

## Our Collaborations with Community Farmers

Our commitment to community farmers encompasses various product lines, including avocados, blueberries, macadamia, beekeeping and honey, and goat and beef production. Our partnerships have led to numerous positive outcomes.

One notable initiative is our support for local beekeeping groups. We share our technical expertise and facilitate access to vital market channels for these groups. By doing so, we empower local entrepreneurs and bolster the beekeeping industry.

Furthermore, we have been actively involved with smallholder farmers in avocado and macadamia farming. Although we do not mandate that these farmers sell their produce to us, we play a pivotal role in enhancing the quality of Kenyan avocados and macadamia nuts.

Type	Beneficiaries
Indigenous tree seedlings	300 community members were given indigenous tree seedlings.
Avocado tree seedlings	775 seedlings donated to local farmers.
Avocado farming	125 avocado farmers benefitted from training on avocado farming.
Beehives donated	52 hives donated. 85 members from 4 community groups trained on beekeeping.
Rainwater harvesting tanks	12 local schools benefitted from 12 10,000-litre water tanks for rainwater harvesting.
Jiko Kisasa	33 builders trained on the construction and maintenance of Jiko Kisasa.

Kakuzi provides extensive extension services and employs a full-time manager to assist registered farmers. These services have undoubtedly improved the livelihoods of these farmers, although exact figures and financial details remain confidential.

Looking ahead, we are constantly exploring opportunities to strengthen our community farmer partnerships further. While we do not have immediate plans to announce them, our commitment to sustainable supply chain practices and the support of local entrepreneurs remains unwavering. We are determined to continue innovating and expanding our community farmer program to make a lasting impact on the communities we work with.





# 4 Climate Action

At Kakuzi, we acknowledge the impact our operations have on the environment. Our approach involves supporting environmental sustainability and biodiversity, continuously identifying the environmental impact of all our activities, and minimising and mitigating these responsibly.

To accomplish this, we have planted indigenous trees which adapt well to the environment, provide many benefits to the local ecosystem, and require little care after they mature. Our beekeeping initiative has benefitted the communities and the Company due to increased crop yields caused by better pollination, enhancing conservation and sustainable use of our natural resources. The initiative has created livelihoods for the communities through their self-help groups, which the Company has continued to support by providing beehives and training. This has resulted in poverty reduction by creating jobs specifically for the youth.

We are ardent about capturing rainwater and have provided rainfall harvesting tanks to various schools and health facilities within our locality. We have embraced open days as a tool to reach out to stakeholders where we address socio-economic factors that contribute to a sustainable society. During farmer's days at county and local levels, we illustrate the importance of trees and how to plant and manage them. Our employees have been sensitised and trained on dam management to maintain and increase dam life and integrity, management of catchment areas and safety protocols.



## Environment Friendly Technology

With our expansion around production, we have invested in modern technologies that help us improve the quality of our production. Based on the UN sustainability standards, we have adopted cold chain facilities that are aiding us in reducing Greenhouse Gases (GHG) emissions.

We have invested in eight cold rooms, each capable of handling more than 40 metric tonnes per cycle, with up to six cycles a week during the avocado season, running from March to September which is the peak season for avocado production. The facilities have monitoring systems and a portal where the operating team can log in at any time to monitor the status of avocados, energy usage and manage stock levels.

Our investments have met sustainability requirements, such as reducing emissions by implementing the R44 that uses thermal storage. As a high-value asset, our energy consumption is a key determining factor of return on investment, and with the use of thermal storage in the cold room, we have noticed a positive turn in reducing energy requirements during production time in the daytime.

And by scientifically measuring our carbon footprint and understanding where emissions are being created, we can see where we can reduce them.

We have also invested heavily in irrigation and green technology-based systems to mitigate the worst impacts of drought. We have invested in the necessary irrigation capacity to irrigate our 1,600 hectares of macadamia, avocado and blueberry crops.

