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INTRODUCTION

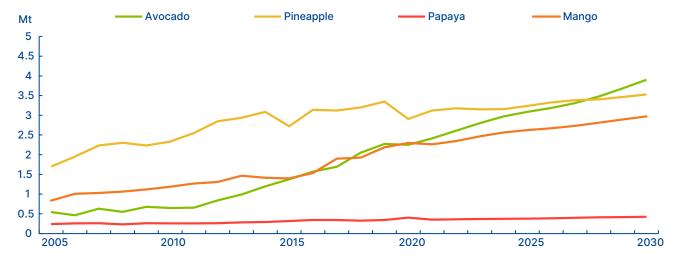
Mani Tese carried out an investigation of the avocado supply chain in Colombia at the beginning of February 2023 under the project Food Wave - Empowering Urban Youth for Climate Action. The project is co-funded by the European Commission, DEAR Programme, and coordinated by the Municipality of Milan. The goal of the investigation was to verify the environmental and social impacts of one of the trendiest foods among young people in Europe.





The OECD (Organisation for Economic Co-operation and Development) and FAO (Food and Agriculture Organisation of the United Nations) estimate that avocados will become the world's best-selling tropical fruit. This was stated in *The Agricultural Outlook 2021-2030*¹, a report co-signed by the two international bodies, based both on soaring global demand and on booming production, which is expected to triple (compared to 2010 levels) to 12 million tonnes by 2030.

Of these twelve million tonnes, 3.9 million will be exported, surpassing both pineapple and mango in terms of quantity.



World major tropical fruit outlook: Global Export (Source: Agricultural Outlook 2021-2030)

 $^{^1} https://www.fao.org/policy-support/tools-and-publications/resources-details/fr/c/1449704/1999. \\$

The United States and European Union are expected to remain the main buyers, with 40% and 31% of global imports by 2030, respectively.

But while Western consumers appreciate the fruit in its varied and composite forms - from guacamole to poke to oil for cosmetics and food - this dizzying development is not free of consequences in the places where it is produced.

In Chile

hit by a persistent drought, avocados are in the UN's crosshairs because their production is draining water reserves. The UN Special Envoy for the Right to Water, Leo Heller, has asked the government in Santiago to clarify its position on intensive cultivation of the fruit in the central region of Valparaíso, where plantations are depriving residents of drinking water.

In Mexico

this 'green gold' has become the subject of a fight between drug traffickers, who are interested in getting their hands on a business worth around \$3 billion a year. In the state of Michoacán, where production is concentrated, narcos demand protection money from farmers and fight a bloody war among themselves and with the army to control all stages of the supply chain.

In Colombia

drug cartels do not seem to be directly interested in production for the moment, but investment in the 'Hass' variety continues to set records. In fact, in just a few years, the country of José Martí and Gabriel García Márquez has become the world's second largest producer (after Mexico) of avocados and the second largest exporter to the European Union (after Peru), growing from 500 tonnes exported in 2013 to 85,000 tonnes (+17,000%) in 2021.



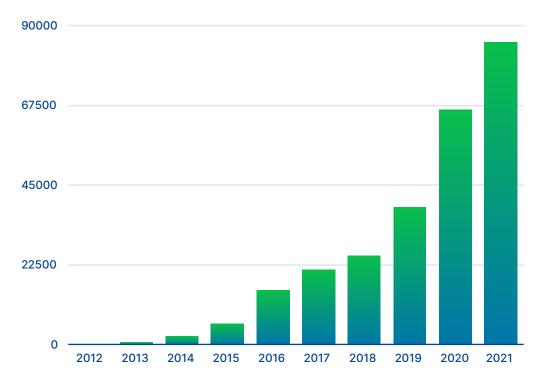


Chart of avocado exports from Colombia to the EU (Source: Eurostat)

This boom has been facilitated by three factors: the geographical location in the tropics, which allows for virtually year-round cultivation; the fact that the country is situated on two oceans and close to the Panama Canal, which reduces transport time by ship; and, last but not least, an economic system that is traditionally open to foreign investment.

Today, one in seven pieces of fruit landing in European supermarkets comes from Colombia. And everything suggests that this figure will rise further, not least because consumption trends indicate double-digit growth in virtually every European country.



