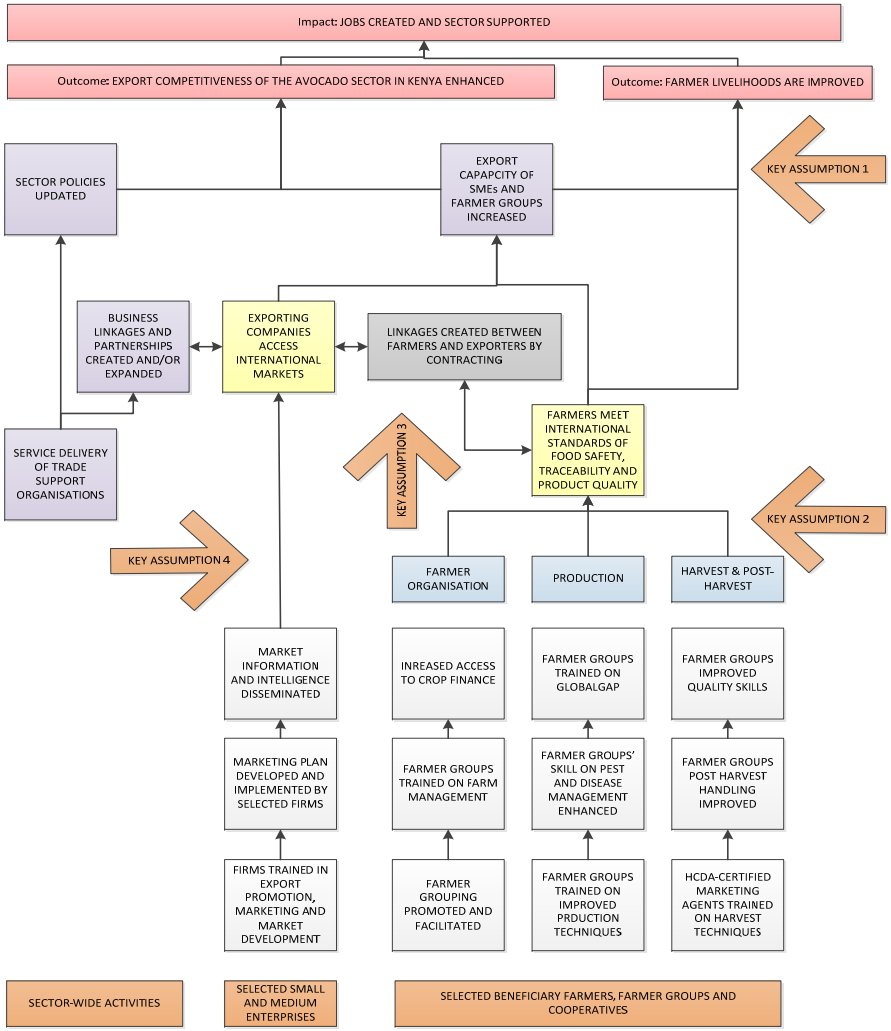

Figure 2.1 Adjusted Intervention Logic NTFIII Kenya (picture to the right)
Legend: Immediate outcomes (white boxes), intermediate outcomes (yellow boxes), ultimate outcomes (purple boxes), development impact (red boxes), key assumptions (orange arrows).

Four key assumptions were identified at different levels in the Theory of Change. The Theory of Change was developed based on project documents and refined after interviews with NTFIII staff in Geneva, and identifies four key assumptions: 1. Participation in the avocado export improves farmer livelihoods and job creation at the farm-household level; 2. The training and support activities to farm-household and FOs improve the agricultural practices of farm-households; 3. The support contributes to the establishment of new contractual arrangement between SMEs and farm-households; 4. The supported export companies increase their network and sales with international clients.

2.2 Research Questions

Five evaluation questions; each relates to one of the key assumptions underlying the projects' intervention logic. Below we list the five research questions related to the key assumptions identified in Section 2.1. The outcome areas that were measured to assess progress are underlined.

1. Does capacity building of and involving the TSIs in all activities lead to an improved service delivery to exporters and farmers and enhance their export capacity?
2. Does the support improve the network and sales of supported SMEs with international clients?
3. Do the training activities and new market relations improve food safety, traceability and product quality (practices) of supported farm-household and farmer groups?
4. Does the support improve (contractual) arrangements between supported SMEs and farmer groups or farmers?
5. Does participation in the avocado export sector improve livelihoods of supported farmers?

2.3 Data Collection

An inception phase was implemented to ensure optimal design of the evaluation. A preparatory desk study was conducted to focus on the dynamics in the sector and country, the strategies of the government and major donors in the sector and, based on telephone/Skype interviews with ITC-staff working in the sector, about the (expected) change process and activities in the sector. This lead to a refinement of the research design, especially the intervention logic, appropriate outcomes and indicators for monitoring SME-level impacts, and the way to collect information on the supported and non-supported SMEs.

Data was collected at SME, FO and farm-household level. The data analysed for this report include the ITC-monitoring questionnaire at SME level, an SME and FO survey implemented by Wageningen Economic Research and a farm-household survey implemented in partnership with PRESM.[1] Data collection was done at two moments in time: at baseline (late 2014, early 2015) and at end-line after project activities have ended (2017). It should be note that ITC support at SME level started before the baseline data was collected at the household level. Table 2.1 gives an overview of the data used for this report

Table 2.1 Overview Data Sources

Data Source	ITC supported	non-ITC supported	Total
SME			
SME ITC Baseline Data	12	0	12
SME Survey June 2017	10	18	28
SME Survey March 2018	10	10	20
Farmer Organisations (FOs)			
FO Survey April 2017	4	13	17
FO Survey March 2018	10	13	23
Farm Households			
HH Survey Nov-Dec 2015	125	664*	789
HH Survey Aug-Sep 2017	125	664*	789
*281 farmers live in village with members of ITC-supported FOs			

[1] PRESM stands for 'The Productive Employment in the Segmented Markets of Fresh Produce', coordinated by Partnership for Economic Policy (PEP). Household data was collected jointly as PRESM had similar data needs. This enabled PRIME-ITC to collected more data at household level strengthening the analysis.

We collect data from the 10 supported and 18 unsupported SMEs on key characteristics, knowledge, practices and (export) performance. Data was collected at SME level at various points in time. At baseline ITC collected data from the 12 selected SMEs; 2 dropped out of the programme. The 10 remaining firms were interviewed again in 2017 and 2018. To build a counterfactual, i.e. what would have happened to firms if they had not participated in the NTFIII programme, we also collected data from non-supported SMEs. The total number of firms exporting avocado is around 90 (information provided by ITC staff): from these we selected the most comparable firms - 18 in 2016 and 10 in 2018. The survey included questions on (changes in) key SME characteristics, knowledge, practices, (export) performance and the role of NTFIII.

We use data from 23 Farmer Organisation; 10 are linked to the supported SMEs. The dataset on Farmer Organisations (FOs) consist of 23 FOs from the Kandara sub-county in, Muranga County, Kenya. Most were founded in 2013 or later with a few exceptions. Ten out of 23 FOs were linked to supported SMEs. For the baseline we included the four farmer groups for which contracts with the SME was established at the time of collecting household level data. The remaining six were included in the data collection in 2018. The FO survey included questions on (changes in) key characteristics and the capacity performance index (CPI) to identify capacity strengths and weaknesses.

We use data from 791 avocado producers; 16% are member of supported FOs. A key component to the evaluation is a matched difference in difference design in a large sample of avocado farm-households that were supported by the SMEs with training on good agricultural practices in avocado cultivation and postharvest handling to meet the **export** requirements, and a comparable group of non-supported farm-households. To select an appropriate control region the team has worked closely together with the county official and prepared a list of comparable avocado producers. From this list the producers were selected randomly for the interviews. While almost 50% of the sample of 791 farmers live in a village where some producers work with the FOs that are matched to supported SMEs, only 15% of the farmers indicate they are a member.

2.4 Data Analysis

Impact evaluation requires a strong counterfactual design build on different data sources and types of analyses. The aim is to show ITC's contribution to export competitiveness and farmer livelihoods by verifying ITC's intervention logic in the avocado sector in Kenya. This requires a counterfactual: What would have happened if SMEs had not joined the NTFIII programme? We construct the counterfactual using a combination of data and approaches: 1) comparing data form supported to non-supported SMEs; 2) comparing data from supported to non-supported FOs; 3) comparing data from supported FO members to other FO members or non FO members).

The counterfactual at SME level builds on a descriptive comparison among SMEs supported by ITC and comparable SMEs not supported by ITC. The selection of the SMEs that receive support in the programme was done purposefully; based on export potential and ability and motivation to participate in the programme. Therefore, we expect the selection bias to be quite big. To facilitate counterfactual thinking, we used data from unsupported SMEs as well. We investigate how supported and non-supported SMEs differ and provide descriptive data on differences in performance. Gaining insight into these differences will help us reflect on the contribution of ITC NTFIII at farm-household level. The comparison will be useful to assess dynamics in the avocado sector and the contribution of avocado export promotion activities to SME strategies.

The counterfactual at FO level builds on a descriptive comparison among FOs supported by ITC and comparable SMEs not supported by ITC. To assess the quality of the (contractual) arrangements between SMEs, farmer groups and farmers, we used descriptive analysis of the farmer group tool (in addition to the household survey).

The counterfactual at household farm level builds on a statistical comparison among members of ITC-supported farmers and other avocado farmers in the region. To provide insights into the situation of avocado farmers and the changes during NTFIII we use simple descriptive data. First, we analyse the current situation of avocado farmers who are member of the ITC-supported FOs in our sample and compare it to the

situation in 2015. Second, we compare the change among members of ITC-supported FOs over time to the change among other avocado farmers in the same region.

Identifying other influencing factors using advanced statistical models. We analyse the extent to which the differences between ITC-supported farmers and non-supported ITC farmers can be attributed to membership of ITC-supported FOs. We do this using econometric models including a set of a set of personal, household and farm characteristics. This helps to build the counterfactual in combination with data at SME and FO level to explain observed differences, or lack thereof. At the same time, these analyses also give us insight into other influencing factors on indicators of interest. While this is not the main aim of this study we report on this for some key indicators.

This evaluation assesses the contribution of the NTFIII project on the outcome indicators related to various Sustainable Development Goals (SDGs). This evaluation assesses the contribution of the NTFIII project on the outcome indicators related to following SDGs: no poverty (SDG1), gender equality (SDG5), decent work and economic growth (SDG8) and industry, innovation, and infrastructure (SDG9). Table 2.2 summarises the match between the outcome indicators that are used in the study and SDG areas they correspond to.

Table 2.2 Outcome indicators and corresponding SDG areas.

Outcome areas	SDG area(s)
Business knowledge, practice and performance: Contribution of ITC on knowledge and practices in various areas of doing business.	SDG8 SDG9
The growth in permanent (female) employment, and temporary (female) employment.	SDG5, SDG10
Improvement in livelihoods of avocado farmers	SDG1, SDG2
Improvement in capacity of Farmer Organisations and services delivery of TSIs	SDG9

Validation workshop to verify result from analysis. In June 2017, the preliminary results of this study were shared and validated during the final closure meeting of the programme with a broad range of avocado stakeholders in Nairobi, Kenya. These discussions were used to further interpret and validate findings.

Cavaets do exist in building the counterfactual but are mitigated as far as possible by using information from different sources. There are four key caveats for this research. First, the choice for a strategy to identify a good counterfactual depended on the availability of a pool of (comparable) non-supported SMEs, FOs and households. This was a challenge because the number of comparable SMEs and FOs is limited. Second, at baseline perceived uncertainty on project implementation on the ground made us decide to focus the effort of the FO and household survey on those for which contracts were already established. In practice this means we do not have baseline data for six supported FOs and only data at household level for four supported FOs. We reflect on this in the conclusions in terms of representativeness. Third, the analysis at household level relies on the assumption that they are similar in terms of unobserved characteristics such as motivation to innovate. An empirical test of this assumption is not possible. Therefore, we support our findings by using information from other sources. Fourth, given the timing of the evaluation it should be taken into account the observed changes, and contribution of ITC to these changes, focuses on short- and medium-term effects. Longer-term impacts and sustainability of impact cannot yet be observed. In the conclusion we discuss this in more detail.

