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Carbon Emissions and the Air Mile debate

### **The bigger picture**

Global warming is a natural phenomenon that has been ongoing since the last ice age but has accelerated in recent times. A significant part of the greenhouse gases [carbon dioxide, methane, nitrous oxide and other gases] have been generated over the last century primarily by developed countries. [The G8 are responsible for 60% of current Global Emissions while Africa has contributed to <1%]. 2005 has been the hottest year on record and the world has experienced the 13 hottest years since 1990.

With the global population set to hit eight billion by 2025 and just over nine billion people by 2050 increased amounts of food will have to be produced and moved around the world.

The drive to eat locally grown produce and not eat out of season produce is neither realistic nor practical. The demographics in the world have changed and a practical approach needs to be arrived at to ensure agricultural produce is grown in a sustainable manner in suitable climates, without subsidies and delivered to market efficiently.

### **Food Miles, LCA's, Carbon Footprint and Labels**

Over the past 24 months a number of NGO's and environmental campaigners have advocated against airflown food. The issue needs to be addressed rationally and not emotively without a clear understanding of the facts as has been the case. Accurate technical data needs to be scientifically researched and availed to enable sounder decisions to be made. Food miles are loosely defined as the distance fresh produce and flowers travel from source to market. This is a very simple definition and needs to be refined to include the complete supply chain from procurement of the seed and planting material through to the eventual consumption and disposal of the food and associated waste. This has been defined as the Life Cycle Analysis (LCA) of a product.

**It is quite clear that a full life-cycle analysis, and not just the air freight component of the product, including use and disposal is undertaken over a series of different production periods and cycles to ensure the information is correctly captured.**

Tesco and Marks & Spencer initially went ahead in 2007 with labeling air flown fresh produce with an airplane logo. The idea was to give consumers further information on the product and for them to decide whether to buy air-flown imported produce or not. Both retailers admitted seven months later that the controversial stickers have had no impact on sales and that there was no direct evidence to suggest that consumers were so concerned about their footprints that they turned away from air flown imports.

Subsequently in 2008, Tesco (and more recently Casino) are working with the Carbon Trust have to come up with a comprehensive method to measure a carbon footprint consistently. The Carbon Trust has developed with the British Standards Institute (BSI) the Carbon Reduction Label that will inform consumers of the amount of carbon dioxide and other greenhouse gases produced during the full life-cycle analysis (LCA) of the product, including use and disposal.

**The Carbon Trust (2008) has defined a carbon footprint as:**

**“The total set of greenhouse gas emission caused directly and indirectly by an [individual, event, organisation, product] expressed as CO<sub>2e</sub>”**

## **The FACTS**

**The developed world is primarily responsible for the current state of affairs as a result of their activities over the past 150 years. Why are developing countries now being made responsible for this?**

- Current carbon dioxide emissions for developing countries on a per capita basis are far below the global average of 3.6 tons. The UK per capita emission is 9.2 tons and that of Africa, at 1 ton.
- Fresh Fruit & Vegetable exports from Sub Saharan Africa to the UK account for a maximum 0.1 per cent of total UK emissions
- A Cranfield University study found that the carbon footprint of roses produced in Holland was over 5.8 times that of roses produced in Kenya even after including the emissions from air freight (Williams, 2007).
- Developing countries like Kenya are still primary agricultural based economies and cannot stop producing and exporting fresh produce. The economic and social ramifications would have a major impact on the economy were this to happen. Kenya is the largest supplier of horticultural produce from SSA and earns over US\$750 million in revenue annually and provides jobs to over 150,000 people directly and supports over 4 million people directly and indirectly.

## **Agricultural production in Kenya**

Kenya has a land mass the size of Texas or France and is endowed with a range of altitudes and growing climates that allow for year round production. The majority of the power generated in the country is either hydro-electric or geothermal and is clean energy unlike that in the developed world that is coal or nuclear. 61% of GHG's result from energy usage – power generation & heating

- The majority of the land has only been farmed in the last 100 years with a sustainable approach.
- Soils are large carbon sinks and contain more carbon than is contained in vegetation and the atmosphere combined. (Soils can hold up to 1.25 Tons of CO<sub>2</sub> per Ha).
- The soils are deep and do not require any intensive machinery nor equipment. Farming in Kenya and in developing countries is done with light tillage and does not release CO<sub>2</sub> into the atmosphere unlike the intensive farming that happens in developed countries.
- The soils in Kenya (and most developing countries) have also not been intensively or aggressively farmed unlike those in the developed world. The need therefore for fertilizers

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is minimal and resulting greenhouse gas (ghg) emissions of nitrogen oxides, nitrous oxide, ammonia and carbon dioxide are greatly reduced.

