



**BUILDING SUSTAINABLE SUPPLY CHAINS
THROUGH BUSINESS COLLABORATION –
EXPLORING THE IMPLICATIONS
OF COMPETITION LAW**



ABSTRACT

The Fairtrade Foundation (**Fairtrade**) has convened a series of roundtables and working group meetings with subject matter experts from across government, business, and civil society to look at the potential for businesses to collaborate to improve the sustainability of their supply chains. This report outlines the conclusions of these roundtables, supported by the results of a cost-benefit analysis of a hypothetical collaboration between UK retailers for sustainability purposes, external legal analysis, a consumer survey and a stakeholder survey. It also outlines Fairtrade's recommendations for next steps.

The findings suggest that collaboration between businesses for sustainability purposes would not only deliver social and environmental benefits to vulnerable producers overseas, but could also benefit consumers in the UK (for example by improving product quality and providing improved security of supply hence reducing the risk of inflationary shortages). External legal analysis commissioned by Fairtrade has suggested that there is a 'reasonable case' that the hypothetical collaboration between UK retailers envisaged by Fairtrade would not infringe UK and EU competition law; however, uncertainty around the application of competition law arguably still creates a disincentive for business to consider such collaboration.

FAIRTRADE COMMENT ON THE FINDINGS

In light of the UK's commitment to the Sustainable Development Goals, **Fairtrade is calling for the government to require that the Competition & Markets Authority (CMA) take account of broader UK policy goals and long-term sustainability in their consideration of how well markets are functioning,** alongside short-term consumer interest. This should include a requirement for the CMA to formally recognise and report on how it is contributing to the delivery of broader UK policy goals on long-term food security and sustainability, decent work and sustainable production and consumption as part of its own strategic plans and priorities.

The challenge of ensuring the UK's long-term food security also needs to be understood in the context of unsustainably low farm gate prices for many agricultural products. Fierce supermarket price competition leads to short-term low prices, but can threaten future continuity of supply. Unsustainably low farm gate prices hinder investment for the future, making it difficult to finance efforts to tackle unsustainable practices such as monocropping,¹ and human rights issues such as poor working conditions and child labour. Fairtrade recommends that government departments (BEIS, DFID, DEFRA, DIT) proactively consider policy options in this context to improve the sustainability of supply chains, as well as supporting the CMA to facilitate private sector collaborations for sustainability.

ACKNOWLEDGEMENTS & DISCLAIMER:

Fairtrade would like to thank all roundtable and working group participants for their input into this project.

Except where otherwise stated, this paper has been authored by the Fairtrade Foundation, and views expressed do not necessarily represent those of participants in the roundtable or working group.



CONTEXT:

UNSUSTAINABLE SUPPLY CHAINS AND FOOD INSECURITY

By 2050 the world's population will have increased to around 9.7bn people,² but climate change is likely to have reduced the world's productive capacity.³ This is a global food security crisis in the making which will affect us all.

While brands and retailers often wish to invest in supply chain sustainability, intense price competition has in some products led to tight margins and sustained downward pressure on farm gate prices, despite rising costs for producers.⁴ With little value reaching producers, they can struggle to maintain and improve decent livelihoods and to futureproof production against the impacts of climate change.⁵ If producers do not receive enough money for their crops, they cannot invest for the future and can become locked in an unsustainable downward spiral of debt and poverty.

Climate change increases the risks of extreme and unpredictable weather events such as unseasonal drought wiping out harvests, or creating the conditions for increased crop disease spread. There will be little progress to respond to climate change if producers cannot make the necessary investments due to a poor share of value paid for their crop.

Shortages of fresh vegetables in early 2017 highlighted the impact that shocks to fragile supply chains can have on consumers. With the Spanish lettuce crop wiped out due to unseasonal weather, lettuces in the UK were either unavailable or shipped in from the USA at great expense to consumers. So, alongside the concerns about the impact on farmers struggling to escape poverty, there is also a clear consumer interest in reducing the risks to future continuity of supply – risks which could lead to increased costs for UK consumers.

In 2015 the UK committed to the seventeen Sustainable Development Goals (SDGs), at least three of which are directly linked to the scope of this paper:

- **Goal 8** – Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
- **Goal 12** – Ensure sustainable consumption and production patterns; and
- **Goal 13** – Take urgent action to combat climate change and its impacts.

In order to achieve these goals, we collectively – business, government, CSOs and consumers – need to understand and commit to improving the supply chains that provide the products we consume. Certification schemes such as Fairtrade make important contributions towards building sustainable and ethical global supply chains; but achieving full systemic change will take collective action by a broader group of stakeholders.

WHY COULD THERE BE A NEED FOR COLLABORATION?

Fairtrade's experience suggests that concerns of losing competitive advantage is a significant disincentive to supply chain investment, especially those where returns are only visible in the longer term. For example, a buyer considering investments in order to encourage higher wages may worry about losing out to competitors who did not make similar investments.

Fairtrade therefore began this project with the hypothesis that collaboration between businesses for sustainability purposes could be one way of overcoming some of the obstacles that stand in the way of unilateral initiatives. Further research needs to be carried on the exact nature of these obstacles, but potential examples include: the cost of sustainability initiatives; the fear of losing ground to competitors; and the short-term profit reporting cycle for public companies.

Fairtrade led this project with a view to identifying both the benefits of collaborations for sustainability purposes, and the challenges posed to businesses wishing to collaborate for these purposes by competition law.



STAGES OF THE PROJECT

The main stages of this project thus far are laid out below.

- 1. Consumer research:** Fairtrade commissioned GlobeScan to assess consumer support for government action on fairer trading practices. It found that:
 - 92 percent of consumers believe that it is the responsibility of retailers to ensure sustainable food production.
 - 72 percent expect the government to ensure food is produced to high ethical and environmental standards, with only 9 percent opposing this.⁶
- 2. Roundtable 1:** In June 2016, Fairtrade held a roundtable looking at competition law and sustainability. Eighteen different organisations were represented, including trade associations, unions, academia, NGOs, and government. This roundtable identified the need for greater guidance on how sustainability considerations fit within competition law, and the need to articulate the benefits of sustainability in measurable terms.
- 3. Cost-benefit analysis:** As a result of the first roundtable, Fairtrade commissioned NEF Consulting to carry out a cost-benefit analysis of a hypothetical collaborative sustainability initiative between retailers in the pineapple supply chain. The study investigated whether collaboration between retailers for sustainability purposes would be in the overall interests of consumers and presented this in measurable terms.
- 4. Legal analysis:** Fairtrade also commissioned external legal counsel to analyse the legality of this hypothetical collaboration with regards to competition law.
- 5. Stakeholder survey:** Fairtrade carried out a survey of relevant business and civil society stakeholders relating to the CMA's existing guidance as applied to potential collaboration for sustainability purposes. There were limited respondents, but all were interested in collaborating with others in their sector for sustainability purposes, and some responded that they would be more likely to explore potential collaborations for sustainability purposes with the benefit of clearer guidance from the CMA.
- 6. Roundtable 2:** Fairtrade held a second high-level roundtable on 28 June 2017. Twelve different organisations attended the roundtable, including: trade associations, academia, NGOs, government departments and the CMA. Both the NEF Consulting cost-benefit analysis and the external legal analysis of the hypothetical collaboration were presented. For a detailed outline of the results of this discussion, see annex 2.

THE NEF CONSULTING COST-BENEFIT ANALYSIS

The hypothetical collaboration evaluated in the NEF Consulting cost-benefit analysis involved retailers in the UK agreeing to a specific set of sustainable/ethical production standards⁷ and to pay a premium for sustainable/ethical pineapples to the producer (the Hypothetical Initiative). This Hypothetical Initiative would cover 25 percent of the fresh pineapples purchased by the parties from Costa Rica. The price or any element of the

price for consumers would not be agreed between retailers, thus retaining competition between retailers. See the full report in annex 1.

The Hypothetical Initiative has focused on achieving a sustainable price for producers, but other forms of collaboration could target, for example, improving buying practices such as committing to better forecasting of purchases. In the Latin American banana industry, last minute changes and cancellations of orders lead to enormous wastage and subject producers to income volatility. With a better business relationship, producers would be better able to invest for the future, less likely to abandon smallholder production in future generations – and thus the sustainability of future supply would be improved.

The cost-benefit analysis found that the Hypothetical Initiative would offer greater choice and quality for consumers. The Hypothetical Initiative would expand the variety of pineapples available to consumers in the market⁸ and enable the 50+ percent of people who are willing to pay more for sustainable and ethical food (GlobeScan 2016)⁹ to make decisions that are more in line with their values. Given that only 25 percent of Costa Rican pineapples purchased by the parties would be covered by the Hypothetical Initiative (representing 18 percent of the total pineapples imported for sale in the UK), consumers would retain the choice of opting to buy a standard pineapple.

The cost-benefit analysis shows that that the benefits to consumers of the Hypothetical Initiative through the introduction of a higher quality pineapple would at least outweigh its costs. Associated benefits such as the reduced use of hazardous agrochemicals further support this case. The Hypothetical Initiative also has the potential to decrease the risks of market collapse through unsustainable agricultural practices such as monocropping and may also reduce greenhouse gas emissions.¹⁰

BENEFITS OF THE HYPOTHETICAL INITIATIVE

For UK consumers:

- Improved product quality in the UK market.
- A more stable and resilient future market which is less vulnerable to collapse through external shocks such as drought and disease.
- Reduced global environmental impact, including reduced greenhouse gas emissions.
- Improved product choice in the UK market.
- Improved consumer wellbeing: consumers are better able to live their values through consumer decisions.