Overview of the Kenyan avocado sector

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Chapter 3 Overview of the Kenyan avocado sector

The Kenyan avocado sector is growing, but faces different challenges in increasing its export share, which have been the focus of the NTFIII program . This chapter provides insights into these and other key trends in the Kenyan avocado sector (section 3.1), followed by a detailed description of some of the key players in the sector: the avocado export companies (section 3.2), farmer organizations (section 3.3) and the avocado traders (section 3.4).

3.1 Trends and performance in the sector in Kenya

The avocado has become an important horticultural product on the Kenyan export market. The fruit accounts for more than 7% of Kenyan horticultural exports (HCDA, 2015). Kenya is the third-largest producer of avocados in the world (behind Mexico and Peru) and ranks sixth-largest among avocado exporters to Europe globally, with a 5-6% share of volume in 2010 (FAO, 2014). This means avocado is an important horticultural product on the Kenyan export market.

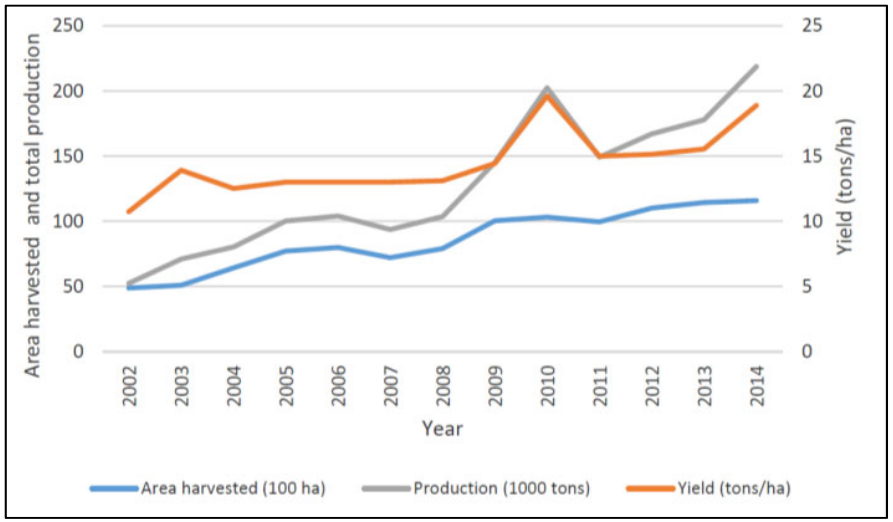
Most avocados in Kenya are grown by smallholder farmers, for the local market. Local varieties dominate Kenyan avocado production, constituting about 70% of total production, whereas Fuerte and Hass, the improved avocado varieties that are suitable for the export market, make up approximately 20% and 10%, respectively (HCDA, 2015).

Hass and Fuerte, the two major export varieties grown in Kenya, show important differences. The Hass variety is characterised by a dark-green and brown skin that is not thick at maturity and that is easy to remove from the pulp. It is vigorous and highly productive, with an oil content of 20%. The Fuerte variety is characterised by a smooth, green, skin of medium thickness. It has a large seed and a buttery pulp and is referred to as a 'green skin'. It has an oil content of 16%–18% (Saenger et al., 2013).

Hass avocados receive a better price on the export market. Due to its beneficial qualities, Hass avocados receive a better price on the export market This can be attributed to the Hass variety's higher resistance to pests and diseases, higher oil content, and ability to conceal bruises. Farmers are therefore shifting their production increasingly away from the Fuerte towards the Hass variety.

Production and land size cultivated with avocado have been increasing. Both total production and total land size cultivated with avocado have been increasing between 2002 and 2014. In 2017, the total area in Kenya cultivated under avocado was about 11,000 ha. Avocado area and production increased by 41% and 118%, respectively, from 2005 to 2014 (FAO, 2017).

Figure 3.1 Avocado area harvested, production and yield (FAO, 2017; HCDA, 2015)

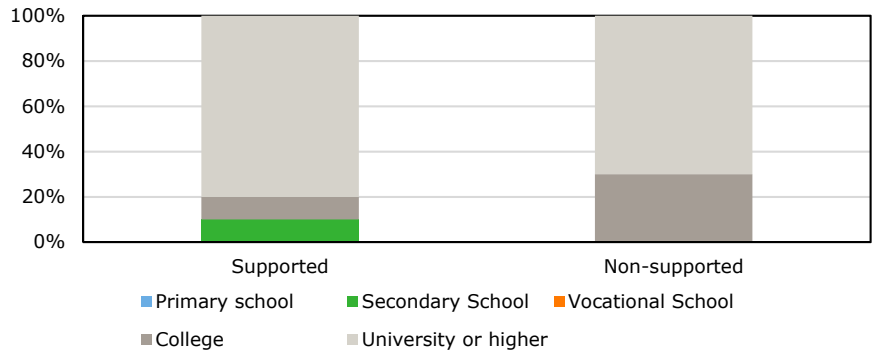


The Kenyan avocado sector faces several challenges in increasing the export share of produce. Compared to other major avocado exporters, Kenya is only exporting a small share of its total production. Only about 14% of the total production was exported in 2013, while South Africa and Chile export about 60% and 55% of their production, respectively. While no recent data exist to show current portion exported, the recent ban on avocado export early 2018 has been linked to shortages in the sector. By now, the ban has been lifted again. The Kenyan avocado sector faces several challenges in increasing the export share of produce. These challenges are often attributed to poor quality and regulatory standards, weak institutional capacity of small-scale producers, and inadequate capacity and coordination of fruit export.

3.2 Export companies

Characteristics of the business owners, company characteristics and performance gives insight into NTFIII-supported firms. Key characteristics of the business owners of these firms covered are age, education and gender. After that, an overview is given of company characteristics such as age of the company, amount of employees, foreign ownership and export orientation. Finally, we show production and export figures for the companies that have been interviewed. Key characteristics are presented for both SMEs supported by the NTFIII programme as well as for those avocado companies that were not supported by the programme.

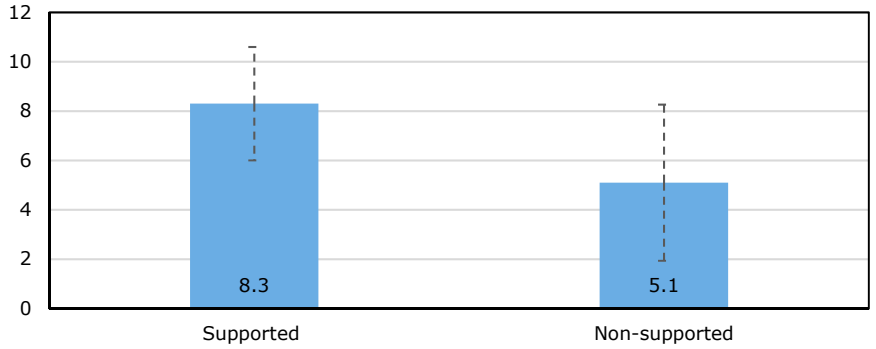
Figure 3.2 Education of business owner (2017)



Owners of NTFIII firms are aged between 30 and 50, highly educated and almost half are women; similar for non-supported firms. The youngest business owner in our sample is 30 and the oldest business owner is 50 years old. The age of business owners is quite similar between supported and non-supported SMEs: while the average age of the business owner is 37.3 among supported SMEs, this is 37.9 among non-supported SMEs. The percentage of owners that enjoyed a university degree is more than 70% for both supported and non-supported SMEs (see figure 3.2) The share of female owners in 2017 was 4 out of 10 among the supported SMEs and 6 out of 10 among the non-supported SMEs. Education and share of female ownership are also quite similar among supported and non-supported firms.

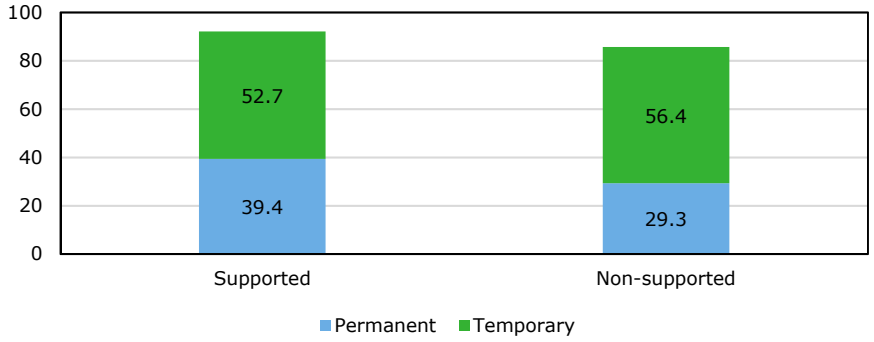
The supported avocado companies are more established in terms of years of existence and higher share of Kenyan ownership. With an average of 8.3 years, the supported SMEs are significantly older than the non-supported SMEs, which are on average 5.1 years old. Ages of avocado companies range between 1 and 16 years, with an average of 6.7 years. Two companies among the non-supported SMEs are 100% foreign owned, while among the supported SMEs only one company is partly (60%) foreign owned. This means share of foreign ownership is slightly larger among non-supported SMEs.

Figure 3.3 Age of company (2017)



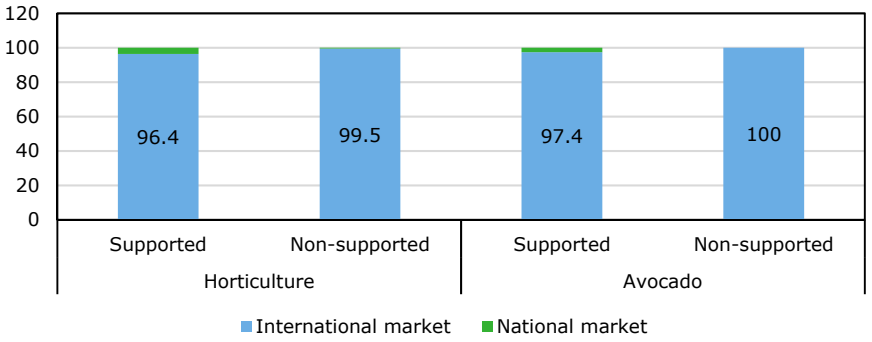
On average, supported avocado firms have higher share of permanent employees. On average, avocado exporting companies have 88.9 employees, of which 34.4 employees are permanent and 54.6 are temporary. The share of permanent employees is slightly higher among the supported SMEs (43%) compared to the non-supported SMEs (34%).

Figure 3.4 Number of permanent and temporary employees (2016)



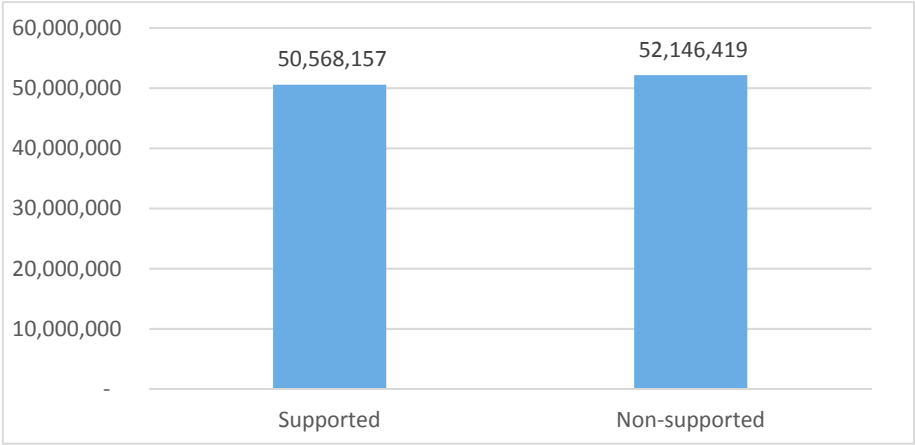
Virtually all sales from the SMEs in our sample are meant for export. The share of sales for the national market is slightly higher among the supported SMEs compared to the non-supported SMEs. The share of total horticultural products for export is 99.5% among non-supported SMEs and 96.4% among supported SMEs. A similar pattern is visible for the avocado exports: among non-supported SMEs 100% of avocados are for export, while among supported SMEs the share for export is 97.4%. These data show that virtually all sales from the SMEs in our sample are meant for export.