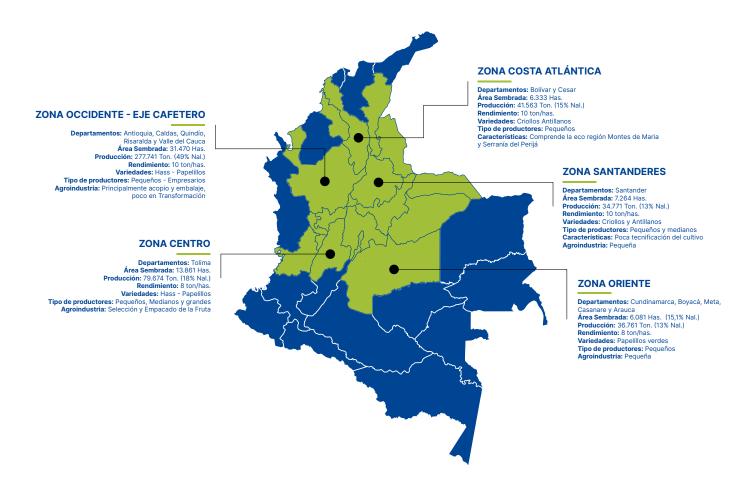
Reporters	Import value 2021	Import quantity 2021	Export value 2021
Sweden	13.782 €	3.557 Kg	-
Ireland	715.614 €	285.299 Kg	-
Italy	998.593 €	444.480 Kg	-
Germany	1.611,888 €	866.333 Kg	-
Belgium	2.261,641 €	1.225,271 Kg	-
France	7.540,025 €	4.049,153 Kg	-
Spain	20.331,144 €	11.164,392 Kg	-
Netherlands	150.107,665 €	67.226,850 Kg	-
Total	183.580,352 €	85.265,335 Kg	-

Imports for individual EU countries (Source: Eurostat)

The graph of imports to the EU per country in 2021 shows the clear predominance of the Netherlands. This is due to the fact that the vast majority of the fruit is shipped from ports on Colombia's Caribbean coast — Santa Marta and Cartagena de Indias — crosses the Atlantic Ocean and arrives in Rotterdam, which serves as a sorting centre for much of the continent.

The supply chain works like this: the fruit is produced in an area between 1,500 and 2,500 metres above sea level along the central cordillera. From the plantations - 86% of the cultivation area is distributed between the departments of Tolima, Antioquia, Caldas, Santander, Bolívar, Cesar, Valle del Cauca and Quindío - crates of avocados are transported to the collection centres or directly to the so-called 'empacadoras', packing factories where the individual fruits are sorted according to different buyer needs. Here they are then shipped in refrigerated trucks to the above-mentioned ports. After 15–20 days, the container ships arrive at the Dutch port.

Throughout this period, from the *empacadora* to the supermarket, the fruit is kept at a temperature of no more than five degrees to keep it from ripening. By the time it reaches the sales shelves, 10,000 kilometres from where it was grown, up to a month may have passed since it was harvested.



Map of avocado production areas in Colombia (Source: Colombian Ministry of Agriculture)





The mission carried out by Mani Tese focused on the department of Quindío, where there has been a great deal of tension in recent months between large companies and civil society over the environmental, social and economic impacts of this new crop. During the ten days on site, preceded by intensive desk research, the investigation team met with the following interest groups: small-scale farmers, environmental and human rights activists, regional and national deputies, business managers, business association representatives, school headmasters and teachers, male and female students, and public administration officials.

The aim was to collect all points of view to offer the reader as comprehensive a picture as possible, as well as a series of open questions to reflect on. These questions concern, in particular, the avocado production chain in Colombia and, more in general, the dynamics of global value chains in the industrial agri-food sector.

Changing Ecosystems and Gentrification of the Countryside

Quindío is a small department in the centre of the Colombian Andean cordillera, halfway between Cali and Medellín. It is dedicated to tourism. Thousands of hikers come here every year to admire the country's iconic trees, the *wax palms*, which are unique in the world because they grow at an altitude of more than 2,000 metres.



