



FAIRTRADE
INTERNATIONAL

Life cycle assessment cut roses

Study at-a-glance

Photo credit: Situma Siepete (Hotlist Group)

Introduction

Fairtrade Max Havelaar Switzerland and the Migros-Genossenschafts-Bund (MGB) commissioned a study to determine the environmental effects of cut roses of different origins and production systems. This is a follow-up to a similar [2018 study](#), aiming to measure updated production practices and impacts.

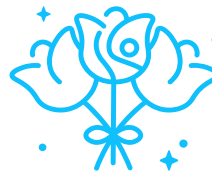
A total of three production systems were compared:

- **Fairtrade roses from Kenya transported by plane;**
- **Fairtrade roses from Kenya transported by ship;**
- **Average roses from the Netherlands.**

In addition, Dutch production using renewable energy (geothermal heat instead of natural gas) was also analysed.

The analysis takes into account three stages of production, packaging, and transport of roses to Switzerland. For Fairtrade roses, production data were collected directly from five Fairtrade producer organisations in Kenya. Data on conventional roses grown in Kenya were not included in this study. While the rose varieties and size differ by origin, the analyses were calculated per bunch of 20 roses.

Key study findings



Fairtrade roses from Kenya have a lower environmental footprint than Dutch roses, especially those transported by ship.

Fairtrade roses from Kenya show comparatively lower environmental impacts for all indicators analysed. Comparing sea freight to air transport, the roses transported by sea freight show the least environmental impact, particularly with lower greenhouse gas emissions and lower cumulative energy demand.

The most significant production parameters for Dutch roses are energy use (electricity and natural gas combustion) for heating the greenhouses. For Fairtrade Kenyan roses, air transport has the greatest impact. That said, greenhouse gas emissions from air transport of roses from overseas are still significantly lower than those for heating the greenhouses in the Netherlands.

Fairtrade flowers in Kenya

45

Fairtrade certified flower and plant producer organisations

38,000

workers

1,909

hectares under Fairtrade certified production

2.6 billion

billion stems produced in 2021

Key study findings continued...



Improvements in the footprint for Fairtrade Kenyan roses since 2018 are strongest in reduced use of electricity, fertiliser, and plastic.

Electricity use decreased by 12 percent compared to 2018. Nitrogen fertiliser use dropped by 20 percent, and phosphorus declined by six percent. By contrast, potassium use was four times higher than in 2018. Plastic use fell by more than 30 percent, while cardboard use increased 1.9 times.

For Dutch roses, conventional rose production appeared to use less gas and less pesticides than in 2018, and slightly more electricity.



Reducing packaging and water demand, and improving biodiversity could further improve Kenyan roses footprint.

A reduction of paper and cardboard would further improve resource consumption and transport weight for Fairtrade Kenyan roses. As a result of the generally high water scarcity in Kenya, measures to reduce water demand and increase water efficiency, e.g. with the collection of rainwater or the recycling of used water (closed-loop-systems), would improve the environmental impact. Pesticide use is higher in Kenya as compared to the Dutch roses, although the comparison data used in this study were limited and vary widely between producers, therefore a much larger sample would be needed to make statistically significant statements.



eutrophication."

“Overall, Fairtrade roses from Kenya show the lowest impact across all environmental impacts analysed, [with the largest differences in] cumulative energy demand, greenhouse gas emissions and freshwater

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Key figures

Fairtrade roses from Kenya, compared to the average Dutch roses:

- require **22 times less** cumulative energy demand
- have **21.4 times lower** greenhouse gas emissions
- have **65% lower** water use
- contribute **47% less** to biodiversity loss*
- contribute **4.3 times less** to terrestrial acidification
- contribute **18 times less** to freshwater eutrophication, and **31% less** to marine eutrophication
- have **higher** pesticide use than Dutch roses

*For Fairtrade roses transported by air. All other data refer to Fairtrade roses transported by ship.

Details are available in the [full study report](#).



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