For wider society:

- Reduced agrochemical accumulation.
- Reduced biodiversity loss.
- Improved working conditions and communities for producers.
- Preservation of the local ecosystem and functions upon which the local community relies.

FURTHER RESEARCH

Participants at the roundtable welcomed the NEF Consulting cost-benefit analysis as a demonstration of the potential that collaboration for sustainability purposes could have. Nevertheless, attendees highlighted the need for further information around the analysis, particularly with regards to consumers' willingness to pay for a 'sustainable/ethical' product, and the specific benefits for consumers. Attendees also emphasised the importance of clearly articulating the necessity of the potential collaboration.

Fairtrade will build on this work by investigating other practical instances where collaboration and regulation may allow a more positive outcome from a sustainability perspective.

LEGAL ANALYSIS

Fairtrade commissioned external legal counsel to analyse the Hypothetical Initiative outlined in the NEF Consulting study. This analysis was presented at the roundtable and circulated with attendees.

External legal counsel found that a reasonable case could be made that the Hypothetical Initiative would not infringe UK and EU competition law on the basis that either:

- It would not have the object or effect of restricting competition; or
- It could nonetheless be capable of meeting the exemption criteria under competition law, subject to further analysis.

Following the presentation of the NEF cost-benefit analysis and external legal analysis of the Hypothetical Initiative, participants of roundtable 2 expressed the view that competition law did not necessarily represent a barrier to collaboration for sustainability purposes. Nevertheless the concern was expressed that, despite this and without further guidance from the CMA, businesses might still perceive competition law as a blocker to initiatives for sustainability purposes. Consequently, some attendees suggested that it would be helpful for the CMA to issue guidance on how they would view collaboration for sustainability purposes – particularly around whether they would take into account the broad long-term benefits that increased sustainability can offer consumers.

THE BUSINESS PERSPECTIVE

Businesses are increasingly recognising that building sustainability is essential for the future, and is not just a nice-to-have. The retail sector has shown interest in collaboration for sustainability purposes as a way for businesses to effect broad sectoral change as an industry.

In 2013, the British Retail Consortium organised a series of roundtable discussions with experts from across the UK to consider the wider impact of the retail industry and its operations, reflecting on the roles and responsibilities of retailers in supply chains as well as society as a whole. Collaborations were identified as one solution to the challenge

that retailers face to increase sustainability in supply chains. The results of these roundtables were published in the report: Great Expectations. Two of the key potential barriers to further collaboration were identified as cultural differences and legal concerns that companies might be infringing competition law.

Peter Andrews, The British Retail Consortium:

“Retailers recognise that building robust supply chains and securing supply for the UK market is a challenge, and that collaboration enables them to build scale and source products and commodities more efficiently while meeting the exacting demands of UK consumers. Competition law is rightly there to ensure that the activities of companies do not distort the market and negatively affect consumers. Depending on the initiative, consumers may derive direct benefit via a reduction in price from increased efficiency of production but they may also benefit indirectly from long term security of supply or better social and environmental conditions.

Since competition law tends to focus on short term cost benefit to consumers, we have welcomed Fairtrade Foundation's work to demonstrate longer term benefits to consumers, society and the environment. More discussion on this topic is needed, particularly where there is less case law around collaboration to conserve future resources and where benefit is less tangible and realised over a longer term.”

PAST ATTEMPTS AT COLLABORATION FOR SUSTAINABILITY PURPOSES

There have been several cases where organisations have attempted to collaborate to improve sustainability and/or working conditions in their supply chains, but have fallen foul of competition law. A notable case concerned price-fixing in the UK dairy sector, which resulted in hefty penalties being levied by the OFT.¹¹

Collaborations for sustainability purposes have in certain cases, however, been upheld as being consistent with competition law. For example, in one case, certain European manufacturers agreed to stop selling inefficient models of washing machines. The agreement was approved by the European Commission which considered that the agreement met the exemption criteria, taking into account the economic benefits to individual consumers as well as the collective environmental benefits deriving from the agreement.¹²

CASE FOR FURTHER ACTION

Roundtable attendees expressed the view that the research thus far shows the potential benefits to sustainability of some form of collaboration between businesses in the supply chain.

In the view of Fairtrade, this is a valuable opportunity for the UK government to harness cross-sector collaboration to help the UK fulfil its obligations under the SDGs. GlobeScan research shows that the public expect both the government and businesses to ensure that food production is sustainable and ethical.¹³ Thus the government arguably has the dual responsibility of acting in their own right to ensure ethical and sustainable productions and facilitating business attempts to achieve this goal.

RECOMMENDATIONS

Based on the research conducted thus far, Fairtrade makes the following recommendations.

We recommend that the government take active steps to help facilitate sustainability in supply chains:

- The CMA should issue specific guidance outlining how a cross-business initiative for sustainability purposes would be assessed under competition law. This would help create greater confidence in the actual approach likely from the CMA, and avoid an artificial chilling effect on sustainability initiatives due to overly risk-averse perceptions of competition law.
- The government should require that the CMA takes account of broader UK policy goals and long-term sustainability in their consideration of how well markets are functioning, alongside short-term consumer interest. This should include a requirement for the CMA to formally recognise and report on how it is contributing to the delivery of broader UK policy goals on long-term food security and sustainability, decent work and sustainable production and consumption as part of its own strategic plans and priorities.
- Fairtrade recommends that government departments (BEIS, DFID, DEFRA, DIT) proactively consider policy options to improve the sustainability of supply chains in the context of unsustainably low farm gate prices. Unsustainably low prices at the farm gate hinder efforts to invest for the future and efforts to tackle both unsustainable practices such as monocropping,¹⁴ and human rights issues such as poor working conditions and child labour.

We recommend that businesses:

- Recognise the importance of collective action for sustainability.
- Engage with BEIS and the CMA to establish long-term regulatory incentives for sustainability.
- Be prepared to explore potential collaboration initiatives for sustainability purposes and consider how they may be constructed to be consistent with competition law.

We recommend that consumers:

- Seek to understand the problems in the supply chains from which they consume.
- Encourage retailers and government to improve supply chains both through local level advocacy and by choosing to buy sustainable products at fair prices.



ANNEX 1:

COSTS AND BENEFITS OF A HYPOTHETICAL COLLABORATIVE SUSTAINABILITY INITIATIVE IN THE UK PINEAPPLE INDUSTRY

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NEF Consulting is the consultancy arm of the leading UK think tank, New Economics Foundation. We help to put their ideas into practice.

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EXECUTIVE SUMMARY

With global food supplies under pressure from factors including increasing population, environmental damage, poverty and climate change, there is an increasing need to support sustainable production and consumption. Following a roundtable discussion with various civil society, business and government representatives, the Fairtrade Foundation (FTF) commissioned a case study to identify potential costs and benefits of collaboration on sustainability initiatives in food supply chains. This was intended to demonstrate generally how collaboration for sustainability purposes might be consistent with competition law.

When prices and production standards in supply chains are too low, they impact not only on human rights standards and the quality of life of the producer, but also lead to a lack of environmental sustainability in the supply chain, and a lack of future-proofing against the impacts of climate change. Collaboration between retailers for sustainability purposes could help to mitigate these potential risks for future continuity of supply, choice and cost for UK consumers.

This case study uses a social cost-benefit analysis (SCBA) to look at the effects on UK consumers of a hypothetical collaborative sustainability initiative in the retail market for fresh pineapples in the UK. The initiative would involve the retailers agreeing to a specific set of sustainable/ethical production standards and to pay a premium for sustainable/ethical pineapples to the producer, for an agreed share of their fresh pineapple purchases. The price for the consumer would not be set, thus retaining competition between retailers.

Potential benefits of the collaboration

Improved product quality

The collaboration will result in better quality produce being introduced onto the market, both in terms of objective features of the pineapples (e.g. physical and flavour quality) and subjective value (e.g. consumer perceptions associated with sustainable/ethical varieties).

More stable and resilient future market

By reducing risky agricultural practices such as monocropping, the collaboration is also likely to enable a more stable and resilient pineapple market in the long run, an impact which would have benefits not just for current fresh pineapple consumers but also for future consumers of pineapples.

Avoided climate change impacts through reduction in greenhouse gas emissions

By promoting more environmentally sustainable farming practices among pineapple producers, the collaboration could reduce negative environmental impacts, notably greenhouse gas emissions.

Additional potential benefits

There are also potential benefits which have not been quantified in the social cost-benefit model. Additional potential benefits to UK consumers include (1) increased choice of pineapple varieties due to more small-scale pineapple producers being better able to compete, (2) increased wellbeing through consumers being better able to make purchasing decisions that accord with their values and (3) potential health benefits for UK consumers through reduced use of hazardous agrochemicals in farming. These potential benefits, as well as social and environmental benefits for pineapple producer countries, are outlined in appendix 1 of the report.

Potential costs of the collaboration

Increased product price

Consumers who are currently in the affected market (that is, the market for the retail supply of fresh pineapples in the UK) are likely to face a higher price for those pineapples that are concerned by the collaboration.