- Kenya has two rain seasons a year and 12 hours of daylight every day with constant temperatures so that farming requires no heating or lighting unlike that in developed countries in the northern hemisphere.
- Agriculture & farming are extremely labour intensive and create employment for over one million Kenyans in horticulture, tea, coffee and other perennial cash crops. The horticulture industry is also the largest employer of women and of university graduates annually.

Kenya is therefore one of the countries that is ideally suited for year round farming activities with a minimal impact on global carbon emissions in the production part of the LCA. However global temperatures will rise by as much as 2 deg C and primarily along the equator!

### **Important points in summary**

- Air plane emissions are 2% of the total world ghg - Sea and Road Freight contributes many more times than that of airplanes
- The airplanes that carry the vegetables are primarily carry passengers traveling to developing countries for business & pleasure. The cargo capacity southbound is utilized for products and services manufactured in developed countries for the markets in the developing economies, like medicines, machinery, spares and equipment.
- The planes that bring produce back to Europe are going to fly with or without the produce, and the emissions will happen; so it is ethical to utilize the capacity rather than waste it.
- Contributions from refrigerants for cold storage are worse polluters to ghg and trucks and ships use a lot of refrigeration to ensure that produce keeps fresh in transit

Production in Europe requires a lot of

- Deep cultivation of soils
- Fertilisers
- Heating
- Lighting
- Refrigerated Storage
- Transport by truck

All these are extremely large contributors to carbon emissions

Imports would become a lot more competitive and attractive when farmers in developed economies have their subsidies removed and are correctly taxed for their contribution to carbon emissions. It would also be an idea to carry out a Subsidy Analysis on products and label them accordingly and then give consumers a choice to buy or not

## What we do as Sunripe to mitigate Carbon Emissions from our activities

### At farm level

- The products we grow are specifically designed to grow year round in the tropics and Kenya. We do not grow anything that is out of season in Kenya nor not suited for our environment
- All our farming is carried out in a sustainable manner with a long term outlook
- We farm green manure to naturally add nitrogen to the soil
- We carry out minimal land activities to protect the top layers of the soil and ensure that no Carbon is released into the atmosphere
- We actively are undertaking water harvesting and storage
- We are planting trees and greenery around all our farms that help in the precipitation and also take out CO<sub>2</sub> from the atmosphere
- We work compost and manure into the soils to continually improve organic matter that makes plants stronger and improves their resistances naturally and that avoids the need to have to spray agrochemicals

### Packhouse & logistics

- We are changing our refrigerants to those that emit more environmentally friendly gases
- We bus our workers to reduce vehicle movements
- We recycle wash water for use into toilets
- We are using heat exchangers to remove heat from condensers to warm up water for use within the packhouses
- We are consolidating truck movements to reduce the number of trips between farms and packhouses
- We are packing as much as possible at farm level to avoid transporting produce around the country
- We control our frequencies for shipping to ensure that we maximize available capacity efficiently and do not allow any wasted space. The loads are also shipped to ensure that they do not require to be stored in cold storage for long periods

### In general

- The volumes per week are too small to ship by sea and to ensure freshness have to go by air. They do not have the shelflife necessary for the transit times by sea. Product by seafreight contributes both carbon emissions from the engines and ghg emissions from the refrigerants which do more damage than CO<sub>2</sub>
- We can reduce packaging from trays to bags and have an significant reduction in packaging and subsequent recycling
- We can look at more dense packing and larger packsizes to help reduce outer packaging
- We label at source and reduce the necessity of moving product in client markets
- The product is fresh, grown in perfect conditions in the African sun and harvested at the perfect stage of maturity to ensure that the consumer gets all the nutritional benefits, flavours and shelf life as opposed to frozen, chilled, canned or preserved produce that uses tremendous amounts of energy to manufacture, transport and store.

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