**CARBON FOOTPRINT OF BANANA**

# ABSTRACT

This paper presents an analysis of carbon footprint for banana. This study is based on published references from different countries and databases of the library. The different segment in the process of different stages in the banana supply chains from farm to consumers are investigated. This include farming, harvesting, processing, packing, national transport, overseas transport as well as retail and finally the banana reaches consumer and being consumed. The principal contributors to the carbon footprint have been identified as the on-farm production and overseas transportation. Mitigation and reduction strategies are suggested to target the main emission sources. Efforts are needed in all segments to better achieve a sustainable banana production. Value of this paper arises from providing a detailed analysis of carbon footprint of banana in the developing world whereas there have been only a small number of studies published in the literature.

**Keywords:** Banana, Carbon footprint, Fruit Supply Chain, Sustainability

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**Figure 11 Example of analysis carbon footprint of banana. SOURCE: Carbon Footprint Analysis In Banana Production By Thierry Lescot**

The findings reported in this section are based on four case studies conducted by CIRAD  that were banana sector, three sources, and export to Europe.  The studies encompass a wide range of circumstances in terms of production methods, geographical locations (soil and climatic conditions differ), and logistics. The research regions correspond to the European border checkpoint. Some case studies go all the way from the supply chain to the retail stage. Studies do not look at the same effect categories, but instead look at the total GHG compartment, which serves as a baseline for comparison. The approaches employed varies, as do the datasets utilised to characterise the impacts. The raw data analysis reveals a wide range of variability, ranging from 324 to 1124 g equivalent CO2/kg banana.

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**Figure 12 The contribution of stages in GHG emissions. Source: Carbon Footprint Analysis In Banana Production By Thierry Lescot**

The uncertainties are large between the four cases studied, but the three main contributors identified are:

* Maritime transport (including refrigerants);
* The manufacture and use of fertilizers, especially nitrogen sources;
* The manufacture and provision of the shipping carton boxes in the packing station.

These findings lead operators to think about designing their production line and then to consider alternatives to the most polluting process. Various solutions or innovative practices are being explored, including the conveyance or packing, knowing that the problem goes well beyond the banana sector but also relate to agricultural sector. The problem of fertilization is more specific to banana production (important need in nitrogen and potassium). The alternatives are few and those are also sources of CO2 emissions such as the use of compost. Concerning factor characterizations and emission models, we should benefit from data improvements and more accurate information sources in the coming years. CIRAD has developed a strong activity in this area, but it is needed more international capacity research on this area (appropriate emission models in tropical contexts). Progress is still needed but will only be made if an innovation process involving research organizations, support organizations to producers and development, begins. The main lines of improvement revolve around the production and use of compost, installing service plants (legumes, etc..) or promote crop rotation and fallow periods.