Findings

Three alternative scenarios have been modelled to reflect varying levels of conservativeness in the assumptions made. In particular, the scenarios use different estimates for (1) the increased prices that sustainable/ethical pineapple consumers may face under the collaboration, and (2) the value of potential benefits of increased product quality under the collaboration (proxied using data on the premiums that consumers are willing to pay for such products over and above conventional alternatives).

As seen in the table below, the benefit-cost ratio (benefits divided by costs) is greater than one and the net benefit (benefits minus costs) is positive in all the scenarios modelled. This would suggest that a collaboration designed in this way would improve consumer welfare, creating value that is greater than the cost to the consumer which arises from the collaboration.

	CONSERVATIVE CASE	MODERATE CASE	OPTIMISTIC CASE
Costs			
Increased product cost	£4,900,000	£2,500,000	£2,500,000
Benefits			
Improved product quality and choice	£4,900,000	£4,900,000	£12,300,000
More stable and resilient future market	£1,800,000	£1,800,000	£1,800,000
Reduction in greenhouse gas emissions	£100,000	£100,000	£100,000
Totals			
Benefit-cost ratio	1.4	2.7	5.6
Net benefit	£1,900,000	£4,200,000	£11,600,000

1. OVERVIEW

1.1 Context

Given environmental, demographic and socioeconomic challenges such as population growth and climate change occurring in the United Kingdom (UK) and globally, there is an increasing need for more sustainable food production for the benefit of both the producers, and the consumers, who rely on food supply chains which span the globe. In today's interconnected world, the goods which are available on UK supermarket shelves are not isolated from conditions in producer countries on the other side of the earth.

In high-income countries such as the UK, year-round demand for produce that cannot be grown in the global north puts increasing pressure on local communities and environments in lower-income producer countries. Price pressure from large-scale buyers, who seek to minimise costs for their customers in order to gain a competitive advantage, is then pushed on to producers, who often must respond by cutting labour costs and environmental protection measures.

Some systems exist to encourage more sustainable and ethical produce by signalling to consumers that the produce they are buying has been grown under certain environmental and social conditions. However, in many cases, the reach achieved by sustainable/ethical production is still very low. This paper explores collaboration on sustainability issues within supply chains as a possible solution to this issue. Such collaboration has the potential to reduce risks to the environment and communities in producer countries, filter through supply chains and ultimately impact consumers.

Following a roundtable discussion with civil society, business and government representatives and a dialogue with the Competition and Markets Authority (CMA), the Fairtrade Foundation (FTF) commissioned a case study to identify potential costs and benefits of a hypothetical collaborative sustainability initiative. We understand FTF intends that the case study will be used to demonstrate more generally how collaboration for sustainability purposes may be assessed as being consistent with competition law.

1.2 Methodology

We have used a cost-benefit analysis (CBA) approach for this case study as it is a common tool for economic appraisal and is a transparent method for comparing the costs and benefits over time of collaborating for sustainability purposes. In addition to focusing on the economic outcomes of a traditional CBA, we have expanded the analysis to look at wider environmental/ social costs and benefits potentially arising from the collaboration. Three alternative scenarios are modelled to reflect varying levels of conservativeness in the assumptions made. The following chapters describe the scope of the collaboration considered in this study, the potential impacts, and the results of the hypothetical social cost-benefit analysis (SCBA).

2. SCOPE OF THIS CASE STUDY

2.1 The supply chain

This case study SCBA looks at the effects on UK consumers of a hypothetical collaborative sustainability initiative in the retail market for fresh pineapples¹⁵ in the UK¹⁶ (the 'relevant market' or 'affected market'). This particular supply chain has been chosen as the focus of the study for two primary reasons:

- (1) The UK is the world's fifth largest importer of pineapples¹⁷ and there has been a significant rise in the popularity of pineapples, as evidenced by the fact that imports to the UK have more than quadrupled since 2001.
- (2) Collaboration on sustainability initiatives has the potential to tackle a number of problems in the pineapple supply chain, focusing particularly on the lack of sustainable production practices. These include economic and social issues for workers on pineapple plantations (e.g. low wages^{18 19}/unpaid overtime²⁰, gender discrimination²¹, lack of bargaining rights and anti-union tactics^{22 23}) as well as environmental damage caused by hazardous pesticide use and monocropping (leading to groundwater contamination, erosion, deforestation and health problems for local populations).^{24 25 26} These problems not only have costs for pineapple workers and local people in pineapple-growing regions but also threaten the long-term sustainability of pineapple supply for UK consumers (outlined in 3.2.2).

2.2 The hypothetical sustainability initiative

The hypothetical sustainability initiative which is outlined in this study is defined as a hypothetical horizontal collaboration between all major grocery retailers in the UK (the 'collaboration' or the 'initiative'). We consider the major grocery retailers involved in the collaboration (the 'retailers' or the 'parties') to include at least the top eight grocery retailers in the UK in terms of share of retail supply of groceries in the UK.²⁷

This initiative would involve the retailers agreeing to a set of buying conditions for the purchase of an agreed share of their fresh pineapple purchases. This agreement would require an explicit commitment from the retailers (as opposed to, for example, an optional industry standard). Each participating retailer would agree that 25 percent of pineapples purchased from Costa Rica²⁸ would meet a set of agreed sustainable/ethical production standards. The sustainable/ethical pineapples concerned by this agreement would then be sold onto consumers in the UK and explicitly labelled so that consumers would be able to distinguish them from conventional pineapples. As part of the initiative, the parties would agree that the following measures will be taken by pineapple plantation owners at the production level of the supply chain:

- (1) Pineapple plantation workers would be paid a living wage.
- (2) Pineapple plantation owners would not engage in discriminatory hiring practices (e.g. gender discrimination).
- (3) Pineapple workers would be given rights to freedom of association and collective bargaining.

(4) Organic agricultural practices would be adopted (including a reduction or elimination of monoculture growing), and plantation owners would agree to reduce or eliminate the use of agrochemicals (i.e. pesticides and fertilizers) that are hazardous to the environment and/or the health of their workers and consumers.

(5) Plantation owners would be required to meet certain physical quality, flavour quality and varietal selection standards for their pineapples (as agreed between the parties).

As part of the initiative, each retailer would also commit to conducting regular audits of the relevant pineapple plantations from which they were purchasing, to ensure that these conditions were being met. The retailers would also commit to paying a premium for sustainable/ethical pineapples (to be agreed between the parties) relative to conventional pineapples. The premium commitment to producers would reflect the costs of sustainable/ethical production and ensure the longer-term feasibility of the aims of the collaboration. Importantly, this commitment would not extend to the consumer price charged by retailers – retailers would still set prices independently.

As part of the initiative, there would be a commitment from all major grocery retailers in the UK, so that it may potentially cover approximately 25 percent of the relevant market as it is believed that such an arrangement is necessary to achieve the desired level of impact and to move beyond the current status quo. While sustainable/ethical pineapples such as Fairtrade pineapples do exist in the UK, they are not market-wide initiatives requiring broader commitment, and are thus limited in the reach they are able to achieve. Fairtrade pineapples currently account for only about 2 percent of the relevant market,²⁹ despite the fact that they have been available in the UK since 2002. This may be due in part to the lack of incentive for grocery retailers to unilaterally supply a greater share of their pineapples at a Fairtrade (or similar sustainable/ethical) standard, for fear of losing market share to major competitors who do not make such commitments (since Fairtrade pineapples are generally sold at a higher price than other pineapples). By having the retailers commit to the sustainable/ethical standard for a significant share of their production, the collaboration moves a step beyond existing voluntary initiatives which, to date, have achieved sustainability for only a very small share of the UK pineapple market.

As the initiative would involve a commitment from all major retailers, the initiative also necessarily signals a commitment to producers that there will be sufficient sustained demand³⁰ from their largest buyers in order to justify investment in transitioning to new agricultural production methods. With such a commitment from retailers, the costs of potentially significant adaptations to production are therefore less risky for producers to incur. Collaboration between fewer retailers or across a smaller share of the UK pineapple market would not be sufficient to achieve the initiative's aims.

Finally, while the sustainable/ethical pineapple when introduced into the market is likely to be priced higher than the conventional pineapple, the initiative would not involve any collaboration in relation to retail pricing to consumers. Retail pricing would remain entirely within the purview of each individual retailer. Competition between retailers in the affected market would put downward pressure on the price charged to consumers for the sustainable/ethical pineapple product.

We assume such price pressure to be present in our ‘Moderate’ and ‘Optimistic’ modelling scenarios (detailed in section 4 below) by considering that the increase in the retail price charged to consumers is equivalent to the sustainable/ethical premium paid by retailers to producers (i.e. the amount that sustainable/ethical pineapples cost to produce, over and above conventional pineapples).³¹

Our ‘Conservative’ modelling scenario, in contrast, assumes that such price pressure does not exist. Instead it models a case in which the increase in retail price in the affected market exceeds the (sustainable/ethical) premium that retailers pay to producers, but does not exceed the maximum additional cost that consumers are willing to incur for the sustainable/ethical pineapple, over the conventional pineapple. In other words, the retailer would pass on to the consumer the additional premium they have paid to producers, plus an extra amount over and above this added production cost. It is assumed that a retailer in this Conservative scenario would assess consumers’ additional willingness to pay by independently undertaking a price exploration exercise to gauge consumer preference and then charge consumers at this level.