Colour map of Quindío and its main tourist attractions

The area where production is being developed is mainly occupied by *bosque* andino, or Andean forest. This is a tropical ecosystem rich in biodiversity but extremely fragile, whose function as a water reservoir and net carbon sink play an important role in mitigating global warming.

There are no official statistics, but simple visual data shows how entire areas of *Andean forest* have been deforested to make room for avocado plantations.

According to environmentalists, the large foreign companies that have come to the department have invaded protected areas, diverted rivers to obtain the water needed for crops, built roads without permission and planted trees in prohibited areas, violating one of the cardinal laws of the country's environmental protection system: Ley Segunda² (Colombian Law 2 of 1959) 'for development of the forest economy and the protection of soil, water and wildlife'.

² https://www.minambiente.gov.co/wp-content/uploads/2021/08/ley-2-1959.pdf



66 These transnational companies are forever changing unique environments in the world in order to set up industrial monocultures"

(Nestor Ocampo, president of Fundación Ecológica Cosmos, Calarcá)

Most avocado production in the department is, in fact, conducted by Chilean, Peruvian and Mexican economic groups, with plantations extending from 500 to 1,000 hectares. They buy land from small producers, *campesinos*, and change the social composition of the countryside.

Carlos Mario Muñoz, a 40-year-old farmer, whom we met in the mountains around Pijao, in southern Quindío, knows this well. He has a 7-hectare plot where he grows bananas, coffee, tomatoes and a few vegetables.

In the shade of the patio of the small two-room, tin-roofed house where he lives with his wife and 15-year-old daughter, he tells how some men he did not know came to offer to buy his property a couple of years ago. 'They wanted to give me 150 million pesos (editor's note: a little less than €30,000), but I refused because it seemed too little.'

Muñoz is a 'white fly': one of the few who opposed the sale. One only has to look around to realise that surrounded by avocado trees, its grounds resemble Asterix's village besieged by Roman legions.

66 What is certain is that there is no one around here anymore. We are the only ones left. And the nature is also changing".

(Carlos Mario Muñoz, farmer from Pijao)

Quindío is at the centre of the *eje cafetero*, the area traditionally dedicated to coffee, which UNESCO listed as a World Heritage Site in 2011. Despite the recognition, coffee is being grown less and less around here, because successive crises over the last twenty years have undermined its profitability.

So small landholders are selling, leaving room for the large crops of foreign firms. And, inexorably, not only the landscape but also the social composition is changing.

Today, hardly anyone is to be seen in this area once populated families of small growers. The avocado monoculture does not require the presence of workers on site, but just day labourers transported from afar in vans.

Rural schools are closing one after the other due to a lack of pupils. Visits to some of them in the Pijao area, where there is a large concentration of plantations, confirmed this fact.

Just a few years ago there were more than 20 pupils here' says the teacher, who prefers not to be mentioned by name, 'to avoid problems with the ministry.' The school was closed for a year and only recently reopened thanks to the caretaker, who moved here with her four children.

'These areas are becoming depopulated,' sighs the teacher, who takes a two-hour morning and evening scooter ride to and from work. 'There are only avocados here now. There is no more life. Not to mention their way of farming. When they spray pesticides, we have to close the windows and barricade ourselves inside.'



66 We are witnessing a real process of gentrification of the countryside, pushing campesinos to abandon their land in favour of big business"

(Nestor Ocampo)

What happens to these farmers? They emigrate to the cities, they explain, where they often end up in informal jobs, swelling the ranks of the urban underclass. The profit they made by selling the land soon proves to be ephemeral, because by depriving themselves of their property, they have lost their livelihood.

Yet land ownership is such an important issue in Colombia that it became the first point of discussion in the historic peace talks held in Havana in 2016³ between the Bogotá government and the Fuerzas Armadas Revolucionarias de Colombia (FARC) guerrilla group.

³ https://www.jep.gov.co/Normativa/Paginas/Acuerdo-Final.aspx



They called it 'Integral Rural Reform' because the emphasis on access to land, production in rural areas and the socioeconomic reintegration of former guerrillas and victims even outranks the involvement of former combatants in the political life of Colombia and the issue of drug trafficking.