We have invested in **8** Cold rooms that Handle **40+MT**

## Summary 2022

### 1. Replaced 160Kw Jambo and Kihara irrigation

### 2. Replaced 75Kw Ndera irrigation

The Avo irrigation pumps can run for 1500 hours per year.		
Power saving Per motor:	Power saving in Kwh	Tonnes of CO2 equivalent (tCo2e)
1. 160Kw efficiency changes from 90% to 95.8%	98600Kwh	6.0639
2. 75Kw efficiency changes from 90% to 95.8%	98600Kwh	6.0639
<b>Total tonnes of CO2 equivalent reduction (12.1278 tCo2e/= per 197200Kwh)</b>	<b>197200Kwh</b>	<b>12.1278</b>

## Circular economy

Kakuzi PLC has implemented a circular economy to achieve Zero Waste policy. We utilise waste streams as secondary resource sources and recover waste for reuse and recycling, eliminating waste and pollution. This reduces the production of GHGs and ultimately regenerates nature.

### The various elements of a circular economy that we employ include:

Prioritising regenerative resources such as forestry. Waste is minimal, and regeneration is constant with continuous planting and replanting of commercial forestry, indigenous trees and bamboo to encourage carbon sequestration and environmental preservation.

Our periodic training and sensitisation strengthen the employees' knowledge base and, they are increasingly more mindful of the environment and minimising wastage.

We are increasingly incorporating digital technology in mapping (drones), data collection, crop scouting assessments (SCARAB platform), and weather monitoring (digital weather stations) for precision and decision-making tools. This minimises costs, time wastage and increases productivity.

We have teamed up with local companies that periodically collect sanitation fruit (fruit collected from the ground) for insect (BSF) rearing and non-exportable fruit for oil extraction. They in turn, create feed for livestock and fish and quality avocado oil for domestic and export markets, respectively.

All departments are encouraged to stretch the lifetime of materials in their control, to reuse and re-allocate or improvise whenever one use fails, e.g., Reusing potting sleeves, wooden pallets, crates and containers. These are eventually collected for recycling by NEMA-approved recyclers.

Macadamia processing produces husks and shells as waste products. Both of these wastes are used as a resource. Husks are composited in compost lots and reused in the macadamia fields to boost soil health, whereas shells are used to generate heat, which helps dry the nuts in preparation for cracking. Biomass as an energy source is abundant and versatile and reduces reliance on fossil fuels at the cracking plant. All other non-exportable produce is utilised in the feed sector. In avocado production, falling leaves and twigs decay on the base of the tree, creating a dense mulch that promotes water conservation, especially during dry seasons, thus minimising the water requirement. It also promotes a rich microflora that encourages better nutrient uptake and root hair development, translating to a healthier crop.



## Regenerative Agriculture

Regenerative agriculture involves farming practices that rejuvenate soil health. It comprises growing food and fibre while reducing Greenhouse Gas Emissions (GHGs), conserving water, replenishing waterways, growing healthier foods, reducing the use of synthetic inputs, and employing people within the communities to maintain the long-term vitality of the land. It is geared at restoring soil and ecosystem health, addressing inequality, and endeavouring to leave the land, waters, and climate in better shape for future generations.

At Kakuzi, we practice agroforestry across the farm by integrating trees and shrubs into crop and animal systems. Every management division must plant 500 indigenous trees annually and maintain the catchment sites in their division.

At our macadamia production sites, the macadamia husks are composted and taken back to the farm. This provides several environmental benefits, including improving soil health, reducing GHGs, recycling nutrients, and mitigating the impact of drought.

All our production divisions enhance soil health and leverage natural systems to manage pests and reduce the reliance on pesticides or other chemicals. This is done through practising Integrated Pest Management (IPM) strategies that combine biological, physical and crop-specific management strategies and practices to grow healthy

crops, minimising the use of pesticides.

We boost climate resilience by maintaining healthy soil with high organic matter that enhances water percolation, thereby minimising runoff, which reduces soil erosion during flooding. Due to the high water-holding capacity of organic matter, crops do not suffer from extreme drought.

At our mature orchards, we nourish the soil with permanent plant cover by reducing tillage, which allows organic matter buildup, preventing any weeds from growing intra-row. This prevents inter-row weeding, and only allows mowing.

We grow grass inter-row to reduce soil erosion, increase water retention, improve soil health, and increase biodiversity. The grass is routinely mowed to provide more organic matter. More research is underway on other viable cover crops suitable in the newly planted orchards.