2.3 Research assumptions and limitations

Several research assumptions and limitations underpin this study. The key limitations are presented below.

- For simplicity and due to data availability limitations, this case study focuses on the retail market for fresh whole pineapples in the UK (i.e. not including pineapples which have been further processed via cooking or canning). We have identified the retail supply of fresh pineapples in the UK as the likely relevant market but have not undertaken a specific market definition test for the purpose of this study.
- As this case study is hypothetical in nature, the potential benefits of the collaboration have not been empirically evidenced, and we have also assumed that a sufficient number of consumers in the affected market would be willing to pay the potentially higher retail price for sustainable/ethical pineapples, such that the stock made available through the collaboration can clear. Should this collaboration take place, further consumer research, including willingness to pay studies with consumers in the UK pineapple market, is recommended.
- There are various potential benefits arising from the collaboration which have not been quantified in the social cost-benefit model, due to limitations around scope and data availability. While these have been briefly outlined in appendix 1, they present possible areas for future study. Similarly, the study does not include potential impacts on conventional pineapple prices that could arise from the collaboration. This is another area that would merit further study, should the collaboration occur.
- The values of non-financial benefits included in the SCBA, such as improved product quality and avoided climate change impacts, have been put into monetary terms using financial proxies. Details of the valuations used for each benefit in the SCBA are outlined in section 4.1 and in appendix 2.

- The social cost-benefit analysis has been modelled under three scenarios to reflect different assumptions regarding retailer behaviour and market competitiveness and their effect on retail prices charged to sustainable/ethical pineapple consumers under the collaboration. The specific assumptions made under each scenario are detailed in section 4.1.
- Due to a lack of data on the risk of pathogen-led ecological collapse resulting from the effects of pineapple monoculture, it has not been possible to precisely estimate the impacts of such an event on market prices and/or supply. Using available data, we have estimated the potential benefit of ‘a more stable and resilient future pineapple market’ based on historical incidence data on previous pathogen spreads in the banana market. We have also assumed that the UK-based demand for sustainable/ethical pineapples through the collaboration will be sufficient to mitigate the risk of such pathogen spread for the proportion of crop destined for UK markets.

3. POTENTIAL IMPACTS OF THE COLLABORATION

There are a number of potential impacts that could arise from the proposed collaboration. Although benefits are likely to be significant for pineapple plantation workers in the countries of production, the social cost-benefit model focuses on impacts in the affected market, i.e. the retail supply of fresh pineapples in the UK. The costs and benefits which have been considered in the social cost-benefit model are outlined in sections 3.1 and 3.2 below. In addition, not all potential impacts of the collaboration are quantified in the SCBA due to limitations around scope and data availability for this case study. These additional non-quantified impacts are listed in section 3.2.4 and described further in appendix 1.

3.1 Costs

As described above, the retailers would commit to paying a premium for the sustainable/ethical pineapples relative to conventional pineapples, as this would reflect the costs of sustainable/ethical production and ensure the feasibility of the initiative's aims in the longer term.³² This would result in the introduction of a new product into the market (i.e. the market for the retail supply of fresh pineapples in the UK), which is likely to be positioned at a higher price point than conventional pineapples.³³ Consumers who are currently in the affected market are therefore likely to face a higher purchase price for pineapples that are supplied via the collaboration. Note that this higher price is optional as 75 percent of the market would not be subject to the collaboration – conventional pineapples will still be available should consumers wish to purchase them.

3.2 Benefits

3.2.1 Improved product quality

The introduction of sustainable/ethical pineapples into the market will offer greater product quality for consumers in the affected market. The collaboration will result in pineapples of better quality being made available, both in terms of objective features (for example, through the physical and flavour quality standards that producers committed to) and subjective value (for example, consumer perceptions associated with sustainable/ethical varieties).

As this improvement in product quality is a non-economic outcome (but is a critical component of consumer welfare), it is valued in the SCBA model using a monetary proxy. We use as a proxy the additional amount that consumers are willing to spend on sustainable/ethical pineapples over conventional pineapples, taking the view that this price difference fully represents the value that consumers place on improved product quality.

3.2.2 More stable and resilient future market

The collaboration is also likely to enable a more stable and resilient pineapple market in the long run, an impact that would have benefits not just for current fresh pineapple consumers (consumers currently in the affected market) but also for future consumers of pineapples. For example, the use of unsustainable farming practices such as monocropping threatens the long-term availability of supply. Since only a single species is grown at large scale, crops grown under such conditions are more vulnerable to disease and extreme weather events which have the potential to wipe out an entire species in an area.^{34 35 36} This vulnerability in turn threatens the future availability of supply as well as the ability for retailers to keep prices of pineapples at an affordable level in the long run. By attempting to address these sustainability issues in the present, the hypothetical collaboration has the potential to reduce the risk of future market collapse.

3.2.3 Avoided climate change impacts through reduction in greenhouse gas emissions

It is also anticipated that by promoting more environmentally sustainable farming practices among pineapple producers (such as by reducing the use of hazardous agrochemicals), the collaboration would reduce the negative environmental impacts created by large-scale agriculture. While some of the environmental benefits arising from the collaboration are local to pineapple growing regions (such as a reduction in groundwater contamination), others such as reduced greenhouse gas emissions arising from soil carbon sequestration³⁷ have global impact. The potential reduction in greenhouse gas emissions arising from the collaboration (valued in terms of carbon equivalents) has therefore been valued as a potential benefit in the model.

3.2.4 Additional potential benefits

Some additional potential benefits which have not been quantified in the social cost-benefit model are described in appendix 1. These potential benefits include:

- Additional benefits to UK consumers:
 - UK consumer choice.
 - UK consumer wellbeing.
 - UK consumer health/avoided healthcare costs for UK consumers.
- Benefits in pineapple producer countries:
 - Job creation in producer countries.
 - Improved working conditions in producer countries.
 - Reduced biodiversity loss.
 - Reduced agrochemical accumulation.
 - Reduction in soil leaching.
 - Improved ecosystem services provision (e.g. air and water quality, flood prevention, scenic amenities and biodiversity)³⁸ through better-functioning ecosystems.

4. MODELLING SCENARIOS, RESULTS AND CONCLUSION

This section outlines the three different scenarios modelled in the hypothetical together with the results and conclusions of the analysis. The three alternatives have been modelled to reflect varying levels of conservativeness in the assumptions made with regard to the value of (1) potential increased costs and (2) potential increased product quality for sustainable/ethical consumers in the affected market.

An outline of the approach taken for each scenario is described below, while further details of the specific methodology and data sources used to calculate benefits and costs are provided in appendix 2.

4.1 Modelling scenarios

The hypothetical case study was modelled under the three scenarios outlined below, to provide a range for the potential benefit-cost ratio (BCR) and net benefits arising from the collaboration. Estimates for the annual impact of each benefit and cost were projected and streamed over a non-specific five year period, and discounted at the UK Treasury standard social discount rate of 3.5 percent³⁹ for each scenario. The three scenarios are referred to as the Conservative case, the Moderate case and the Optimistic case.

These scenarios used different estimates for (1) the cost of the sustainable/ethical pineapples to consumers and (2) the premiums that consumers are willing to pay for these goods based on their perceived value (used as a proxy in the model to value the benefit of improved product quality to those consumers in the affected market who purchase sustainable/ethical pineapples).

4.1.1 The Conservative case

In the Conservative case, the retail price increase for the sustainable/ethical pineapple over the conventional pineapple is assumed to be the same as the premium that consumers are willing to pay (i.e. the proxy for the value of improved quality in the model). This means that consumers are willing to pay only what they are actually paying and do not perceive any additional value to the sustainable/ethical pineapple beyond this cost. The assumption here is that retailers have conducted some form of price exploration to determine the optimal price they are able to charge before consumers would no longer be willing to pay for the sustainable/ethical pineapples. In the model, this value is set at £0.10 per pineapple, based on the 'optimal price increase' determined through consumer research conducted on Fairtrade products, which are assumed to be comparable to the sustainable/ethical product produced under this collaboration.⁴⁰

4.1.2 The Moderate case

In the Moderate case, the premium that consumers are willing to pay is still assumed to be the 'optimal price increase' value used in the Conservative case (£0.10), but the increase in retail price paid for the sustainable/ethical pineapple is assumed to be equal to the Fairtrade price premium paid by retailers to producers (£0.05).⁴¹ This means that the retailers are passing on to consumers the full price premium paid to producers but are retaining no additional margin on this premium. The assumption here is that sufficient competition remains in the market for the retail supply of sustainable/ethical pineapples to put downward pressure on the price charged by retailers to consumers.

4.1.3 The Optimistic case

In the Optimistic case, the premium consumers are willing to pay is assumed to be similar to the actual additional price paid for Fairtrade or organic pineapples in Europe.⁴² The assumption here is that Fairtrade or organic pineapples are similar enough to the sustainable/ethical pineapple product proposed under this collaboration that UK pineapple consumers would act similarly to European consumers. As this figure (50 percent) is significantly higher than the 10 percent 'optimal price increase' from Fairtrade consumer research (used in the Conservative and Moderate cases), we have applied only half of this price premium to the conventional pineapple price, resulting in a willingness-to-pay of £0.25 per pineapple for sustainable/ethical pineapple consumers in this scenario. In this case, the actual price increase faced by consumers remains equal to the price premium paid by retailers to producers for the sustainable/ethical pineapples (i.e. £0.05, the same as in the Moderate case).