Groundwater Pollution and Loss of Biodiversity

The need for perfect fruit to export requires an extensive use of chemical pesticides. These are administered until fruit set, i.e. the appearance of fruit after flowering, to avoid residues that prevent export.

Regional MP Luis Carlos Serna, trained as a biologist, conducted a study on the department's waters. The analysis revealed the presence of a number of harmful, mostly carcinogenic substances, including: aldrin, phorate, mevinphos, methyl parathion, merphos, fensulfothion, fencholorfos, ethoprophos, disulfoton, dichlorvos, dementon o, coumafos, chlorpyrifos, azinfos-methyl, transchlordane, heptachlor, endrin, endosulfan sulfate, dieldrin, cis-chlordane, endosulfan I and II, d_BHC, alpha-BHC, 4.4 DDT and 4.4 DDE.

66 The water has 138 units of chlorinated organics per unit of liquid, whereas the legal measure is 5 or less. We found some agricultural chemicals that have been banned in Colombia since the 1950's".

(Luís Carlos Serna, deputy of "Colombia Humana")

These are banned in Colombia and also in Europe, which, while prohibiting their use within EU borders, does allow them to be exported to countries in the Global South where controls are less stringent. In 2018, the year used for figures in the Pesticide Atlas 2023⁴, Italy was second in terms of exports with 9,499 tonnes, followed by

⁴La versione italiana dell'ATLANTE DEI PESTICIDI è pubblicata da: Heinrich-Böll-Stiftung, Fondazione Cariplo, Coalizione CambiamoAgricoltura. Quella inglese da Heinrich-Böll-Stiftung, Friends of the Earth Europe, PAN Europe.

Germany with 8,078 tonnes. The first, with much higher exports, was the United Kingdom, with 32,187 tonnes. And the trend continues to grow, considering that the top five European agrochemical companies, including Bayer, Basf and Syngenta, already generate more than a third of their pesticide sales from active ingredients classified by the FAO as 'highly hazardous'.

Back in Colombia, public monitoring is concentrated downstream in the supply chain. While the Instituto Nacional Agropecuario (INA) checks all fruit samples that are exported - through special laboratories in the packing companies - to verify that there are no agrochemical residues, no one systematically analyses the waters in Quindío.

66 So while we are left with polluted aquifers, the perfect fruits go abroad".

(Luís Carlos Serna)

He adds that the populations in areas where the most avocados are grown appear to be affected by the most obvious symptoms of pesticide poisoning: headaches, nausea, vomiting. Serna says that water flowing from the plantations when it rains is contaminated by chemicals and runs downhill to the rivers that feed the aqueducts, where it is piped for human consumption without any proper filters.

Another topic is mass bee deaths. In recent years, 44,000 hives have been lost in Quindío, according to Serna. 'Bees are environmental sentinels. If they die en masse, it means that something particularly serious is happening' he says. This large-scale fact is confirmed by Carlos Mario Muñoz, who disconsolately describes the damage he himself has suffered. 'We had seven hives to produce honey. At one point we found all the bees dead. It was impressive.' He has no doubts about the causes of the die-off: 'It was the treatments that killed the insects.'

This empirical observation is supported by recent research from the University of Sydney⁵, which, in estimating that the world's insect biomass is declining by 2.5% per year, identifies the massive use of pesticides as one of the main causes. Among

⁵ https://www.sydney.edu.au/news-opinion/news/2019/02/12/insect-population-faces--catastrophic--collapse--sydney-research.html

the pesticides, neonicotinoid insecticides, introduced in the 1990s and now the most widely recognised and globally used, are about 7,000 times more toxic to bees than DDT. As for sublethal effects, they lead to impaired learning, communication and orientation abilities; and damage to the immune system, making bees less fertile and more susceptible to disease.

THE LARGE PRODUCER'S VERSION

According to the large-scale producers and exporters we met during the mission, the abuse of agrochemicals is not real and, if they are abused, it is attributed to other types of crops, such as bananas or avocados not grown for export.

'There were just a few isolated cases involving companies that were initially unfamiliar with Colombian regulations,' says Diego Aristizábal, president of the national federation of avocado producers.