Figure 3.5 Share of total sales for export (2017)



Total avocado exports were on average 51,4 million Kenyan Shilling in 2016 and similar among supported and non-supported firms. There was little difference in avocado exports between supported and non-supported SMEs in 2016. While the sales from total avocado exports of supported SMEs were 50,6 million Kenyan Shilling on average, the average sales from avocados among non-supported SMEs were slightly higher with 52.1 million Kenyan Shilling

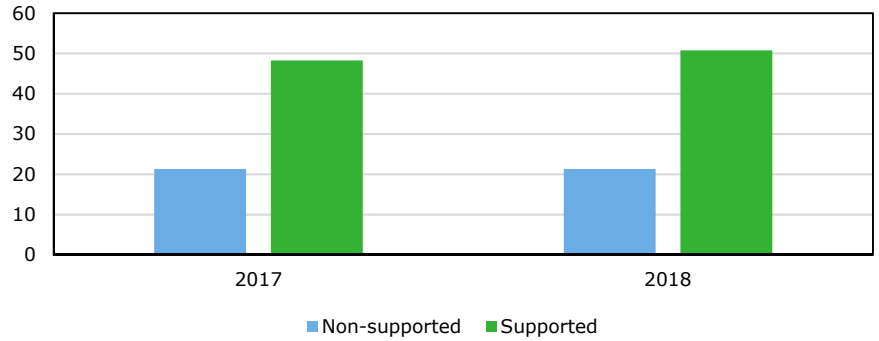
Figure 3.6 Sales from avocado export (2016, in Kenyan Shilling, converted from USD using average exchange rate of 2016)



3.3 Farmer organizations

Farmer organisations supported by the NTFIII programme have more members on average but a lower share of females. Farmer organisations supported by the NTFIII programme have significantly more members than non-supported farmer organisations; more than double in all years. Among both supported and non-supported farmer organisations the number of members per organisation is similar for 2017 and 2018. The share of female membership in 2018 is 25% for NTFII-supported FOs versus 41% for other FOs; a significant difference.

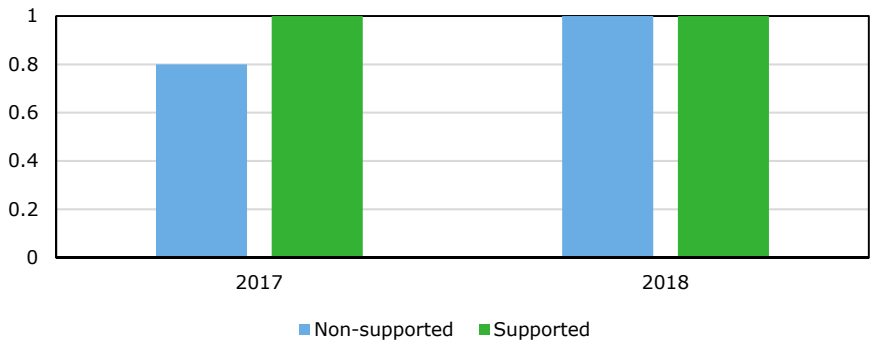
Figure 3.7 Number of members per farmer organisation[2]



All FOs have a contract with a private company and spent between 40% and 60% of profits on management. All supported FOs have a contract farming arrangement in place. Other farmer groups have also obtained contract farming over the last years. Farmer organisations spend a similar share of their profits on coordinating and managing the farmer organisation. This share is between 40 and 60% of the profits made by the farmer organisation and is slightly larger among supported FOs compared to non-supported FOs.

[2] The 2018 data refers to data collected in March 2018

Figure 3.8 Share of farmer organisations that have a contract farming arrangement with a private company



3.4 Avocado farmers

Overall, households of the four NTF-supported FO members and non-NTF-supported FOs were quite similar at baseline. Table 3.1 on the next page gives an overview of the characteristics of households at baseline household head characteristics, household characteristics, importance avocado, village characteristics. Households that are member of NTFIII-supported FOs are on average more often male led, have slightly higher level of education and smaller land size. However, across the board it can be said that households were quite similar at baseline; no statistical differences are found in 5 out of 12 of the characteristics. This is not surprising because sampling was done with the purpose of creating a good control group from the start. This is also confirmed by the PSM analysis.

Avocado farmers are generally older men; NTFIII farmers have slightly higher level of education and lower share of women. On average the avocado farmers who are member of NTF-supported FOs in both years are 62 years old; only 16% of farmers are younger than 50. This is similar for other avocado farmers in our sample. Significant differences are observed in terms of

share of man; which is higher among members of supported FOs (92% man versus 72%) and education (9.10 years versus 8.16).

42% of farmers in our comparison sample was member of a farmer group. The average household size of the farm households who are members of NTFII-supported FOs is 3.4. The farmers have lived in the village for more than 23 years. Household size and years in the village is similar for the other farmers in our sample. However, total land size is significantly smaller with an average of 1.68 ha versus 2.22 ha. Forty-two per cent of the farmers in the non-NTF sample were member of a farmer organisation in 2014.

Fuerte and Hass make up for 95% of avocado income; without significant differences between groups. Farmers in our sample rely almost fully on Hass and Fuerte varieties with an average income of 23350. For non-NTF-supported farmers income is almost 20% higher, but the differences is not statistically significant

Table 3.1 Comparing NTFIII households to non-NTFIII households

Baseline data in 2014	Member of NTFIII FOs (n=125)	Not member of NTFIII (n=664)	Difference	T-test
hh head characteristics				
age	61.60	63.72	2.13	
sex	0.92	0.77	-0.16	***
education	9.10	8.16	-0.93	**
household characteristics				
household size	3.45	3.63	0.18	
total owned land (acre)	1.68	2.22	0.54	**
year in the village	23.81	24.62	0.81	
member of an FO in 2014	1.00	0.42	-0.58	***
importance avocado				
income % hass + fuerte	0.95	0.95	0.00	
avocado income (KSH)	23350	27947	4597	
village characteristics				
distance nearest road	0.84	0.61	-0.24	**
distance collection centre	0.72	0.86	0.13	

Strenghtening service delivery of TSIs

4

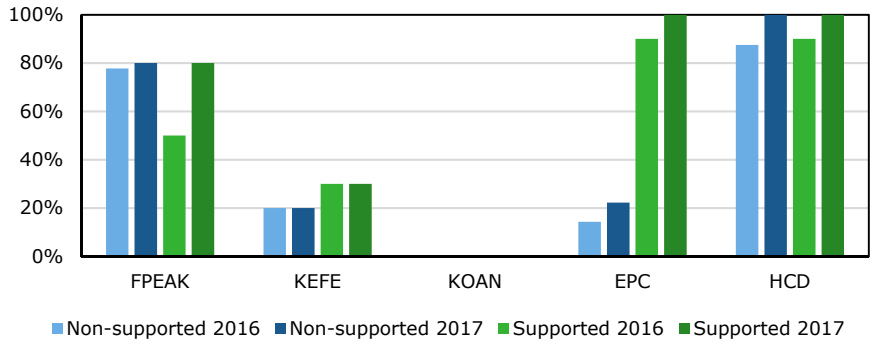
Chapter 4 Strengthening service delivery of TSIs

ITC aims to strengthen service delivery of Trade Support Institutions (TSIs) through capacity building and improved use of services. NTFIII has implemented activities at the level of TSIs to improve service delivery. ITC supported three TSIs active in the Kenyan avocado sector: HCD, EPC, FPEAK[3]. To achieve this, ITC trained TSIs in upgrading their service portfolio and provided suggestions on how to better meet the needs of SMEs. In this chapter we present overall sector trends and performance, and whether ITC support contributed to improved services delivery in the sector.

4.1 Use of TSIs services

The share of SMEs making use of services from the three ITC-supported TSIs has increased. The share of SMEs making use of services from the three ITC-supported TSIs (FPEAK, EPC and HCD) has grown during the NTFIII programme. This development, shown in Figure 4.1, can be witnessed among both supported and non-supported SMEs. For some TSIs (EPC, KEFE) the share of SMEs using their services is higher among supported SMEs than non-supported SMEs. Finally, the share of supported SMEs making use of services from non-supported TSIs (KEFE, KOAN) is significantly lower than the share of supported SMEs making use of services from supported TSIs.

Figure 4.1 Share of SMEs making use of services from TSIs



Supported SMEs are member of more TSIs. On average, supported SMEs are member of more different TSIs than non-supported SMEs. Moreover, while the share of non-supported SMEs that was member of a certain TSI remained stable or decreased between 2017 and 2018, the share of supported SMEs that was member of a TSI remained stable or increased over the same period. Both supported and non-supported SMEs indicate that the majority of services provided by TSIs consists of trainings, with a smaller share of services offered through providing market information, supporting networks or certification.

[3] HCD = Horticultural Crops Directorate, EPC = Export Promotion Council, FPEAK = Fresh Produce Exporters Association of Kenya. KEFE=Kenya Association of Small & Medium Scale Fruits and Vegetables Exporters, KOAN=Kenya Organic Agriculture Network.

Figure 4.2 Share of SMEs that is member of different TSIs[4]

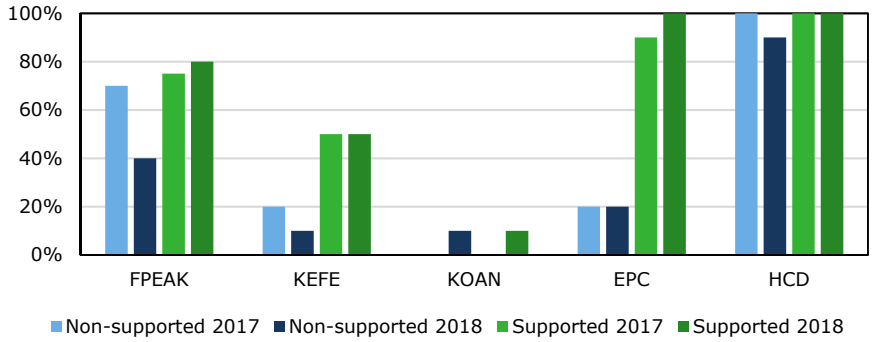
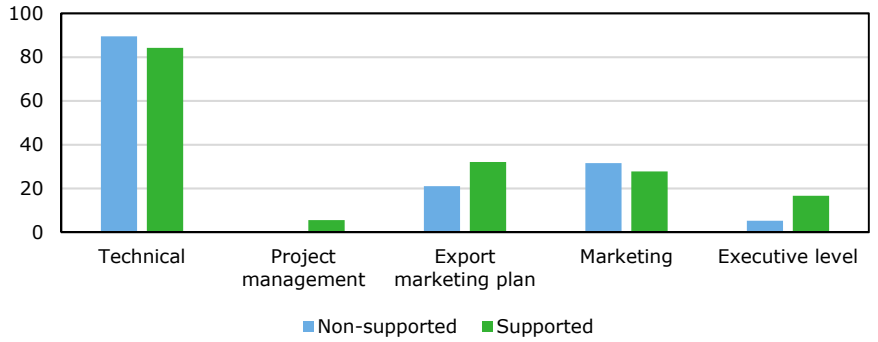


Figure 4.3 Share of SMEs using different type of TSI trainings (2017)



In 2018, all SMEs had employees and/or managers participating in TSI trainings related to avocados. In 2017, all supported SMEs had employees and/or managers participating in SME trainings related to avocados. Among the non-supported SMEs there was only one company that did not have any employees/mangers in avocado-related TSI trainings.

The share of SMEs with managers and employees receiving training from TSIs on other crops is higher among non-supported SMEs. While the share of SMEs with managers or employees that received training on other crops was 90% for non-supported SMEs in both '15/'16 and '16/'17. For supported SMEs, this share was 70% in '15/'16 and 50% in '16/'17.

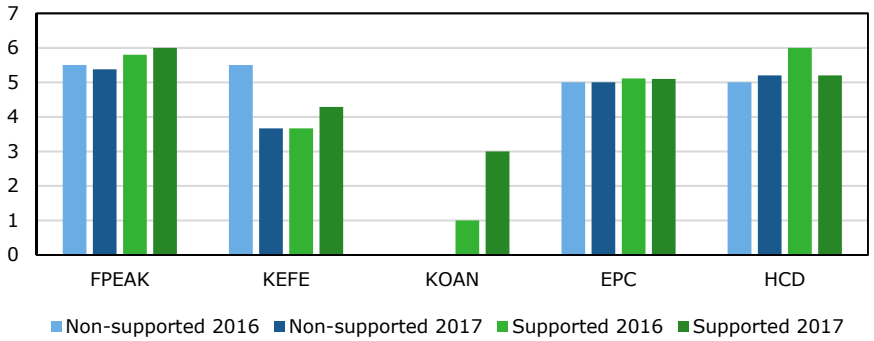
Among different types of trainings offered by TSIs, companies make most use of technical trainings. While the majority of SMEs make use of technical trainings, only a minority of SMEs is making use of trainings focused on export marketing plans. Trainings offered by TSIs on project management are only followed by a very small percentage of supported SMEs.