Details of how costs and benefits are calculated in the model under each scenario are outlined in table 1 below.

Table 1 – Approach to calculating costs and benefits

	CONSERVATIVE CASE	MODERATE CASE	OPTIMISTIC CASE
Costs			
Increased product cost	Willingness to pay a premium on the regular price for Fairtrade goods in the UK – retailers undergo price exploration to find suitable price point (£0.10) X Estimated number of sustainable/ethical pineapples consumed	Premium paid to producers for sustainable/ethical pineapples – retail price increase assumed to be equal to marginal cost increase faced by retailers (£0.05) X Estimated number of sustainable/ethical pineapples consumed	Premium paid to producers for sustainable/ethical pineapples – retail price increase assumed to be equal to marginal cost increase faced by retailers (£0.05) X Estimated number of sustainable/ethical pineapples consumed
Benefits			
Improved product quality	Willingness to pay a premium on the regular price for Fairtrade goods in the UK (£0.10) X Estimated number of sustainable/ethical pineapples consumed	Willingness to pay a premium on the regular price for Fairtrade goods in the UK (£0.10) X Estimated number of sustainable/ethical pineapples consumed	Willingness to pay a premium on the regular price for organic/Fairtrade pineapples – assumed to be equivalent to half of the actual price premium paid for organic/Fairtrade pineapples in Europe (£0.25) X Estimated number of sustainable/ethical pineapples consumed
More stable and resilient future market	Assumed annual probability of a market collapse of a monocrop produced good due to a regional pathogen (%) X Value of UK pineapple imports (£) X Costa Rica's contribution to UK pineapple imports (%) ⁴³	Assumed annual probability of a market collapse of a monocrop produced good due to a regional pathogen (%) X Value of UK pineapple imports (£) X Costa Rica's contribution to UK pineapple imports (%)	Assumed annual probability of a market collapse of a monocrop produced good due to a regional pathogen (%) X Value of UK pineapple imports (£) X Costa Rica's contribution to UK pineapple imports (%)
Reduction in greenhouse gas emissions	Non-traded value of carbon (£) X Estimated annual tonnes of carbon saved through more environmentally friendly agriculture (tCO2e)	Non-traded value of carbon (£) X Estimated annual tonnes of carbon saved through more environmentally friendly agriculture (tCO2e)	Non-traded value of carbon (£) X Estimated annual tonnes of carbon saved through more environmentally friendly agriculture (tCO2e)
Note: X = multiplied by			

4.2 Results

In all scenarios the benefit-cost ratio (benefits divided by costs) is greater than one, and the net benefit (benefits minus costs) is positive. This would suggest that a collaboration designed in this way would improve consumer welfare, creating value greater than the overall cost to consumers arising from the collaboration. The results show that even in the Conservative case, benefits exceed costs by a multiple of 1.4, increasing to a multiple of 5.6 with more optimistic assumptions. The findings are summarized in table 2 below.

Table 2 – Findings from the hypothetical case study (figures in five year net present value)

	CONSERVATIVE CASE	MODERATE CASE	OPTIMISTIC CASE
Costs			
Increased product cost	£4,900,000	£2,500,000	£2,500,000
Benefits			
Improved product quality and choice	£4,900,000	£4,900,000	£12,300,000
More stable and resilient future market	£1,800,000	£1,800,000	£1,800,000
Reduction in greenhouse gas emissions	£100,000	£100,000	£100,000
Totals			
Benefit-cost ratio	1.4	2.7	5.6
Net benefit	£1,900,000	£4,200,000	£11,600,000

If we take a more narrowly defined view of consumer welfare to focus only on consumers in the affected market who bear the costs of the collaboration (i.e. including only the benefit of 'improved product quality' in the model), the benefits are at least equivalent to costs (i.e. increase in retail price) in the conservative scenario and greater than costs in the moderate and optimistic scenarios. Table 3 below presents the BCR and net benefits in this case where quality improvements are the only benefit measured.

Table 3 – Findings from the hypothetical case study (only the benefit of 'improved product quality' is included; figures in five year net present value)

	CONSERVATIVE CASE	MODERATE CASE	OPTIMISTIC CASE
Benefit-cost ratio	1.0	1.9	4.9
Net benefit	£0 (breakeven)	£2,400,000	£9,700,000

4.3 Conclusion

The case study benefit-cost ratios demonstrate that even with conservative assumptions, the collaboration would lead to a benefit-cost ratio greater than one when taking a wider view of consumer welfare, and at least one when taking a more narrow view of consumer welfare. Even if the initiative leads to higher prices for sustainable/ethical pineapple consumers, this cost is counterweighed by benefits accruing to both the sustainable/ethical pineapple consumers and the consumers who do not bear the costs of the collaboration. This shows that a collaboration on sustainability initiatives would directly benefit consumers.

Once the additional non-quantified benefits are considered,⁴⁴ the total benefits from the collaboration would further increase to include additional benefits to UK consumers as well as benefits in producer countries. As such, it is clear that this hypothetical case of collaboration to achieve sustainability could be justified both in terms of direct benefits to consumers currently in the affected market, and wider welfare gains that could be achieved through collaboration.

APPENDIX 1 – ADDITIONAL POTENTIAL BENEFITS NOT QUANTIFIED IN SCBA

There are a number of potential benefits resulting from the collaboration which have not been quantified in the social cost-benefit model, due to limitations around scope and data availability for this study. These potential benefits have been outlined below and are possible areas for further investigation.

Additional benefits to UK consumers

UK consumer choice

By increasing the value paid for sustainable and ethical produce, more small-scale pineapple producers may be able to compete in the UK market. The collaboration may therefore lead to the introduction of new differentiated pineapple varieties to the affected market, thus improving consumer welfare through increased product choice.

UK consumer wellbeing

Greater sustainable/ethical choice within the pineapple market better enables consumers to make purchase decisions that accord with their values. If people value sustainable/ethical characteristics such as pro-environmental production methods and fair treatment of farm workers, being able to support these values through consumer decisions will improve their personal well-being.

UK consumer health/avoided healthcare costs for UK consumers

Within the scope of the collaboration, producers agree to reduce the use of hazardous agrochemicals. This is already a standard of organic production, and organic foods have been shown to contain higher concentrations of antioxidants and lower pesticide residues than non-organic foods. The increased adoption of sustainable farming practices under the collaboration therefore has the potential to create health benefits for consumers who purchase the new sustainable/ethical pineapple.

Benefits in producer countries

Job creation in producer countries

As sustainable/ethical agriculture is less reliant on farm machinery and more dependent on labour, the demand for farm workers will increase in producer countries. This job creation will provide income for additional workers, improving their wellbeing and also benefitting the communities where their wages are likely to be spent. Since labour is likely to be local, whereas specialised farming machinery is likely to be imported from further afield, more money will circulate within local economies. There will be additional benefits to the state in reduced social support requirements and increased tax revenues.

Improved working conditions in producer countries

The production of sustainable/ethical pineapples will create better working conditions as a requirement. By paying at a better rate, increasing safety, and allowing freedom of association and collective bargaining rights, the working conditions for farm labourers will improve, and will likely include better working hours and benefits. This will lead to improved well-being for the workers themselves, which is likely also to improve their relationships with their family and friends and lead to more cohesive communities in general. It is possible that these improved conditions will also lead to a demand for improved working conditions in other associated industries (for example, for people working on nearby plantations).

Improved communities in producer countries

The movement towards the production of sustainable/ethical pineapples will improve community cohesion as inequalities are reduced and local economies are bolstered. A reduction in environmental harm at local level will also improve the living conditions in local communities and can reduce the social pressures brought on by a loss of space and resources.

Reduced biodiversity loss

A reduction in large-scale monoculture will reduce the pressure to deforest land and strip fields of their biodiversity in favour of single crop harvesting. While it may be the case that as much, or more, total land area is required for sustainable/ethical pineapple production, the land use would not be as intensive, nor would it damage the environment as much, and as such would reduce losses in biodiversity.

Reduced agrochemical accumulation

As conventional pineapple production relies heavily on pesticides and fertilisers, a movement away from dependence on chemicals and towards more sustainable/ethical production methods will reduce the accumulation of these chemicals in the biosphere. As pesticides and fertilisers can be harmful in high concentrations (such as through groundwater contamination), reducing their presence can benefit animals and the environment, as well as human health.

Reduction in soil leaching

Conventional pineapple production, through monocropping, strips soils of naturally occurring minerals and nutrients in favour of the application of agrochemical fertilizers, pesticides and industrial irrigation. Over time, this damages

the productivity of soil and its ability to regenerate; eventually the soil can become sterile, reducing its ability to support future agricultural use. The production of sustainable/ethical pineapples takes account of the needs of the environment and works to maintain resources such as natural soil productivity through sustainable cultivation methods, ensuring that the soil is capable of supporting production sustainably into the future.