Our livestock is free-range, and no supplemental feeding is done. This is because our cattle breed is well adapted to the local environment. Grazing controls bush while distributing dung evenly over a wide area, thus fertilising the grassland for more production while minimising methane production from the dung, which quickly dries up and becomes compost. This mitigates GHG production and minimises the hazards of fire in dry spells. As browsers, goats play a big role in controlling bushland, reducing overgrowth that may be hazardous. These domestic animals are a source of high-quality meat products and milk that is also consumed by employees for better health management.

All our orchards and water sources are surrounded by buffer-zones with indigenous trees and shrubs. These play a pivotal role in biodiversity maintenance, are beneficial insect habitats, and act as windbreaks. In riparian areas, they control water quality, maintain catchment areas, and mitigate flooding.



Every management division must plant **500** indigenous trees annually

## Water Management

About 70 percent of the world's freshwater consumption goes to agriculture, and as the population continues to grow, demand for food will only increase, putting even more pressure on our limited water resources, which stands at only 2.5 percent globally. Groundwater depletion threatens global food security thus, other water sources must be explored and optimised.

At Kakuzi, we have invested in irrigation systems and equipment to improve water use efficiency and delivery systems. Our pilot model leverages advanced technologies and uses sensors and computer-based applications to create and display precise field maps and crop scouting data. These data are collected from various sources, including GPS and mapping systems, sensors, remote sensing technologies such as satellite imagery, and computer or cloud-based platform, where it can be accessed and analysed to

extract insights and make informed decisions. It is mainly geared at increasing efficiency and productivity, reducing input costs, and improving environmental sustainability.

We practice precision irrigation to give the crop exactly what it needs at the right time, thus avoiding wastage. The crop water requirement (ETc) and the soil's infiltration capacity should be known to establish good water distribution in the soil profile. This is assessed in the various orchards over time, and this data is assessed for trends. If the flow rate is not matched to the infiltration capacity of the soil, runoff will occur. Sensors and tensiometers are used to monitor these aspects continuously. The use of calibrated micro sprinklers is key to achieving the desired results depending on the crop age and the extent of the crop's root zone.

In 2022, there was a marginal decrease of one percent in water usage for the same area, pointing to improved water management.

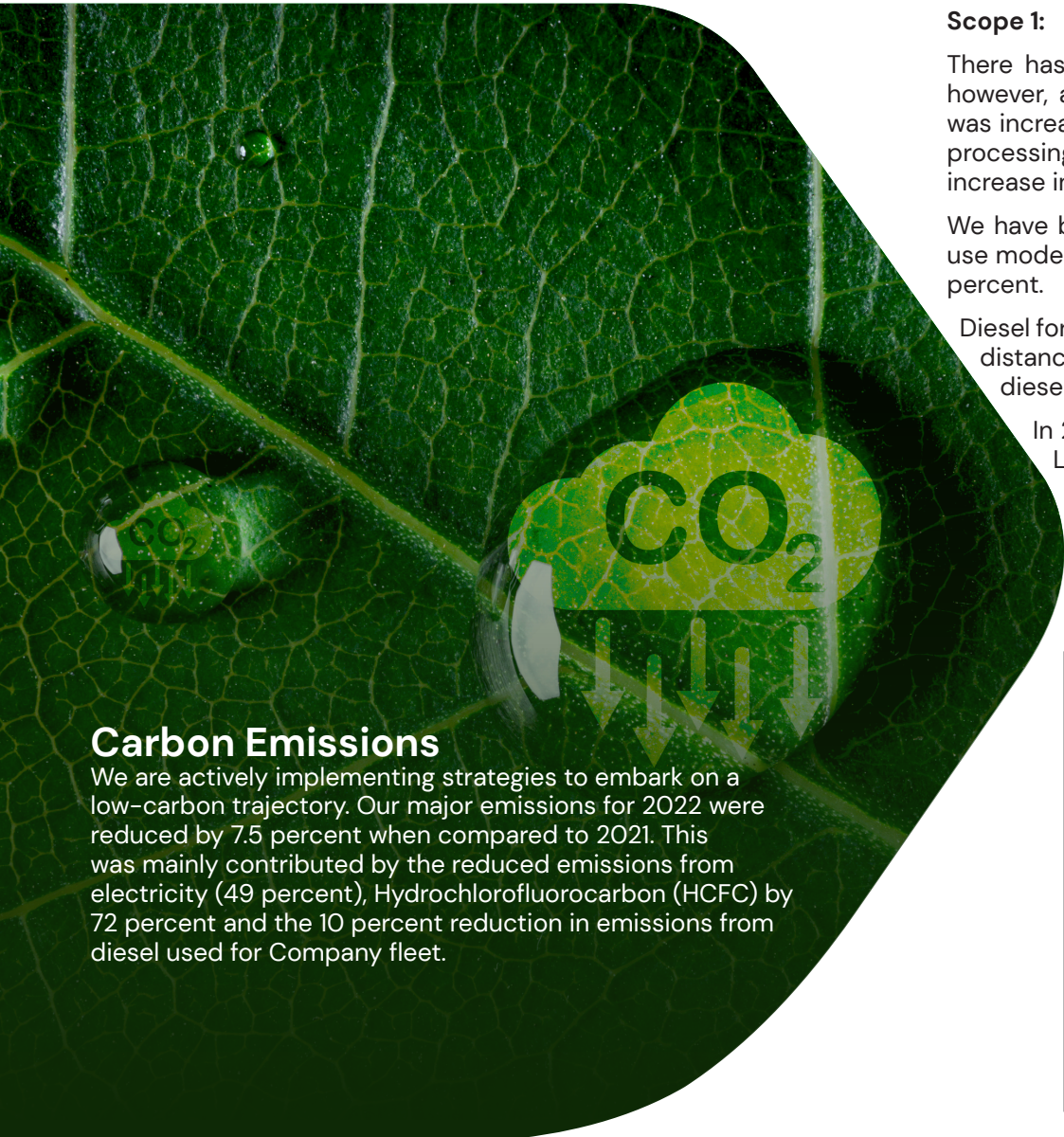
The area under active avocado production in 2022 was 870.71ha. During the year, the average production was 16tn/ha (Hass and Pinkerton combined). The amount of water used averaged 2.7 million cubic meters thus, for every cubic meter of water, we produced 5kg of fruit.