4.2 Satisfaction with TSI's services

SMEs are moderately satisfied with 3 out of 5 TSIs and neutral or dissatisfied with 2 out of 5 TSIs. The ITC-supported TSIs (FPEAK, EPC and HCD) have scores ranging between 5 (somewhat satisfied) and 6 (satisfied). For these TSIs, satisfaction levels are quite similar between supported and non-supported SMEs, although FPEAK- and HCD-supported SMEs are a little more satisfied than non-supported SMEs. The level of satisfaction for KEFE is relatively neutral, ranging between 3 (somewhat dissatisfied) and 6 (satisfied). SMEs are generally dissatisfied with KOAN, with satisfaction rates ranging between 1 (very dissatisfied) and 3 (somewhat dissatisfied).

[4] The 2018 data refers to data collected in March 2018

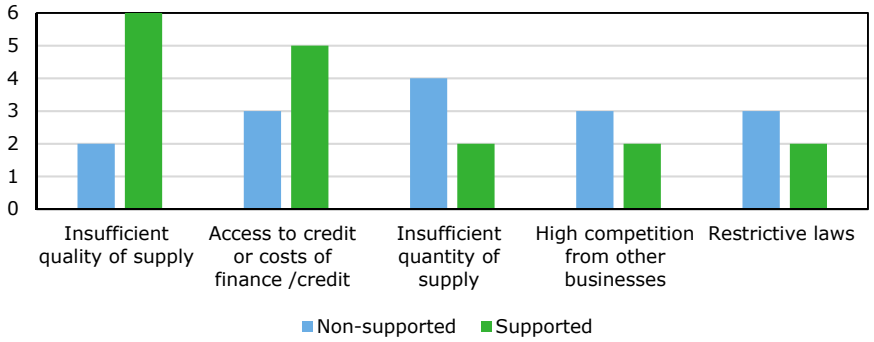
Figure 4.4 Satisfaction SMEs with support TSIs (Scale 1–7, see below)



Note: 1= Very dissatisfied; 2=Dissatisfied; 3=Somewhat Dissatisfied; 4=Neutral; 5=Somewhat Satisfied; 6=Satisfied; 7=Very Satisfied

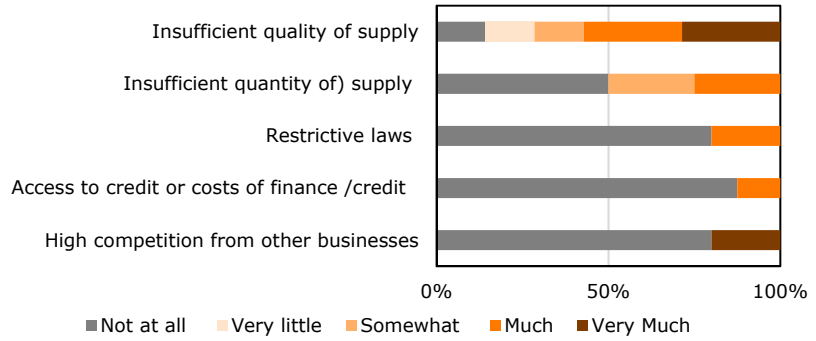
SMEs identify restrictive laws, competition, access to credit and insufficient quantity and quality of supply as key business problems. For supported SMEs, access to credit and insufficient quality of supply are considered most critical, whereas among non-supported SMEs insufficient quantity of supply, high competition and restrictive laws are seen as more urgent business problems.

Figure 4.5 Top 5 most critical business problem as indicated by SMEs



About half of firms perceive a contribution of TSIs to challenges related to quality and quantity of supply. For three out of the five critical business problems identified by SMEs (access to credit, restrictive laws and high competition from other businesses) at least 80% of SMEs indicate ITC or TSIs did not contribute to addressing the issue. For the remaining two issues of insufficient quality and quantity of supply, which are closer to the ITC activities, over 50% of respondents indicated they had seen a contribution of ITC to addressing these critical business problems.

Figure 4.6 Degree to which ITC/TSIs contributed to addressing the 5 most critical business problems as indicated by SMEs



Improving networks and exports of SMEs

5

Chapter 5 Improving networks and exports of SMEs

ITC aims to strengthen networks and exports of SMEs though capacity building and business linkages. The programme trained companies in export promotion, marketing and market development, shared useful market information and helped to develop an actionable marketing plan for each SME. Moreover, it trained SMEs in preparation skills for trade fairs, negotiating with buyers and creating business linkages. In this chapter we present the findings related to changes in SME knowledge, practices, networks, sales and exports. However, we start by presenting an overview of the SMEs in our sample.

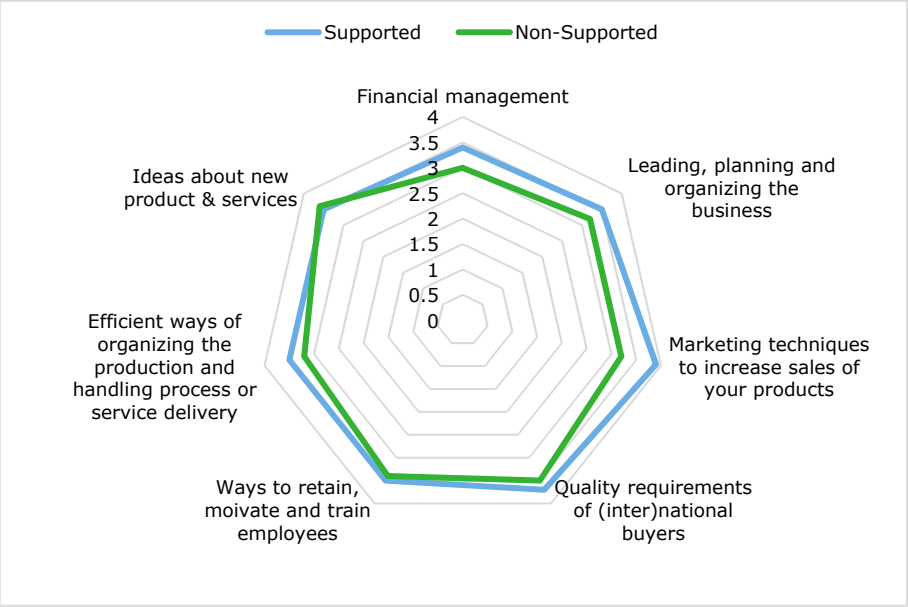
5.1 Change in knowledge of SMEs

Supported SMEs perceive higher knowledge levels for almost all areas. The knowledge levels of supported SMEs are higher than those of non-supported SMEs in almost all knowledge areas. These higher knowledge levels are most visible for the knowledge areas financial management and marketing technique and less visible in the knowledge areas around quality requirements of buyers and ways to retain, motivate and train employees. For the knowledge around ideas for new products & services the knowledge levels of non-supported SMEs seem to be slightly higher than those of supported SMEs.

Overall increase in knowledge for all, stronger for supported SMEs in marketing techniques. Both supported and non-supported SMEs witnessed positive changes in knowledge levels. On a scale of 1 (strong decrease) to 5 (strong increase), the lowest increase was 3.6 related to financial management for both firms. For some knowledge areas, the increase in knowledge is larger for supported than non-supported SMEs, especially for marketing techniques (4.1 versus 3.7). For other knowledge areas, a larger change is perceived among non-supported SMEs than among supported SMEs, such as quality requirements of buyers (3.6 versus 3.9) and knowledge around leading, planning and organising the business (3.7 versus 4).

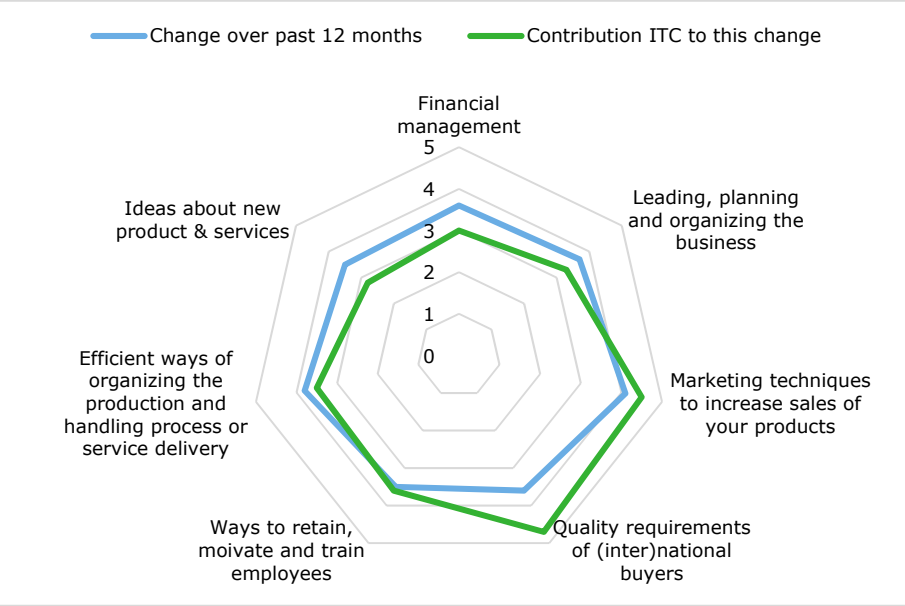
[5] The 2018 data refers to data collected in March 2018

Figure 5.1 Knowledge level of supported & non-supported SMEs (2018)
Scale: 1=Poor; 2=Fair; 3=Good; 4=Very good[5]



Supported SMEs see the largest contribution of ITC to SME knowledge in marketing techniques and quality requirements of buyers. Especially in the field of marketing techniques to increase sales of avocados, firms indicate a strong contribution of ITC. Supported SMEs see less of a contribution from ITC to knowledge levels in the areas of financial management, ideas about new products & services and knowledge levels regarding leading, planning and organising the business.

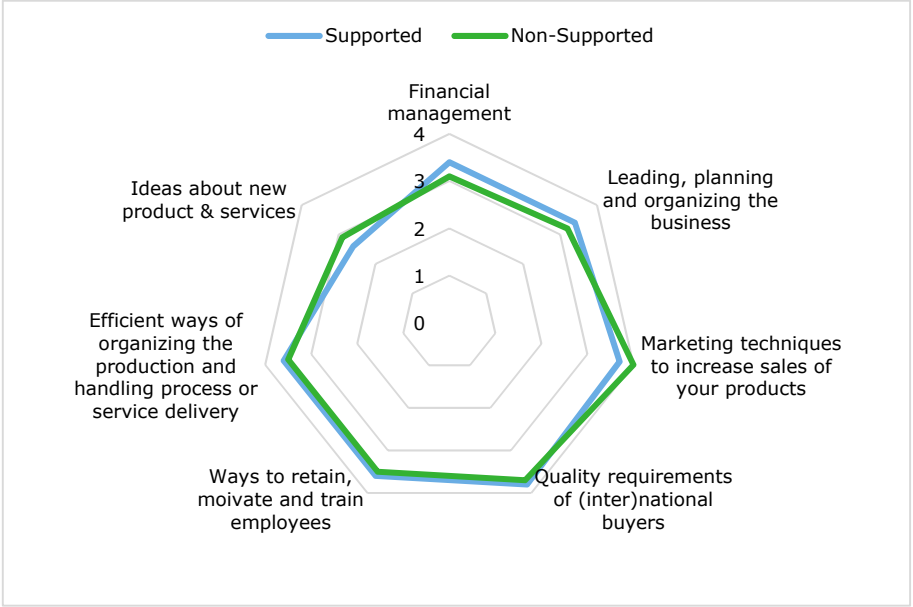
Figure 5.2 Change in knowledge levels among supported SMEs over the past 12 months; ITC contribution to this change in knowledge (2018)[6]
Scale for change in knowledge levels: 1=Strong Decrease; 2=Decrease; 3=No change; 4=Increase; 5=Strong Increase. Scale for ITC contribution: 1=Not at all; 2=Very Little; 3=Somewhat; 4=Much; 5=Very Much.



5.2 Change in practices of SMEs

Both supported SMEs and non-supported SMEs have similar levels of business practices, ranging from good to very good. Practice levels are slightly higher among supported SMEs in the areas of financial management and leading, planning and organising the business. Non-supported SMEs have a relatively higher performance in ideas about new products and services as well as marketing techniques to increase sales of avocados.