Improved ecosystem services provision through better functioning ecosystems

Ecosystem services are the provisioning, regulating and cultural services provided to humans by the environment. They support much of human culture and the economy and are critical to human life. A well-functioning natural environment is better able to provide ecosystem services and can do so sustainably. Human activities that infringe on or damage ecosystem functioning can significantly reduce the level of provision of these services.

Monoculture and other industrial-scale agricultural practices can greatly damage, or even eliminate, ecosystem service provision in their environments. As the production of sustainable/ethical pineapples requires more sustainable and environmentally sound approaches, ecosystem functioning is better able to remain intact and maintain a healthy provision of ecosystem services.

APPENDIX 2 – APPROACH TO CALCULATING BENEFITS AND COSTS

This appendix details the approach used to calculate benefits and costs included in the SCBA model. Due to data availability limitations, the benefits measured in the model are focused on pineapples grown in Costa Rica, though this is likely to be representative of the global picture, as Costa Rica is the largest pineapple growing region in the world, and accounts for 73 percent of pineapple imports to the UK. The modelling is conducted for a non-specific five year period, meaning benefits and costs accrue over a five year term.

Calculating benefits

Improved product quality

As described in the scenarios outlined in section 4, the benefit to the consumer from increased product quality is valued using the additional amount that consumers are willing to pay for the sustainable/ethical pineapple over and above what they would pay for the conventional pineapple. We assume that a material number of consumers in the affected market would be willing to pay a higher retail price for the sustainable/ethical pineapple variety. The SCBA model specifically assumes that a sufficient number of pineapple consumers are willing to pay this higher retail price, such that the stock of 25 percent sustainable/ethical pineapples can clear.⁴⁵

The total benefit of improved product quality is calculated by combining this additional willingness-to-pay value with the total estimated number of sustainable/ethical pineapples consumed in a year. The total quantity of all pineapples in the affected market is based on UK government statistics on tonnage

of pineapple imports up to 2015 (the most up-to-date data available).⁴⁶ As import quantities have changed considerably since the mid-1990s and the model is hypothetical and non-time-specific, the quantity used is an average of the past 20 years of imports data (a conservative approach).

In order to convert tonnage to number of pineapples in the affected market, an average weight of pineapples of 1500g was assumed, based on the median size quoted by the Food and Agricultural Organization standards.⁴⁷ The total number of sustainable/ethical pineapples consumed was then calculated by multiplying the total number of pineapples in the affected market by the target purchase share of sustainable/ethical pineapples under the collaboration. As the model is focused on pineapples grown in Costa Rica, this figure was then multiplied by the share of the UK's pineapple imports which come from Costa Rica.⁴⁸

Finally, the price premium is multiplied by the quantity of sustainable/ethical pineapples to calculate the overall benefit of the improved quality, for those UK consumers in the affected market who bear the costs of collaboration.

More stable and resilient future market

We assess the value of a more stable and resilient future market by calculating the reduced risk (i.e. avoided loss) of a major contraction of the affected market due to ecological collapse. This is estimated as the annual probability of pathogen-led collapse due to monocropping. We assume that UK-based demand for sustainable/ethical pineapples through the collaboration will be sufficient to mitigate the risk of such pathogen spread for the proportion of crop that is destined for UK markets.

Based on knowledge of the historic banana market dating back to the late 19th century, there is evidence that monoculture can lead to a more rapid spread of pathogens, which runs the risk of eradicating large portions of a crop, as happened to the Gros Michel varietal in the 1950s.⁴⁹ Given that this event occurred at least once in the 20th century and there is evidence of another strain starting to affect current banana crops, we assume that this pattern equates to at least a 1 in 100 year occurrence, or an annual probability of 1 percent, that a widespread pathogenic infection will lead to major crop failure, and a temporary collapse in the export market for that crop.

As Costa Rica produces 73 percent of the pineapples sold in the UK market,⁵⁰ we assume that a major pathogenic incident affecting pineapple crops within Costa Rica would temporarily collapse the UK pineapple market. The probability of a major pathogenic incident is applied to Costa Rica's share of the UK pineapple market (where the total UK pineapple market is estimated using the 20-year average value, based on UK government statistics) to give an annual avoided cost (i.e. benefit) of a more stable and resilient future market.

Avoided climate change impacts through reduction in greenhouse gas emissions

To estimate avoided climate change impacts through reduced greenhouse gas (GHG) emissions, we first determined what the potential GHG emissions savings would be if Costa Rica converted all land currently used for pineapple production, over to sustainable/ethical production. Based on Worldbank

figures,⁵¹ 11 percent of Costa Rica's total land is arable land or used for permanent crops, and 7 percent of this land is used for cultivating pineapples.

The source profiles a case study for Coffee NAMA, a project covering 93,000 ha, which finds that carbon emission reductions of 120,000tCO₂e are possible, through using more environmentally-focused approaches to agriculture. This equates to 1.29 tCO₂e/ha, a figure that we adapted for the model by multiplying it by the total land used for pineapple cultivation in Costa Rica.

The result is the total potential carbon emission reduction, if all pineapple production methods became more environmentally-focused. To find the proportion of this that would be realised if UK retailers set a purchase target for sustainable/ethical pineapples, we applied the 7.1 percent share of Costa Rica's pineapple exports destined for UK markets⁵² to the target purchase share of sustainable/ethical pineapples in the collaboration (25 percent).

The total carbon emissions reduction was valued using the UK government guidance on valuation of energy use and greenhouse gas emissions.⁵³ Non-traded values have been used to incorporate more accurately the social value associated with reduced GHG emissions, though the 'low' non-traded estimate has been adopted to be conservative.

Calculating costs

Costs in the model are defined as the increase in retail price paid by consumers when purchasing sustainable/ethical pineapples rather than conventional pineapples. This is a cost for consumers who choose to purchase the sustainable/ethical pineapple when it is introduced into the affected market.

Cost per year is calculated in the model by combining (1) unit cost increases faced by sustainable/ethical consumers with (2) the total estimated number of sustainable/ethical pineapples consumed in a year. The total quantity of all pineapples in the affected market is based on UK government statistics on tonnage of pineapple imports up to 2015 (the most up-to-date data available).⁵⁴ As import quantities have changed considerably since the mid-1990s and the model is hypothetical and non-time-specific, the quantity used is an average of the past 20 years of imports data (a conservative approach).

In order to convert tonnage to number of pineapples in the affected market, an average weight of pineapples of 1500g was assumed based on the median size quoted by the Food and Agricultural Organization standards.⁵⁵ The total number of sustainable/ethical pineapples consumed was then calculated by multiplying the total number of pineapples in the affected market by the target purchase share of sustainable/ethical pineapples under the collaboration. As the model is focused on pineapples grown in Costa Rica, this figure was then multiplied by the share of the UK's pineapple imports which come from Costa Rica.⁵⁶

Finally, the unit cost increase was multiplied by the quantity of sustainable/ethical pineapples to calculate the overall cost to those UK consumers in the affected market who will bear the costs of collaboration.

ANNEX 2:

REPORT OF 2017 ROUNDTABLE DISCUSSION ON COMPETITION REGULATION AND SUSTAINABILITY IN SUPPLY CHAINS (28/06/17)

On 28 June 2017, key stakeholders from government, civil society, academia and business met to discuss competition regulation and sustainability in supply chains. This second roundtable built on the outputs of the June 2016 roundtable on competition regulation and sustainability.

This roundtable's primary objective was to discuss the implications of the research commissioned by Fairtrade after the 2016 roundtable, and to suggest next steps for Fairtrade's projects. It was chaired by Louisa Cox, Director of Policy, Partnerships and Programmes at the Fairtrade Foundation. All discussions were held under Chatham House Rules. The report below records the outcomes of the roundtable discussions.

The first session of the roundtable consisted of presentations followed by Q&A.

- Tim Aldred (Head of Policy and Research at Fairtrade Foundation) set out the context of how this research fits with Fairtrade's broader mission.
- Peter Andrews from the British Retail Consortium laid out the business perspective on collaborations for sustainability in supply chains.
- NEF Consulting presented the results of their cost-benefit analysis of the Hypothetical Initiative within the pineapple supply chain.
- External legal counsel presented their legal analysis to accompany the NEF Consulting's Report.

The second session of the roundtable consisted of Q&A and discussions focusing on:

- What are the implications of the research? (Discussion 1)
- What are the next steps for this project? (Discussion 2)

Outlined below are comments shared during the roundtable discussions. Discussion comments have been anonymised and do not necessarily represent the views of individual participants or the organisations they represent.

DISCUSSION 1: IMPLICATIONS OF THE RESEARCH

Do the results of the Hypothetical Initiative provide a case for encouraging collaboration between retailers on sustainability issues?

- Yes – broadly there is enough evidence to show that sustainability of supply is a problem and to present collaboration for sustainability purposes as a possible solution to the government.
- The research shows the opportunity that this type of collaboration offers – but the devil is in the detail. For example the case would be strengthened with more evidence of the material benefits to UK consumers of the 'sustainable pineapple' (the new product resulting from the Hypothetical Initiative).
- The research is encouraging – this case study shows that competition law is not necessarily a blocker to collaboration.
- We should note that one example of competition law consistent collaboration would not be universally applicable. As each initiative has to be assessed under competition law on a case by case basis, it is important to remember that one precedent cannot be applied to all.

What are the most important issues?