The area under active macadamia production was 855.15ha. The production was about 6.5 million kg on NIH (Not In Husk). Water used in the production and processing of this crop was equivalent to 171lt/1kg NIH.



The amount  
of water used  
averaged

**2.7M**  
Cubic Meters



## Carbon Emissions

We are actively implementing strategies to embark on a low-carbon trajectory. Our major emissions for 2022 were reduced by 7.5 percent when compared to 2021. This was mainly contributed by the reduced emissions from electricity (49 percent), Hydrochlorofluorocarbon (HCFC) by 72 percent and the 10 percent reduction in emissions from diesel used for Company fleet.

### Scope 1:

There has been a consistent reduction in diesel fuel used for electricity generation. It is, however, a challenge when electricity interruptions are frequent and longer. In 2022, there was increased production of the main crops – avocado and macadamia, and, therefore, more processing hours and longer storage before dispatch. This was the main cause of the slight increase in emissions.

We have been upgrading the old cold rooms and replacing them with new cold rooms that use modern technology. This has significantly reduced emissions from HCFC gas by up to 72 percent.

Diesel for the Company fleet reduced while petrol increased. This was because emissions per distance were less with petrol than with diesel. The Company fleet is minimising the use of diesel-powered vehicles where possible.

In 2022, 166ha of new development for macadamia and avocado were commissioned. Land preparation involved soil testing and amendments that include lime to achieve the ideal pH for these crops to grow and flourish.