Figure 5.3 Practice level of supported & non-supported SMEs (2018)
Scale: 1=Poor; 2=Fair; 3=Good; 4=Very good

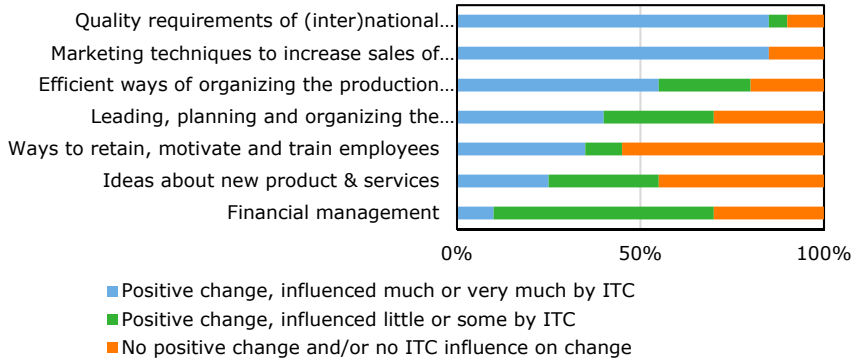


Business practices have improved most in the fields of marketing techniques, quality requirements and efficient ways of organising the business. All firms indicate an improvement in practices; differences between supported and other firms are either absent or quite small (maximum 0.2 point difference on a scale of 1 to 5). The largest differences perceived are related to fields of marketing techniques (4.3 and 4.1), quality requirements (4.2 for both) and efficient ways of organising the business (4.1 and 4.2). Supported SMEs witnessed slightly larger changes in the fields of financial management, ideas about new products & services and efficient ways of organising the production. Non-supported SMEs witnessed relatively larger changes in marketing techniques, ways to retain, motivate and training employees and practices around leading, planning and organising the business

[6] The 2018 data in figure 5.2 and 5.3 refers to data collected in March 2018

Improved marketing techniques and product quality are seen as the main contribution of ITC to business practices. Supported SMEs see the use of marketing techniques and improved product quality as the main contribution of ITC to business practices. These areas of business practices are the same fields where supported SMEs witnessed a major positive change in practice levels. Supported SMEs see less of a contribution from ITC to practice levels in the areas of financial management, ideas about new products & services and knowledge levels regarding ways to retain, motivate and train employees.

Figure 5.4 Perceived NTFIII contribution to change in practices among supported SMEs (2018)[7]

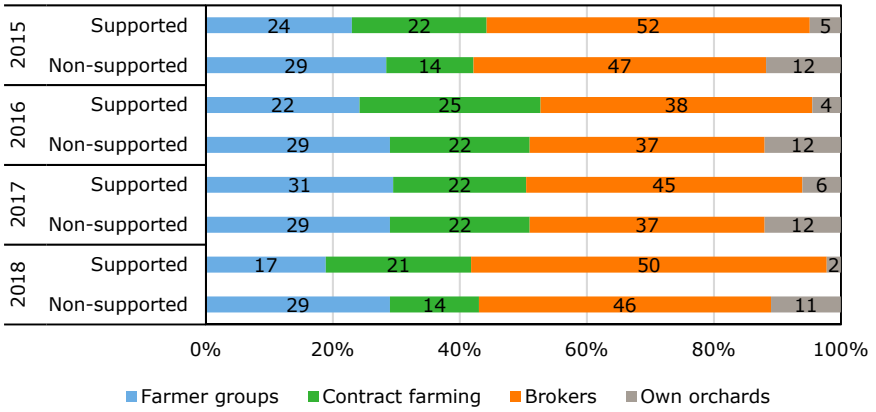


5.3 Change in network SMEs

Changes in supplier network show limited changes in broker dependence. In the period between 2015 and 2018, the share of avocados acquired through brokers or middlemen has been consistently around 40-50% . The NTFIII programme worked with supported SMEs and brought them together with farmer organisations under a contract However, SMEs keep the freedom to also buy avocados from other farms and other indirect ways.

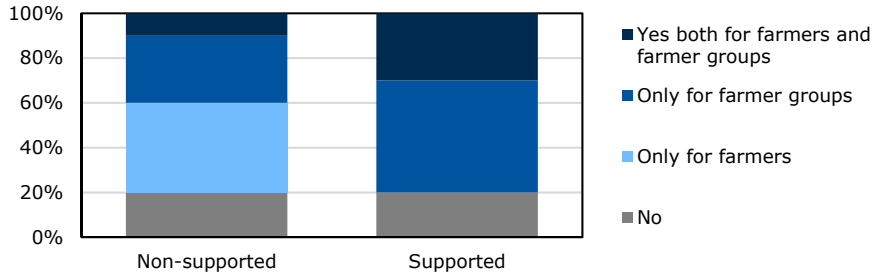
[7] The 2018 data in figure 5.4 and 5.5 refers to data collected in March 2018

Figure 5.5 Change in share of suppliers from different groups (2016-2018)



Supported SMEs have more intensive contact with farmer groups than non-supported SMEs. While among supported SMEs 80% of the companies is organising activities for farmer groups, this share is only 40% among non-supported SMEs.

Figure 5.6 Share of SMEs organising activities for farmers/farmer groups



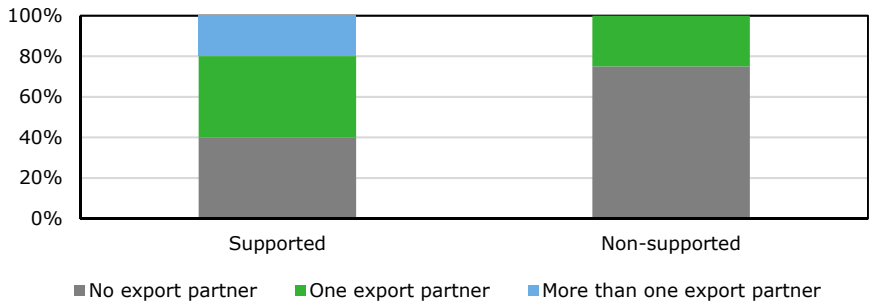
Half of the supported SMEs is taking part in another project besides NTFIII. Three other projects are mentioned by these supported SMEs. First, the Micro Enterprise Support Programme Trust (MESPT), a DANIDA-funded programme providing financial and business development services to improve

the performance of enterprises. Second, PIP, a fruit & vegetable programme aimed at increasing horticulture exports to Europe, implemented by the European civil society organisation COLEACP and funded by the European Union. Finally, the support of a start-up company called Fromtu is mentioned, which used to be a venture by the transport and logistics company A.P. Moller – Maersk, with the mission to develop digital B2B marketplaces in Africa.

The comparison firms in our sample did not participate in any support programme. Among the non-supported SMEs, none of the companies is indicating to be involved in other projects next to the NTFIII programme. This could indicate that the NTFIII support might have served as a gateway project, linking SMEs in the avocado sector to other projects and support opportunities, which were less easily accessible to non-supported SMEs.

A majority of supported SMEs found one or more export partners; no differences between supported and non-supported. From all supported SMEs, 60% found at least one export partner through the B2B Matching Events. From these supported SMEs, 20% found more than one export partner this way. Among the non-supported SMEs, a quarter of all companies found one export partner through participation in B2B Matching Events.

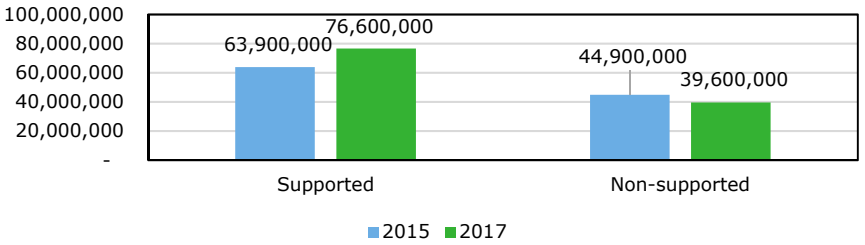
Figure 5.7 Share of SMEs that found an export partner through participation in B2B Matching Events during 2017



5.4 Changes in sales/export SMEs

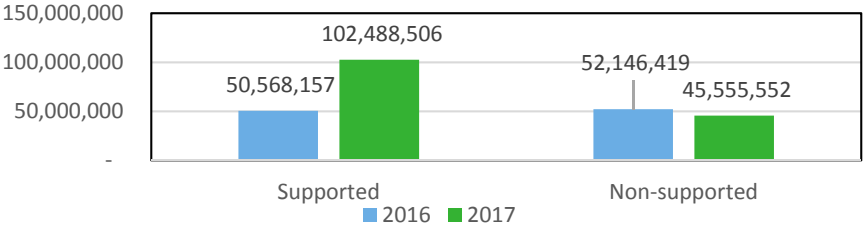
Between 2015 and 2017, total sales increased among supported SMEs, while non-supported SMEs saw their total sales decline. Sales from supported SMEs increased from KSH 63.9 million in 2015 to KSH 76,6 million in 2017, while sales of non-supported SMEs dropped from KSH 44.9 million in 2015 to KSH 39.6 million in 2017.

Figure 5.8 Average total sales (in KSH) per firm



Over the same period, avocado exports increased among supported SMEs, while non-supported SMEs saw their avocado exports decline. Exports from supported SMEs increased from KSH 50.6 million to KSH 52.1 million. Over the same period, total exports of non-supported SMEs declined from KSH 103.5 million to KSH 45.6 million. In 2017, there was a significant difference between exports from supported and non-supported SMEs.

Figure 5.9 Average avocado exports (in KSH) converted from USD using average exchange rate of 2016 and 2017)




Capacity building
of farmer groups
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Avocado
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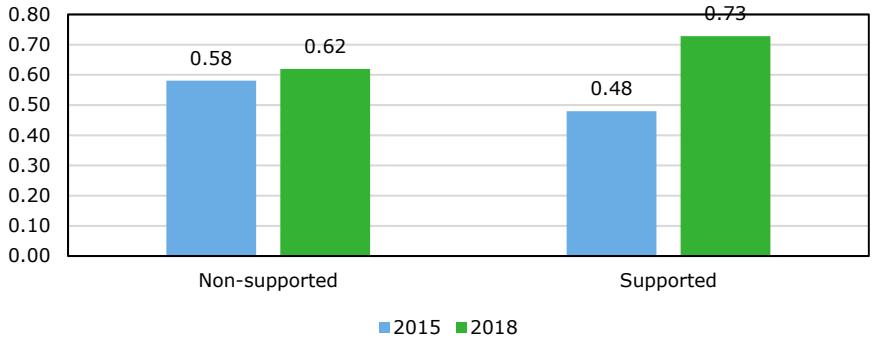
Chapter 6 Capacity building of farmer groups

ITC aims to build capacity of farmer organisations by strengthening farmer group management and preparing groups for certification. The NTFIII programme has been both active in helping to transform existing groups of farmers into farmer organisations and strengthening these farmer groups through management skills training and preparing farmer groups for the Kenya Global GAP certification. Farmers of supported farmer groups were trained in farm management, production techniques, post-harvest handling and traceability. In this chapter we present the findings related to increased capacity performance, improved contractual arrangements and changes in exports and sales of farmer groups.

6.1 Change in capacity of farmer groups

The measured capacity of supported farmer organisation increased more than the capacity of non-supported farmer organisations. Whereas the capacity performance index increased moderately from 0.58 in 2015 to 0.62 in 2018 among non-supported farmer organisations, this score increased from 0.48 to 0.73 among supported farmer organisations. While in 2015 there is no significant difference in the capacity performance between supported and non-supported farmer groups, in 2018 the difference between both groups is significant.

Figure 6.1 Changes in capacity performance index (2015-2018)[8]



Between 2015 and 2018, the capacity of farmer organisations has grown most in the fields of marketing, participation and advocacy. The strongest growth in capacity between 2015 and 2018 is observed in the fields of marketing, participation and advocacy Moderate progress was made in the fields of accountability and professional capacity. Limited progress was made in income diversification and production management, both weak spots **i**n the capacity of farmer organisations.