- Private companies seek to make profit, so there is a potential tension around having businesses lead on sustainability issues. Could the UK government step in to raise the ethical/sustainable standards of production across the board?
- This also ties into the government's obligations internationally – the UK is committed to helping the development of developing countries – this is one way to do this.
- Attendees recommended further research on what customers are actually willing to pay on the shop floor for an ethical/sustainable product. (Not just what they say they will in a survey).
- Attendees posed the questions:
 - What are the implications for other businesses in the supply chains?
 - What are the implications for investors and how do you prove profitability to investors?
- Attendees recommended clarity on what the foundation of the ethical/sustainable standards would be based on.
- Attendees highlighted the need to consider how to market this to consumers and boost demand. Would sustainable pineapples be a luxury? Need to go beyond the 'wealthier consumer option' and aim for the new norm.

What are the blockers?

- Competition law could be a blocker if a narrow approach to the benefits that may be taken into account was adopted. A broad approach would incorporate other benefits rather than price, a wider range of stakeholders, and a longer-term timeframe. With this broader approach, competition law would not necessarily be a blocker to collaboration.
- Attendees highlighted the disincentive to innovative collaboration that the perceived risk falling foul of competition law represents for businesses. Steep fines and reputational damage make businesses worried.
- In the light of this, some attendees suggested that further guidance from the CMA on how sustainability considerations fit within competition law would reduce the fear factor around collaboration for companies.
- Attendees asked: do businesses sometimes use competition law issues as an excuse for not dealing with issues in their supply chains?
- It may be complicated by the fact that retailers do not have a direct relationship with producers on the ground.
- Attendees noted the risk of drift from a collaboration for sustainability purposes to a wider collaboration that is anti-competitive.

Potential solutions to blockers:

- Some attendees suggested that there could be a block exemption applied for some form of collaboration for sustainability purposes.
- It may be necessary to work with other EU member states to establish an EU-wide solution.
- Some attendees suggested that cross-departmental government action on this topic would yield the most effective policy solutions. Policy officials in departments such as DFID or DIT maybe well placed to take account of the broader and longer-term imperative of sustainability, beyond the more immediate concerns of the CMA.

DISCUSSION 2: NEXT STEPS

What are the potential gaps in the case study findings with view to developing regulatory solutions?

- More objective and quantifiable evidence would strengthen the case. E.g. What is the objective quality increase in the pineapple?
- Additional information on consumers' willingness to pay would also strengthen the case.
- Similarly, more evidence around why sustainability of supply is important would strengthen the case.

- Considering that the Hypothetical Initiative will only cover 25 percent of the parties' pineapples purchases from Costa Rica – would the price of other pineapples be affected? Would there be food waste as an unintended consequence if there was not enough demand for the sustainable pineapples? Would the 25 percent figure fluctuate in reality? It would of course be preferable to have all pineapples meeting the same standards.
- It would be useful to explain how the Hypothetical Initiative would be monitored.
- It may be useful to have a study looking at the difference in impact if a narrow range of eligible benefits were considered in competition law assessments vs. the impact if a broader range of benefits were accounted for.
- It would be useful to outline the conditions under which retailers need this sort of collaboration.

Are there further research areas that would strengthen the findings of this case study?

- Further research mapping of what has been done already.
- Evidence from the lifecycle assessment put together for the CMA.
- It would be good to have a real-life example of a collaboration for sustainability purposes.
- There is a broader potential education piece – making the CMA and relevant authorities aware of the established broader techniques of evaluating benefits in other spheres. For example, the European Investment Bank assesses economic as well as financial benefits.
- It would be useful to have producer perspective on the Hypothetical Initiative.
- It is important to note that, as the CMA does not usually comment on hypothetical initiatives, gathering extra information in order to expand the detail in the Hypothetical Initiative may not be of much value.
- How can businesses be encouraged to step up and take a lead in this space?
- What are the forward thinking companies already doing unilaterally with their supply chains? It could be useful to clarify why unilateral action often doesn't work – and thus why collaboration is necessary to achieve sustainability benefits.

How could this research be used to effect change?

- Advocacy
 - Aim to persuade the UK government and parliament
 - Link into advocacy in other EU states – are member states willing to ask the European Commission for more guidance around competition law and collaboration?
- Next step could be to identify a real-life case study – bring together the different actors in the supply chain to discuss the practicalities.
- If an actual concrete collaboration initiative could be developed, a short-form opinion (a non-binding indication of how the CMA would judge the collaboration) could be requested from the CMA. This would need to be requested by the businesses that are party to the potential collaboration.

Which other areas of research and advocacy does this work align with?

- Brexit – to what extent can UK competition law diverge from EU competition law post-Brexit?
 - Does Brexit offer opportunities for a more progressive approach to collaborations for sustainability purposes?
 - How to avoid competition law becoming narrower in its consideration of collaborations for sustainability purposes after Brexit?
 - Important to ensure that the political discourse around Brexit recognises the opportunity that Britain has to take a leading role in ensuring that the supply chains providing our imports are fair and sustainable.
- British farmers – this work may also align with the aim of improving the fairness and sustainability of supply chains in the UK, and achieving a fair price for producers. Research could be done to assess whether this project can align with groups in the British domestic agricultural sector.
- So far, several steps have been taken in the Netherlands with regards to creating more room within competition law for sustainability initiatives and to provide more clarity on how to develop such initiatives in conformity with competition law:
 - A Government decision was issued on the assessment of sustainability initiatives under competition law.⁵⁷
 - A Vision document was issued by the Netherlands Authority for Consumers & Markets (ACM),⁵⁸ explaining to what degree sustainability initiatives of businesses are compatible with competition law, as well as basic principles for oversight of sustainability arrangements⁵⁹ and an interactive decision making tree⁶⁰ from the ACM (to help decide if an initiative may run into competition law issues).
 - Building discussion at the international level – focussing on EU law.

- An initiative is in process to develop an umbrella law which will make it possible for the responsible minister(s) to give a general exemption through the law provided a public interest has been demonstrated.
- Apart from the Netherlands, there have also been some other limited and isolated examples of actions on this in Europe (Germany, Finland).

Additional Q&A

- Q:** What are the incentives for retailers to seek to collaborate for sustainability?
- A:** They can improve their sustainability of supply for future years and appeal to consumers who value ethically and sustainably sourced food.
- Q:** If consumers are willing to pay more for an ethical/sustainable product (as suggested in the cost benefit analysis), would there not already be enough demand to drive a product through a competitive advantage – would retailers not already have been persuaded to break ranks?
- A:** There are several potential reasons that supermarkets have not already moved to fill this demand. There may be a fear of a first-mover disadvantage for supermarkets. This is also the type of initiative that is more effective at large scale – hence the benefit of collaboration. It is also possible that the increased supply and profile that a collaboration for sustainability would generate, would itself increase demand.
- Q:** Will the CMA have more freedom after Brexit?
- A:** Possibly, but the EU rules are likely to remain very important as there would have to be strong arguments for the UK to take a differing approach to the EU in this area.