### The Major Emissions

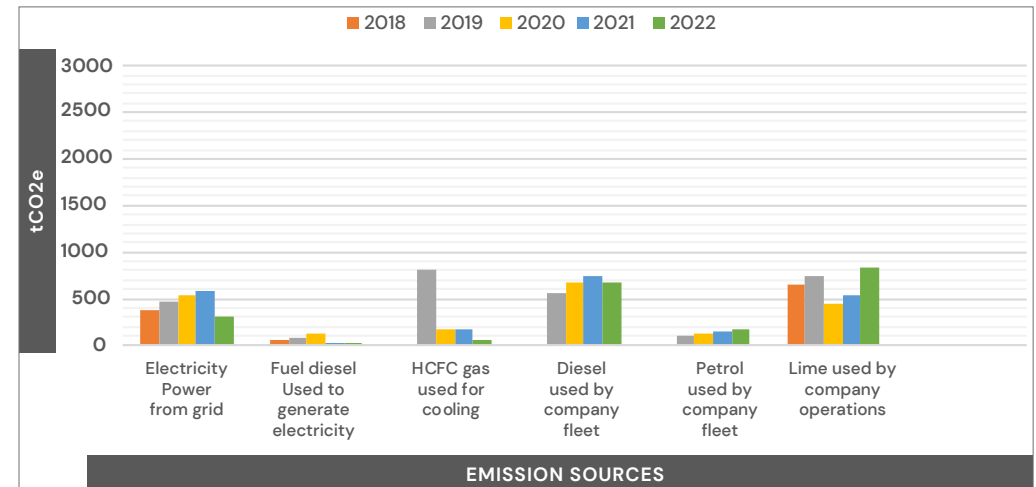
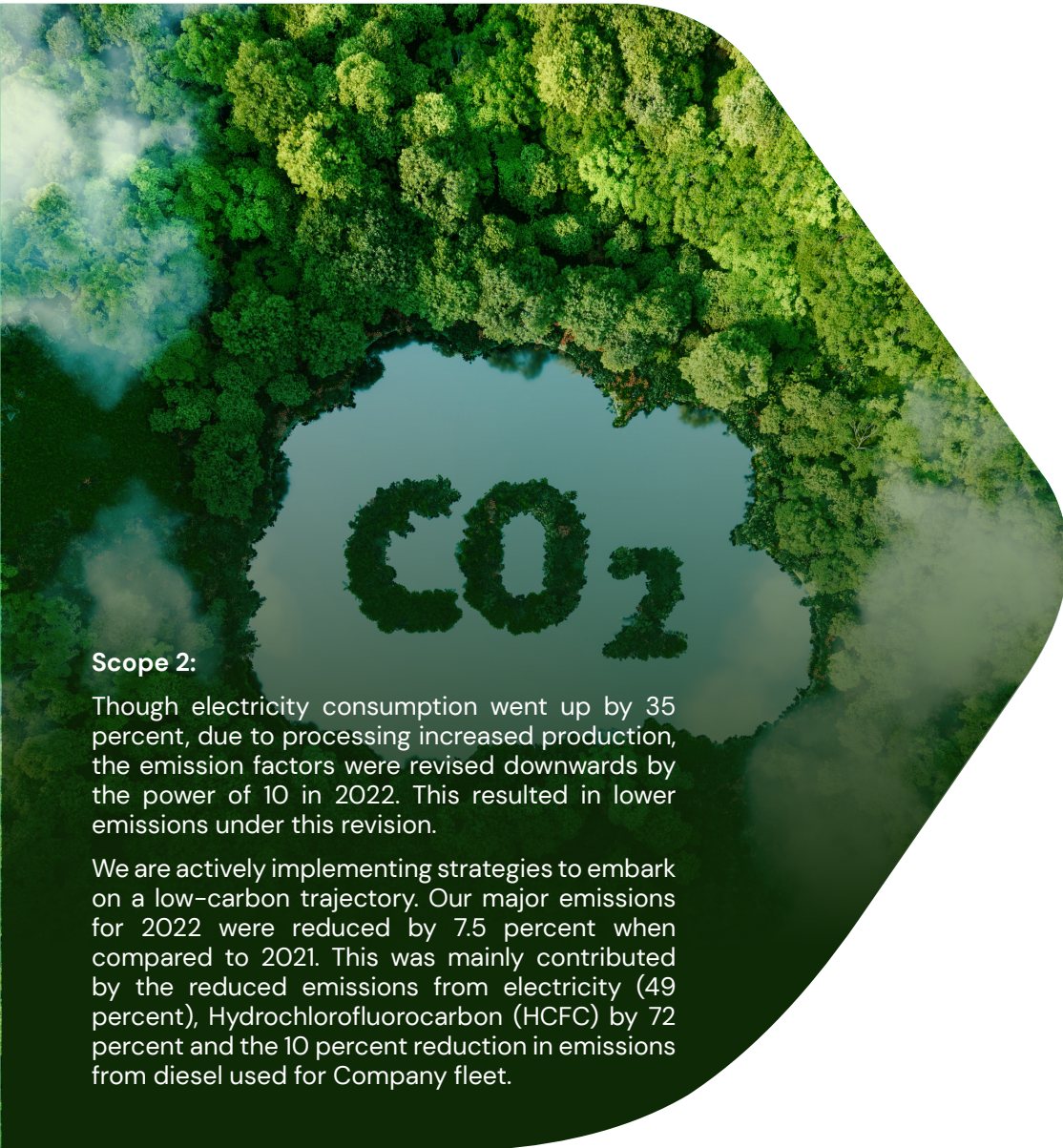