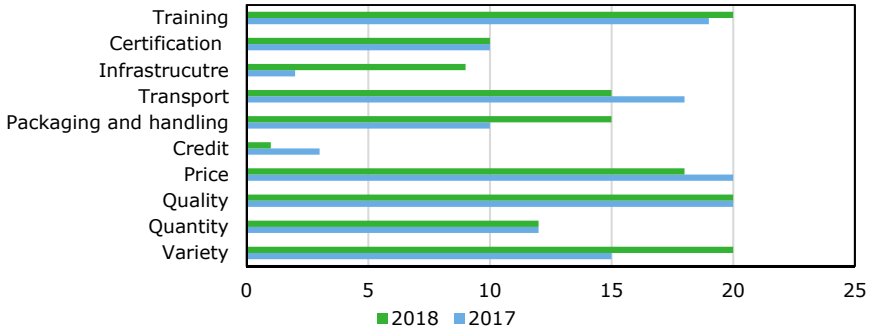
[8] The 2018 data refers to data collected in March 2018

Figure 6.2 Changes in farmer organisation capacity in different fields[9]

6.2 Contractual agreements, quality control and linkages

Limited change in the amount of topics covered by contracts between farmer organizations and avocado exporters. Contracts between FOs and SMEs can be established before or after planting; before planting is not common. Both the number of contractual topics covered and the amount of companies covering a certain subject were lower in 2017 than in 2018 for contracts closed before planting.
The number of subjects covered has been relatively stable since 2017. While some subjects were more often covered in 2018 than in 2017 (training, variety, packaging and handling, infrastructure), other subjects were less often covered in 2018 than 2017 (transport, price, credit).

Figure 6.3 Changes in number of subjects covered in contract with SMEs (after planting)

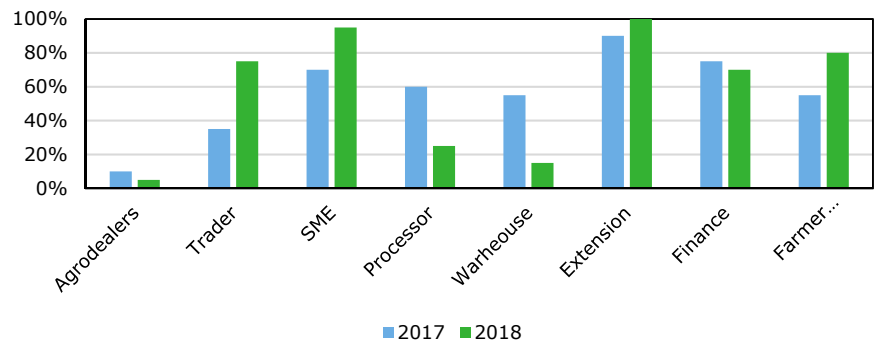


Strong increase in quality control systems in FOs, but challenges related to quality remain. In 2015 only 25% of supported and 75% of comparison FOs had a quality assurance system. In 2018 100% of farmer organisations have such a system in place. Currently, all of the supported and non-supported farmer organisations have such a system in place. Nevertheless, the share of FOs facing members with substandard products seems to be on the rise. Among supported firms this was 56% (versus 41% in 2017) versus 80% (in both years) in FOs not linked to supported SMEs.

Between 2017 and 2018, the share of FOs having linkages with SME's, traders and other farmer organization increased. Meanwhile, the share of FOs having linkages with processors and warehouses decreased and the share of FOs with linkages with agro-dealers, extension agents and financial institutions remained relatively stable.

[9] The 2018 data in figure 6.2 and 6.3 refer to data collected in March 2018

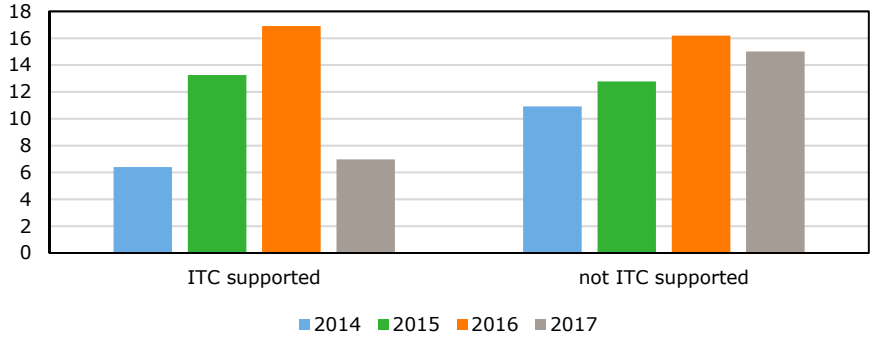
Figure 6.4 Share of FOs with linkages to different stakeholders (2017, 2018)[10]



6.3 Change in sales/export of farmer groups

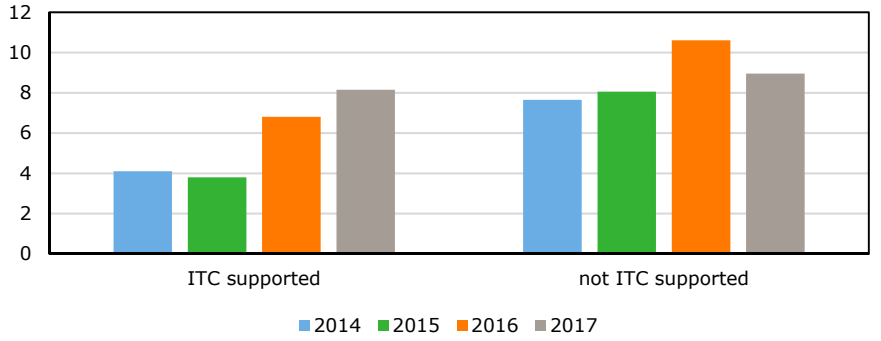
The average volume of avocados FOs sold has increased until 2016, after which it decreased again. Among supported FOs, the average volume increased from 6.4 tonnes in 2014 to 16.9 tonnes in 2016, after which volumes dropped again to 7 tonnes in 2017. The sudden drop of volume of avocados might well be related to the drought that took place in Kenya in 2017. Among non-supported FOs, the average volume first increased from 10.9 tonnes in 2014 to 16.2 tonnes in 2016, after which volumes sold also decreased somewhat to 15 tonnes in 2017.

Figure 6.5 Volume of avocados sold per farmer organisation (x 1,000 kg)



Avocado prices increased in the period 2014-2017 for both supported and non-supported FOs. While avocado prices among supported FOs doubled from KSH 4.1 to KSH 8.2/piece, the avocado prices among non-supported FOs increased with 17% from KSH 7.7/piece in 2014 to KSH 9/piece in 2017.

Figure 6.6 Price of avocados (KSH/piece)



[10] The 2018 data refers to data collected in March 2018

Improving farmer livelihoods

7

Chapter 7 Improving farmer livelihoods

ITC aims to improve farmer livelihoods through improved knowledge, practices, yield and income To achieve this NTFIII helped formalise and strengthen existing farmer groups. Through these farmer groups, NTFIII-trained farmers on farm management, production techniques, post-harvest handling and traceability. Moreover, farmers were coached on how to access finance and linked to MFIs. In this chapter we present how these activities contributed to improved livelihoods, In steps, this chapter shows how improved knowledge of farmers translated in better practices, better practices in higher yields and higher yields in improved income and better livelihoods of farmers.

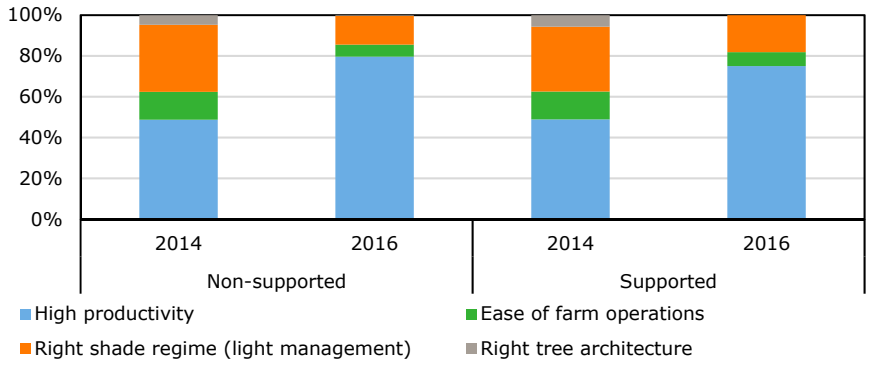
7.1 Knowledge of avocado farmers

Improved farmer knowledge is a key step in the impact pathway to improved avocado income. The NTFIII programme contributed to the knowledge of avocado farmers by creating and strengthening farmer groups. Through these farmer groups, NTFIII offered trainings to farmers on farm management, production techniques, post-harvest handling and traceability. For this research we analyse several key indicators of production knowledge related to price knowledge, benefits of pruning and record keeping, factors affecting avocado quality and awareness of internal control systems.

Price knowledge is similar for supported and non-supported farmers. The majority of farmers knows three or more types of avocados; 85% among supported and 83% among non-supported (not significant different), including the Hass variety. Almost all supported (95%) and non-supported (90%) farmers agree that the Hass variety of avocados gives farmers the highest price. This indicates that knowledge levels of supported and non-supported farmers is comparable.

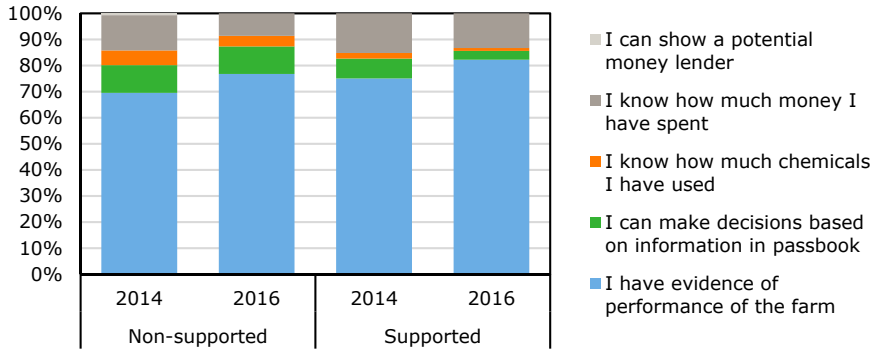
Knowledge on benefits of pruning increased between 2014 and 2016. Knowledge on the major benefits of pruning (increased productivity) increased among both supported and non-supported farmers, with no significant differences in knowledge between supported and non-supported farmers.

Figure 7.1 Knowledge on benefits of pruning (first benefit mentioned)



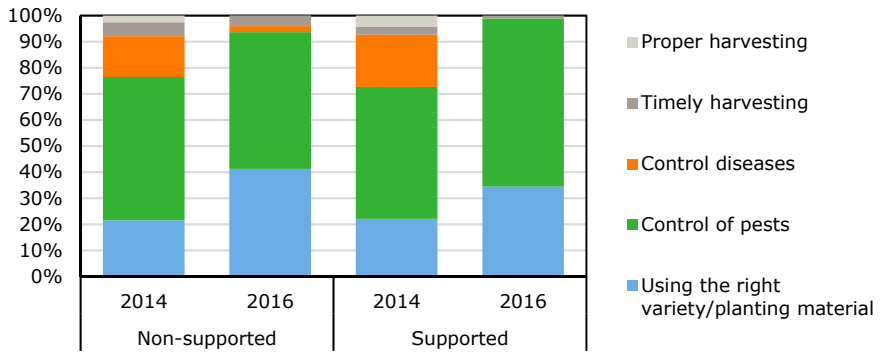
Farmers knowledge on record keeping is slightly higher among supported farmers. Knowledge on the major benefits of record keeping (evidence on performance) has increased among both supported and non-supported farmers. On average, supported farmers have a significantly higher knowledge score than non-supported farmers.

Figure 7.2 Knowledge of record keeping benefits (first benefit mentioned)



Knowledge on factors affecting avocado quality increased among both supported and non-supported farmers. Results from the household survey also show increased knowledge of the two major factors affecting avocado quality (planting material and pest control). Knowledge on planting material increased significantly for both supported and non-supported farmers between 2014 and 2016 with no significant differences.

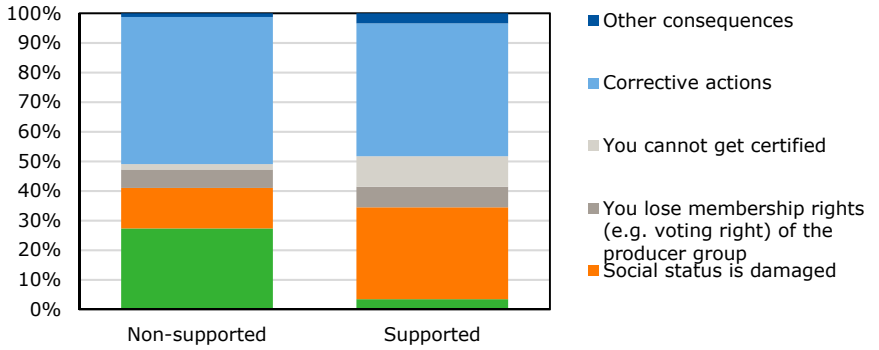
Figure 7.3 Factors affecting avocado quality (first factor mentioned)



Knowledge levels on internal controls increased significantly among supported farmers. A significant increase is visible in familiarity with internal controls among both supported and non-supported farmers. For supported farmers it moves from 29% to 47% while it moves from 23% to 29% among non-supported farmers. The differences are significant which means supported farmers have significantly more knowledge of internal controls than non-supported farmers.