REFERENCES

1. Monocropping is the practice of growing a single strain of crop year after year, in the absence of rotation. This causes soil depletion and makes the ecosystem more vulnerable to being wiped out by a single shock such as crop disease or parasites.
2. (2016). McKinsey on Sustainability and Resource Productivity. McKinsey and Company. p. 58.
3. The World Bank reports that 1.5°–2°C of global warming could lead to a 40–80% reduction in present maize, millet and sorghum cropping areas in Africa. (2016). Enhancing Resilience to Natural Disasters in Sub-Saharan Africa. The World Bank. https://www.imf.org/external/pubs/ft/reo/2016/afr/eng/pdf/chapter3_1016.pdf.
4. National trade statistics for UK imports of bananas, and for fresh vegetable products typically imported from Kenya, show average prices for 2015 below 2011 levels (and 2015 was actually a year of recovering from even more severe price drops).
5. Lack of investment in better production and poor resilience to external shocks such as drought. This can lead to unsustainable survival strategies such as consuming seed stocks meant for producing the next year's harvest.
6. Assessing Public Support for Regulation for Fairer Trading Practices, GlobeScan 2016, Project: 2891, GlobeScan® (unpublished).
7. Further research would be required to establish the exact standards for the collaboration, but the hypothetical measures proposed in this study were: pineapple workers would be paid a living wage; plantation owners would not engage in discriminatory hiring practices; pineapple workers would be given rights to freedom of association and collective bargaining; certain organic agricultural practices would be adopted, including a reduction or elimination of monoculture growing, and plantation owners would agree to reduce or eliminate the use of agrochemicals (i.e. pesticides and fertilizers) which are hazardous to the environment and/or the health of their workers and consumers; and plantation owners would be required to meet certain physical quality, flavour quality and varietal selection standards for their pineapples (as agreed between the parties).
8. Both in terms of offering a new 'ethical/sustainable pineapple' but also potentially allowing market conditions that allow a greater variety of smallholders and types of pineapple to be viable.
9. Assessing Public Support for Regulation for Fairer Trading Practices, GlobeScan 2016, Project: 2891, GlobeScan® (unpublished)
10. NEF Consulting Report, section 3.2.
11. Decision of the Office of Fair Trading, CA98/03/2011 – Dairy retail price initiatives, 26 July 2011.
12. Commission Decision of 24 January 1999 in Case IV.F.1/36.718 – CECED.
13. Assessing Public Support for Regulation for Fairer Trading Practices, GlobeScan 2016, Project: 2891, GlobeScan® (unpublished)
14. Monocropping is the practice of growing a single strain of crop year after year, in the absence of rotation. This causes soil depletion and makes the ecosystem more vulnerable to being wiped out by a single shock such as crop disease or parasites.
15. Fresh pineapples in this case refer to those which are not further processed via cooking or canning. It can include fresh pineapples sold whole as well as fresh cut prepared pineapples. For simplicity in this study and due to data availability limitations, the case study focuses on fresh whole pineapples.
16. In this case study, the retail supply of fresh pineapples in the UK as a whole, has been identified as the relevant market, which we consider to be a reasonable approach for present purposes. We consider the relevant market to include all fresh pineapples, including those grown using conventional agricultural practices as well as those grown under sustainable/ethical practices.
17. Pineapples, fresh or dried, The Observatory of Economic complexity, using UN COMTRADE data from 2014. Retrieved from: <http://atlas.media.mit.edu/en/profile/hs92/080430/>
18. 'The sour taste of pineapples, working conditions in the pineapple industry', International Labor Rights Forum, website article. Retrieved from: <http://old.laborrights.org/creating-a-sweatfree-world/sweatshops-in-the-fields/working-conditions-in-the-pineapple-industry>
19. 'Pineapples from the Philippines', Fairfood International website article. Retrieved from: <http://international.fairfood.nl/international.fairfood.nl/project/pineapples-philippines/>
20. 'The sour taste of pineapples, working conditions in the pineapple industry' op. cit.
21. 'The problem with pineapples', Banana Link website article, <http://www.bananalink.org.uk/the-problem-with-pineapples>
22. 'The sour taste of pineapples, working conditions in the pineapple industry' op. cit.
23. 'The problem with pineapples' op. cit
24. 'The problem with pineapples' op. cit
25. 'The sour taste of pineapples, working conditions in the pineapple industry' op. cit.
26. 'Sweet Fruit, Bitter Truth', Oxfam Deutschland, May 2016, p.3 <https://www.oxfam.de/system/files/20160531-oxfam-sweet-fruit-bitter-truth-en.pdf>
27. According to current grocery market share statistics, the top eight grocery retailers at present have a combined market share of just over 92% (Kantar Worldpanel Grocery Market Share data for Great Britain, <https://www.kantarworldpanel.com/en/grocery-market-share/great-britain>).

28. Due to data availability limitations, the benefits measured in the model are focused on pineapples grown in Costa Rica, though this is likely to be representative of the global picture, as Costa Rica is the largest pineapple growing region in the world and accounted for 73% of the UK's pineapple imports in 2015 http://atlas.media.mit.edu/en/visualize/tree_map/hs92/import/gbr/show/080430/2015/ and http://atlas.media.mit.edu/en/visualize/tree_map/hs92/export/show/all/080430/2016/
29. Market share of Fairtrade from Nielsen data for the whole of 2016 (52 weeks up to 31/12/16).
30. The initiative is assumed to involve a commitment of five years (and is modelled as such in the cost-benefit analysis).
31. Note that, in these scenarios, retailers are still achieving a profit margin on the pineapples sold but are not making an additional margin on the premium paid to producers for sustainable/ethical pineapples.
32. It is anticipated that such an agreement is likely to result in increased costs for pineapple producers in the short term, as they would need to invest in increasing wages for their workers and also incur transition costs, such as investment in new, potentially more labour-intensive, farming techniques (in lieu of extensive agrochemical use). These costs would then be passed onto retailers through their commitment under the initiative.
33. As noted in section 2.2 above, the initiative would not involve any collaboration in relation to retail pricing to consumers.
34. Unsustainable monocropping was a contributing factor in the spread of Fusarium Wilt (Panama Disease), which destroyed much of the commercial banana crop in the mid-20th century. It has once again emerged in commercial crops during the past 25 years. See: <http://www.fusariumwilt.org/index.php/en/about/>.
35. Monoculture practices have been a significant factor in the recent cluster of 'coffee rust' (*Hemileia vastatrix*) outbreaks in the Americas. See: <http://apsjournals.apsnet.org/doi/full/10.1094/PHYTO-04-15-0085-RVW>.
36. As Fernando Ramirez, leading agronomist at IRET (the National University of Costa Rica's toxic substances institute) explains when discussing pineapple agriculture, "this is absolute monoculture, and that and the climate provide the perfect conditions for pests and diseases". See <https://www.theguardian.com/business/2010/oct/02/truth-about-pineapple-production>.
37. Studies have shown that organic farming has the potential to accumulate soil carbon (see <http://www.pnas.org/content/109/44/18226.full>) which in turn can offset increases in atmospheric carbon. See <http://www.sciencedirect.com/science/article/pii/S0016706104000266>.
38. See <http://www.sciencedirect.com/science/article/pii/S0921800914000652>.
39. HM Treasury Green Book, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf.
40. Independent consumer research (April 2015 – unpublished) for Fairtrade International found that a 10% increase on regular (i.e. non-Fairtrade) prices was an optimal price increase. Recent market research conducted for this study found a current average price of £1.00 per pineapple for conventional pineapples. Thus, a £0.10 (10% of £1.00) premium has been adopted as a consumer willingness-to-pay value for sustainable/ethical pineapples, and therefore a proxy for the value of improved product quality.
41. We use the Fairtrade price premium of approximately £0.05 per pineapple as a proxy for the increased amount that retailers would pay to producers under the collaboration.
42. The Centre for the Promotion of Imports from developing countries (known as the CBI), an agency of the Netherlands Ministry of Foreign Affairs, provides average estimates of the premium in consumer prices for Organic pineapples and Fair trade pineapples. See: <https://www.cbi.eu/market-information/fresh-fruit-vegetables/pineapple/europe/>.
43. Note that due to data availability limitations, the benefits measured in the model relate to pineapples grown in Costa Rica, though this is likely to be representative of the global picture, as Costa Rica is the largest pineapple growing region in the world and accounts for 73% of the UK's pineapple imports.
44. See Appendix 1.
45. This assumption could be confirmed through conducting research on consumers in the affected market. Note that the current Fairtrade market share in the UK banana market is nearly 40%. While other market factors may be at play in the banana market, it is believed that at least this level of demand may be achieved for sustainable/ethical pineapples in the future. We have chosen 25% as a more conservative initial target for this study.
46. DEFRA (2016), Horticulture Statistics 2015, ONS (Office for National Statistics). Retrieved from: <https://www.gov.uk/government/statistics/horticulture-statistics-2015>.
47. Standard for Pineapples, CODEX STAN 182-1993, Codex Alimentarius. Retrieved from: http://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?Ink=1&url=https%253A%252F%252Fworkspace.fao.org%252Fites%252Fcodex%252Fstandards%252FCODEX%252FBSTAN%252B182-1993%252FCXS_182e.pdf.
48. 'Where does the United Kingdom import pineapples fresh or dried from (2015)?' OEC. Retrieved from: http://atlas.media.mit.edu/en/visualize/tree_map/hs92/import/gbr/show/080430/2015/.
49. Source: <http://www.fusariumwilt.org/index.php/en/about/>.
50. 'Where does the United Kingdom import pineapples fresh or dried from (2015)?' op. cit.
51. World Bank, CIAT, CATIE (2014), 'Climate-Smart Agriculture in Costa Rica' CSA Country Profiles for Latin America Series, Washington, D.C. The World Bank Group. Retrieved from: <http://sdwebx.worldbank.org/climateportal/doc/agricultureProfiles/CSA-in-Costa-Rica.pdf>

52. 'Where does the United Kingdom import pineapples fresh or dried from (2015)?' OEC op. cit.
53. Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal, Department for Business, Energy and Industrial Strategy, 15 March, 2017. Retrieved from: <https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal>.
54. DEFRA (2016), Horticulture Statistics 2015, ONS (Office for National Statistics). op. cit.
55. Standard for Pineapples, CODEX STAN 182-1993, Codex Alimentarius. op. cit.
56. 'Where does the United Kingdom import pineapples fresh or dried from (2015)?' OEC op. cit.
57. Decision of the Minister of Economic Affairs of May 6, 2014, No. WJZ/14052830, containing the policy rule regarding the application by the Netherlands Authority for Consumers and Markets of Section 6, paragraph 3 of the Dutch Competition Act in anticompetitive arrangements that have been made for the purpose of sustainability; Decision of the Minister of Economic Affairs of September 30, 2016, No. WJZ/16145098 containing the policy rule regarding the application by the Netherlands Authority for Consumers and Markets of Section 6, paragraph 3 of the Dutch Competition Act in anticompetitive arrangements that have been made for the purpose of sustainability.
58. The Netherlands Authority for Consumers & Markets, Vision Document, Competition & Sustainability, May 2014.
59. ACM sets basic principles for oversight of sustainability arrangements, 2 December 2016, see: <https://www.acm.nl/en/publications/publication/16726/ACM-sets-basic-principles-for-oversight-of-sustainability-arrangements/>.
60. See the decision tree (in Dutch): <https://www.acm.nl/download/documenten/acm/mogen-bedrijven-afspraken-maken-over-duurzaamheid-interactieve-beslisboom.pdf>.

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