Fig 1: Kakuzi total scope 1 emissions and major sources of emissions



**Scope 2:**

Though electricity consumption went up by 35 percent, due to processing increased production, the emission factors were revised downwards by the power of 10 in 2022. This resulted in lower emissions under this revision.

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**FACTORY ELECTRICITY EMISSIONS**

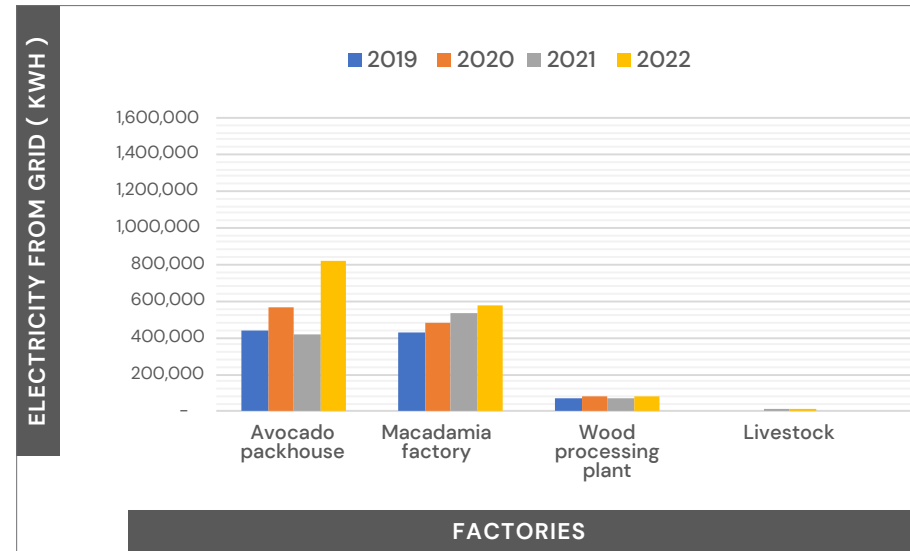


Fig 2: Kakuzi total scope 2 emissions and factory emissions from the various divisions

**FIELD ELECTRICITY EMISSIONS**

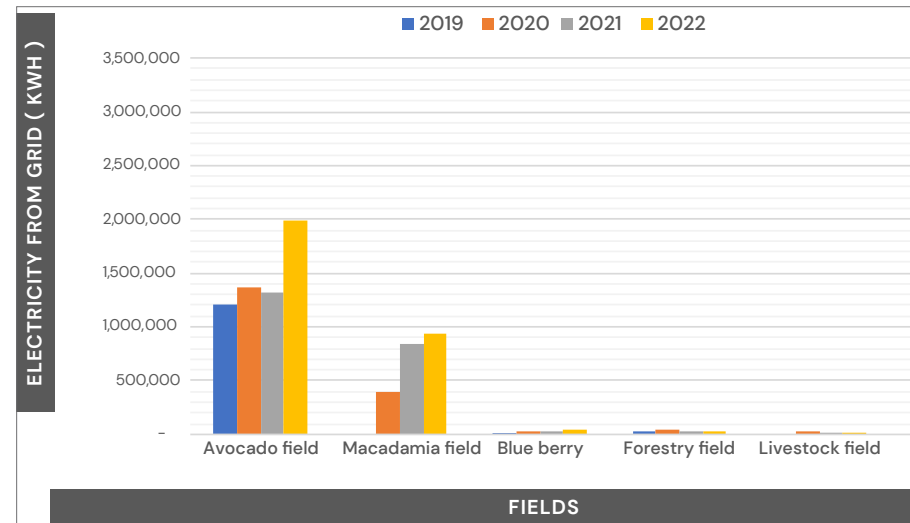


Fig 3: Kakuzi total scope 2 emissions and emissions from the various fields