Half of the farmers know internal controls can lead to corrective actions. We also asked for the consequences of not complying with an internal control. Only half of the farmers know internal controls can lead to corrective actions. Meanwhile, supported farmers indicated more often that internal controls could damage ones social status, while non-supported farmers more often indicated that internal controls can exclude farmers from the producer group.

Figure 7.4 Knowledge of the consequences of internal controls

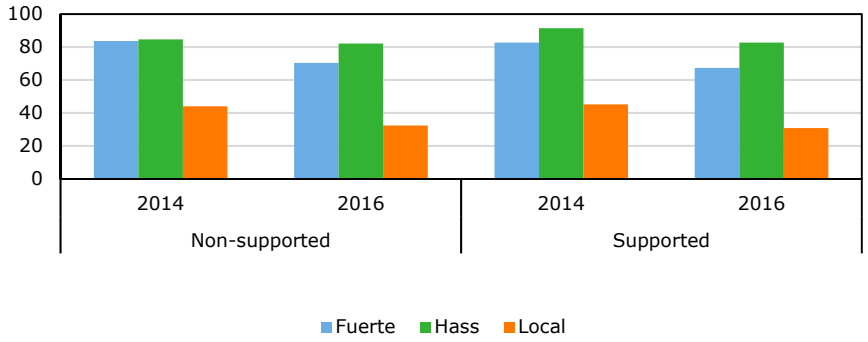


7.2 Practices in avocado production

Practices in avocado production is key step in the impact pathway to improved livelihoods. The farmer trainings offered by the NTFIII programme aimed to improve farm management, traceability and production practices. For this research we analyse several key practices in avocado production related to type of avocado, grafting, pruning, record keeping, water harvesting and internal control systems.

While most farmers grow both Hass and Fuerte avocados, farmers increasingly specialise. A large share of 70-90% of farmers grow Hass and Fuerte while a minority of 30-50% grow local avocado varieties as well. Among both supported and non-supported farmers, the share of farmers growing multiple varieties is decreasing, pointing to certain levels of specialisation towards specific avocado varieties.

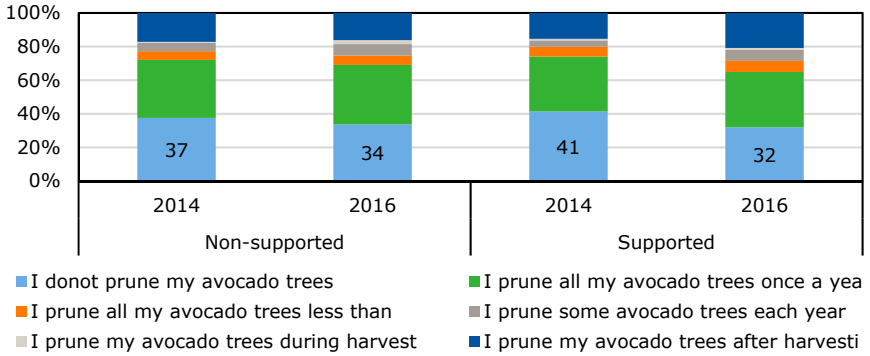
Figure 7.5 Types of avocado produced on farm



Use of grafting practices decreased significantly between 2014 and 2016 and remains most common among supported farmers. The share of farmers practicing grafting decreased among both supported as well as non-supported farmers. For supported farmers it reduced from 86% to 54%, for non-supported from 78% to 48%. For both groups, the reduction over time was significant, without differences between the two groups.

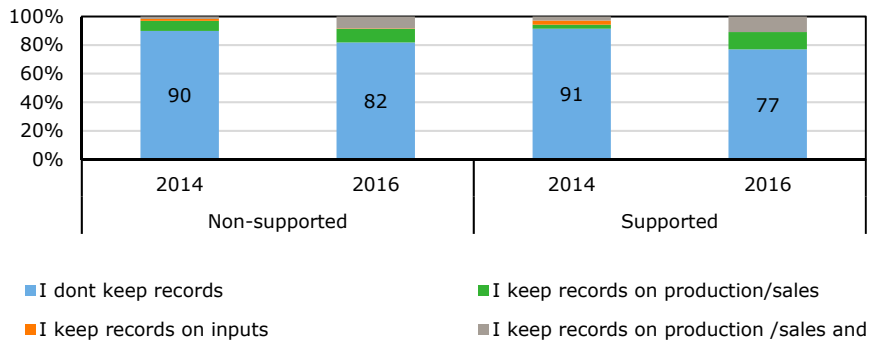
The share of farmers practicing pruning has increased slightly among both supported and non-supported farmers. About one third of all farmers do not prune their avocado trees at all; another third prune the trees once a year. The share of farmers that do no pruning has decreased among both supported and non-supported farmers, although not significantly.

Figure 7.6 Pruning levels of farmers



Significant increase in record keeping between 2014 and 2016. Records are mostly used to register production and sales, although some also keep records on inputs. The share of farmers keeping records has increased significantly among both supported and non-supported farmers. There are no significant differences between supported and non-supported farmers.

Figure 7.7 Way of keeping records



Water harvesting is not common among supported not unsupported farmers. Although the vast majority of farmers is not harvesting water for avocado production, the minority that does harvest water slightly higher among supported farmers (7%) than among non-supported farmers (4%), although based on the current sample no significant relation could be established.

Supported farmers more often have internal controls in place. In our sample, a significantly larger share of supported farmers had internal controls in place (77%) compared to the share of farmers with internal controls among the non-supported farmers (60%). However, when controlling for farm(er) characteristics such as education, sex, age, farm age and size, the difference between supported and non-supported farmers is no longer significant.

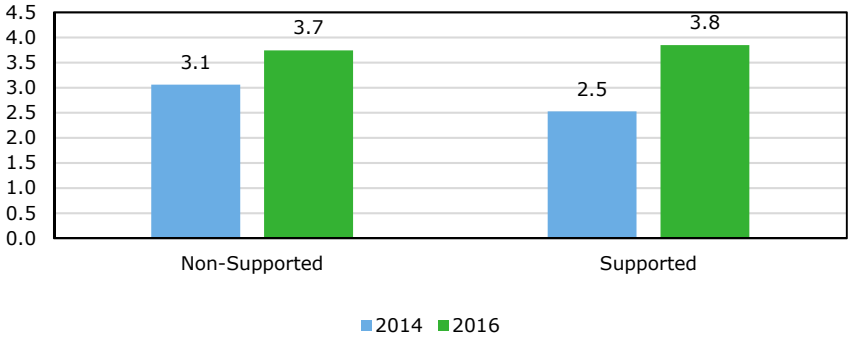
7.3 Food safety, traceability and product quality

Improving prices and reducing rejection rates are indicators of improved quality. One of the key objectives of the NTFIII programme is to train farmers on practices that improve the quality of the avocados produced. These contributions to food safety, traceability and product quality are mainly captured at SME and FO level. At the household level we only have two proxy indicators related to rejections rates and prices.

The quantity of avocados rejected decreased and remains lower for supported farmers. The average number of avocados rejected decreased among supported farmers with on average 16% (from 201 to 169), while among non-supported farmers the numbers of rejected avocados increased with 14% (329 to 374).

Prices farmers received per avocado increased among both supported farmers and non-supported farmers. While prices per avocado increased from KSH 3.1 to KSH 3.7 among non-supported avocado farmers over the period 2014-2016, supported farmers witnessed an even steeper price increase, from KSH 2.5 in 2014 to KSH 3.8 in 2016. The relatively high price increase among supported farmers could be related to the attention NTFIII farmer trainings paid to improving avocado quality. It could also be related to higher levels of contract farming among supported farmers, as evidenced by their membership in supported farmer organisations.

Figure 7.8 Price per avocado (KSH)



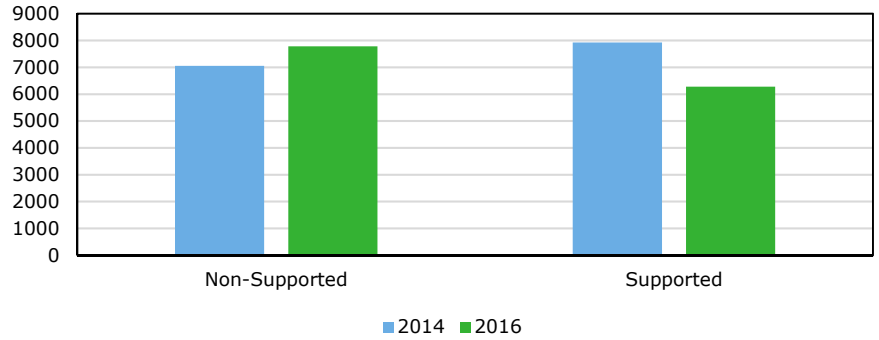
7.4 Yields and income

Improved yield and income are pathways to improved livelihoods. In the theory of change of the NTFIII programme, improved knowledge and practices of farmers on farm management and improved production techniques

will lead to better avocado yields and earnings. In this paragraph we elaborate on the contribution of ITC support to production and income.

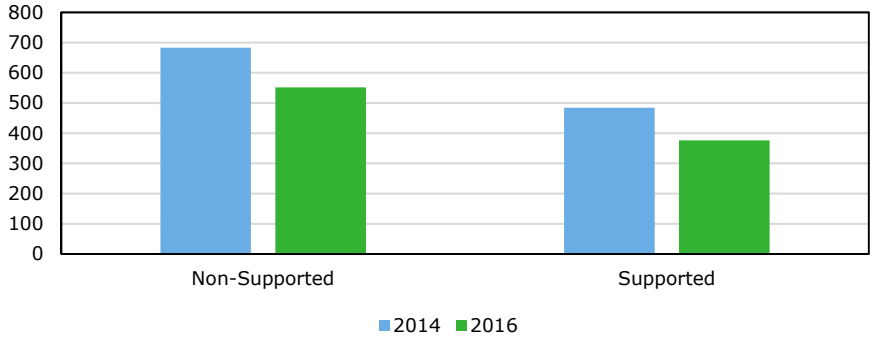
The quantity of avocados harvested and sold decreased among supported farmers and increased among non-supported farmers. As a consequence, quantities harvested among non-supported farmers in 2016 are significantly higher than those quantities harvested by supported farmers in the same year. A similar pattern is observed for quantity sold. Based on data form supported farmers we find a 21% decrease, while the non-supported farmers saw their sales increase by 10% between 2014 and 2016. However, in our analysis, both these changes are not found to be significant changes. One explanation for the decrease could be the fact that the world market price for avocado has seen a steep increase over the same period, requiring farmers to sell less of their avocado's in order to receive the same income levels as before.

Figure 7.9 Quantity sold (pieces)



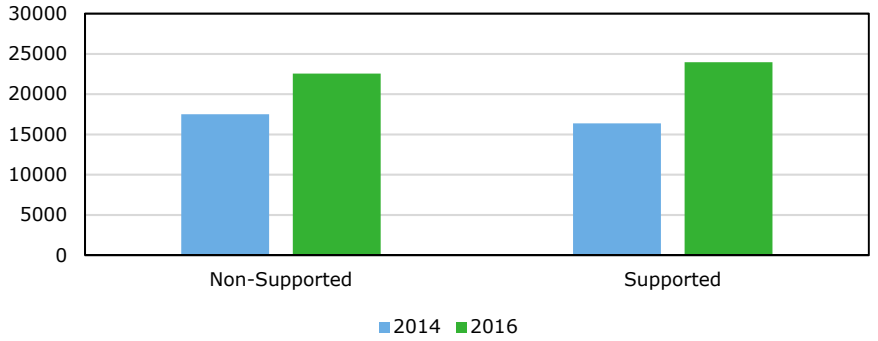
Domestic consumption of avocados decreased among both supported and non-supported farmers. Among the supported farmers avocado consumption decreased with 29% between 2014 and 2016, while over the same period the decrease among non-supported farmers was somewhat smaller with a 24% drop in avocado consumption. While in 2016 the difference in consumption of avocado's between supported and non-supported farmers is significant, this was not the case in 2014.

Figure 7.10 Quantity consumed (pieces)



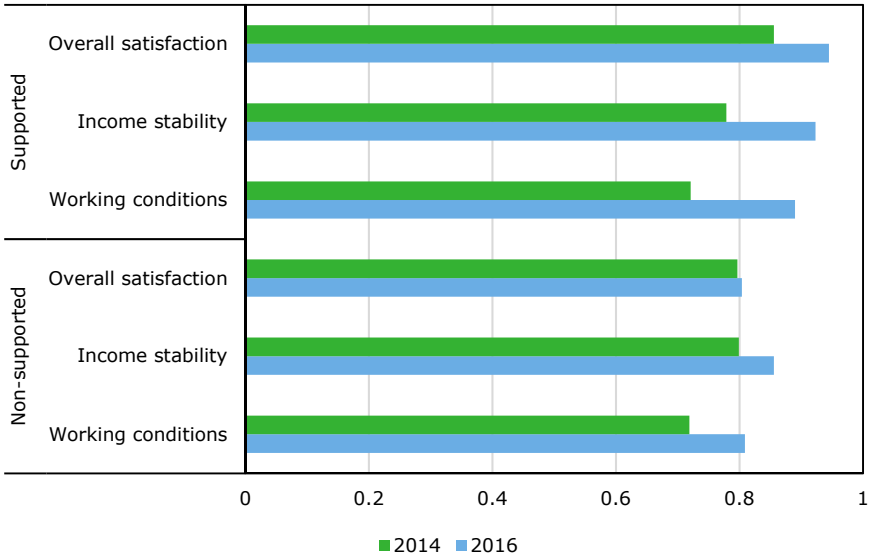
Income from avocado increases among both non-supported and supported farmers, with no significant differences. Avocado income among supported farmers increased significantly with 46% from KSH 16,370 to KSH 23,955 between 2014 and 2016, while avocado income among non-supported farmers also increased significantly with 29% from KSH 17,495 to KSH 22,555 over the same period.

Figure 7.11 Income from avocado (KSH)



The perception of working conditions, stability of income and overall satisfaction are better among supported farmers. Compared to farmers that received no support, the majority of supported farmers indicate they find the avocado sector more attractive in terms of working conditions (89% versus 81%), the income more stable (92% versus 86%) and are overall satisfied with the sector (95% versus 80%). For the overall satisfaction, the difference between supported and non-supported farmers is a significant one.

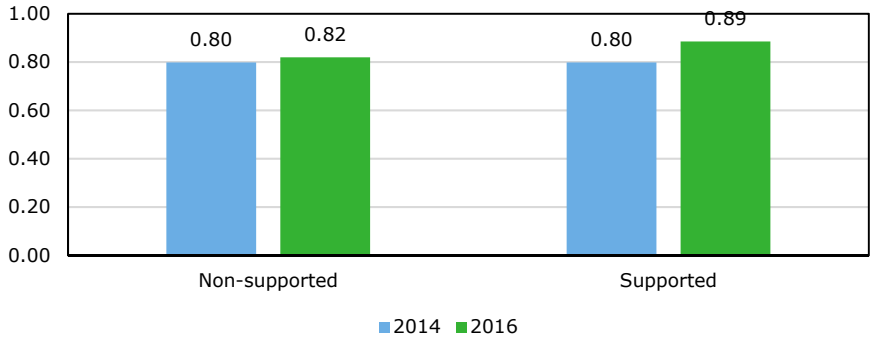
Figure 7.12 Perception of working conditions, income stability, satisfaction



7.5 Livelihoods changes

Dependence on crop income increased among supported avocado farmers. In 2014, the share of household members that mainly depended on crops for their income was 80% for both supported and non-supported farmers. Since then, this share has remained relatively stable among non-supported farmers, whereas among supported farmers this share increased to 89% of working household members.

Figure 7.13 Share of working household members depending on crop income as main source of income



The share of food secure farmers significantly decreased among supported and increased among non-supported farmers. The share of food secure farmers decreased from 26% to 23% among supported farmers and increased from 41% to 44% among non-supported farmers. Among both groups of farmers, the group of mildly food insecure farmers decreased significantly, with a decrease from 24% to 20% among supported farmers and a drop from 20% to 16% among non-supported farmers.

Meanwhile, the share of severely food insecure farmers only slightly decreased among both supported and non-supported farmers. While among non-supported farmers the share of severely food insecure farmers decreased from 14% in 2014 to 13% in 2016, theamong supported farmers these levels decreased from 19% to 18% of all farmers.

Figure 7.14 Changes in food security levels

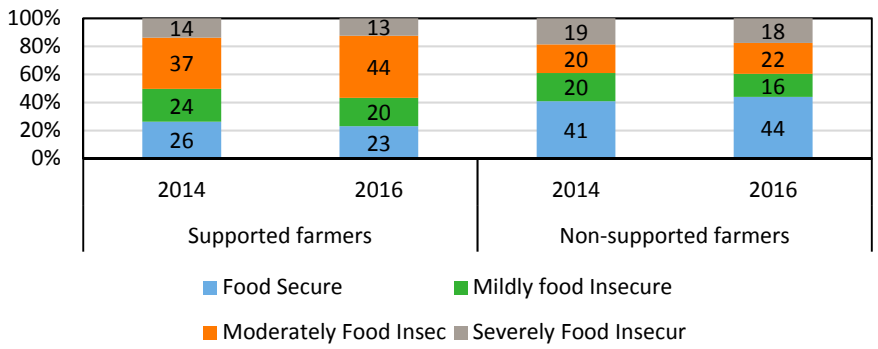
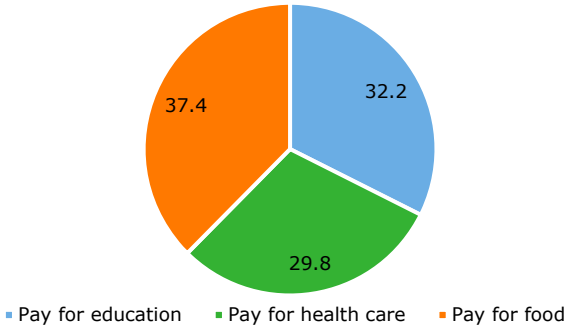


Figure 7.15 Use of avocado income (first use of income mentioned)



Avocado income is used mostly for buying food, while other major uses are education and healthcare. The importance of avocado for income is confirmed by the data on how avocado is utilised: 37% of supported farmers indicate their most important use of the avocado income is to buy food. Other key utilisations of income are health 30%) and education (32%). Both areas are important components of human capital and determine to a large degree whether or not farmers are able to pursue their livelihood objectives on the long run.

Conclusions

8

Chapter 8 Conclusions

NTFIII had the objective to build export competitiveness through capacity building of TSIs and SMEs, setting up and strengthening FOs and training avocado farmers. Through these activities, the NTFIII project aimed to lower the abovementioned barriers to export and increase the export competitiveness of the sector. The NTFIII activities at TSI, SME, FO and farmer level are interlinked. The capacity of TSIs was strengthened to increase their service provision towards SMEs and FOs. In turn, SMEs and FOs were trained to improve their ways of working with avocado farmers.

The contribution of ITC to the export competitiveness is analysed using a mixed method design at SME, FO and farm level. To verify the assumptions behind the intervention logic of improving export competitiveness, research questions have been formulated related to service delivery; network and sales of firms; contractual arrangements between different actors; and farmer livelihoods. These questions are answered based on firm-level data from 10 supported and 18 unsupported firms; data from 23 Farmer Organisation; 10 are linked to the supported firms; and data from 791 avocado producers, of which 16% are member of an FO that is linked to a supported firm.

Capacity building of TSIs contributed to improved service delivery to the sector, but more can be done to address the needs of SMEs. The SMEs supported by the NTFIII programme, were more likely to be member of a TSI. Both supported and non-supported SMEs made use of TSI trainings on marketing, export plans and technical support. However, many SMEs feel that TSIs do not deliver the right support to help them address their most critical business problems, such as restrictive laws, competition from other companies, access to credit and insufficient quantity and quality of supply.

ITCs contributed to improved export performance of supported firms. Knowledge on marketing techniques, financial management and business organisation improved, which led to improved business practices in financial skills as well as organising the production process. The network of SMEs has also increased: supported SMEs are member of more TSIs, have more intensive contact with farmer groups than non-supported SMEs and established more linkages with buyers. Practices and the network of non-NTFIII firms also increased. However, while sales and exports of NTFIII-supported SMEs increased, it decreased for non-supported SMEs.

ITC helped to build and strengthened the capacity of farmer groups to improve accountability and quality. As a result of NTFIII contracts were established between 10 SMEs and 10 FOs which did not have contracts before. Given strong export growth of supported SMEs this result can be attributed to NTFIII. Between 2015 and 2018, supported FOs show a higher increase in their capacity performance than non-supported FOs. Their capacity increased most in the areas of accountability, advocacy, participation and marketing. Concerns around members delivering substandard quality remain an issue. At the same time we see that other farming groups (with a longer history) also remain effective which is perhaps logical given the overall growth in the sector.

Whereas avocado income has increased for all farmers, the additionality of ITC support is not yet evident. The results show the NTFIII programme had a moderate impact on knowledge and practices of avocado farmers and a limited effect on improving yields. In terms of income and food security, we find that members of FOs linked to NTFIII-supported firms are better off than before the project started. Due to general market prices increase, income differences between supported and non-supported FOs appear not to be significant. Moreover, supported farmers have a more positive perception of working conditions, stability of income and overall satisfaction.

Recommendations

9

Chapter 9 Recommendations

ITC could benefit from the multi-level approach of the NTFIII project in Kenya in the implementation of future projects. The evaluation shows that the multi-faceted approach of the NTFIII programme in Kenya contributed to strengthening the export competitiveness of the avocado sector. With activities at four levels (TSI, SME, FO and farmers) the programme managed to address a variety of objectives. The capacity of TSIs was strengthened to deliver high-quality services towards SMEs and FOs. In addition, SMEs and FOs trained to improve their ways of working with avocado farmers, while significant increases were made in farmer income and food security during the programme period.

In future programmes, ITC should look more into the barriers that prevent export companies from expanding their business. While SMEs were generally satisfied with the support of TSIs, most of them indicated that these TSIs did not address their most critical business problems. In future programmes similar to NTFIII, it might be worthwhile to start off with an assessment of critical business problems and barriers for business expansion, in order to identify the key bottlenecks ITC could address in its programme.

SME-level results confirm the NTFIII theory of change that improved knowledge and practices translate into better networks and increased sales, indicating high potential for this approach. The SME-level findings show that among NTFIII-supported export companies, knowledge on marketing techniques, financial management and business organisation improved, as did business practices in financial skills as well as organising the production process. Meanwhile, NTFIII-supported SMEs made more progress in increasing their network than non-supported SMEs: supported SMEs had more intensive contact with FOs than non-supported SMEs and established more linkages with buyers. Finally, while exports of NTFIII-supported SMEs increased, exports decreased for non-supported SMEs.

While ITC supported the capacity of FOs most in the areas where they already performed well, future programmes could focus more specifically on weaker spots in their capacity performance. The farmer organisation results show that the capacity of supported FOs increased more than the capacity of non-supported FOs. However, FO capacity increased most in areas where capacity was already quite strong: advocacy, participation and marketing. Less improvement was seen in weaker spots of FO capacity, such as production management, income diversification and professional capacity. Future programmes similar to NTFIII could consider assessing the strong and weak points of FO capacity in an early phase of the programme, after which they could focus on strengthening those areas of FO capacity that need the most attention. Continued support to farmer organizations (by government or NGO's) is needed to ensure the sustainability of the NTFIII program activities.

Adjustments to ITC's monitoring system could improve the organisation's capability to measure impact and use monitoring for strategic decisions. The analysis in this report was almost entirely based on information collected by the WUR team. A similar analysis at SME and FO level can be done more cost effectively using monitoring data from an implementing agency. This does imply the monitoring systems used should be appropriate in terms of data access, indicators and timeliness. For example, ITC could show better in its KPIs that programmes helped to improve business performance and management – the immediate and intermediate outcomes. Finally, the experience of PRIME and PRIME-ITC shows that regular communication about the findings from the collected data in the form of meetings, workshops and 'sense-making' sessions is needed to make it relevant for strategic decisions

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