He emphasises that the sector generates wealth and jobs, providing an alternative to an agricultural sector struggling after the coffee crisis.

The demonisation we are subjected to is absurd. We producers are the first to protect the environment It is in our interests. If it degrades, we would no longer be able to work".

According to the president of the growers' federation, companies that produce avocados have more stringent protocols than those that traditionally produce coffee, bananas or other exotic fruits. 'The market is asking for sustainability and we are happy to implement it', he adds, showing us a project on paper of organic pesticides and fertilizers self-production that his federation is working on together with the university in Armenia, the capital of Quindío.

'Consumption of the fruit is growing and the hectares currently cultivated will not be sufficient to meet world demand,' continues Aristizábal, according to whom the avocado is a real boon for the Colombian agricultural sector.

As for the accusations of those who claim that plantations are leading to the disappearance of the Andean forest, his judgement is clear. 'They are exaggerating. Much of the cultivation takes place on land that was already deforested for grazing or coffee production.'

Also according to Jorge Enrique Restrepo, director of Corpohass, the national federation of Hass avocado producers and exporters, whom we met in his offices in Medellin, the sector has enormous potential, but he does not hide the problems as he sees them. 'We can expand the crops, but without infrastructure, little can be done. If the harvest does not reach the empacadoras in time, it becomes unusable. In several rural areas of Colombia, the roads are bad and the plantations are often in inaccessible areas. And then there are the regulations that prevent cultivation in protected areas.' Restrepo refers in particular to the Ley Segunda for the protection of forest reserves: 'That standard was developed for the Colombia of 60 years ago. It should be reviewed in the light of current needs.'

BOX 1The FAO Sustainable Tropical Fruit Project

The critical aspects highlighted in this report, along with others in other production countries, are well known to major international agencies. This is why the Food and Agriculture Organisation (FAO) has developed a project to 'create responsible global value chains for sustainable tropical fruit production and trade', also known as the 'Responsible Fruit Project'⁶. This project involves companies, farmers' organisations and other actors in the avocado and pineapple value chains. Its aim is to improve business performance by helping these two supply chains to become more sustainable and resilient. Membership is voluntary and free of charge, as well as strictly confidential.

⁶ https://www.fao.org/markets-and-trade/areas-of-work/emerging-trends-challenges-and-opportunities/building-responsible-global-value-chains-for-the-sustainable-production-and-trade-of-tropical-fruits/en/

THE ROLE OF THE PUBLIC SECTOR

But how did it come to be that a remote territory like Quindío, which is not easy to reach and whose remoteness from the sea makes it unsuitable for exports, has attracted such massive interest from foreign multinational companies? The arrival of the latter was supported and actively promoted by specific public policies. The local Chamber of Commerce created an ad-hoc body, called 'Invest in Armenia', whose goal was to facilitate the entry of foreign companies or Colombian companies from other departments.

'Since we started in 2016, we have supported investments in the avocado sector worth \$47 million,' says agency director Juan Sebastian Perez. The manager emphasises that the institution tends to promote investments that are environmentally sustainable. But when asked about open infringement proceedings for violating the rules, he says that this is not his responsibility. 'Our first aim is to bring development and jobs.'



Perez lists all the companies that have arrived in recent years: Camposol (Peru), Westfalia (South Africa), Cerro Prieto (Peru), Wakate (USA), Cartama (Colombia), NAF (Colombia), Michoacán (Mexico), Altos del Valle (Chile), Green SuperFood (Chile). And he underlines how the movement is clearly growing: 'There are also a couple of European brands interested in coming, although I cannot give details because the agreements are still being finalised.'

Is there a real danger that all the land in the eje cafetero will end up in foreign hands? The director of 'Invest in Armenia' rules this out: 'There are so many owners that large-scale hoarding would be impossible.' Luis Carlos Serna, on the other hand, is convinced that the process has already exceeded the danger level. 'Together with a national senator, we are writing a bill that says that land ownership in foreign hands cannot exceed 10% in each department, although in Quindío we are already far beyond this limit,' he points out.

If ever presented to the National Assembly, this law has very little chance of being passed. Much of the country's political and business class considers foreign investment a blessing, especially in agriculture.

Gustavo Preto himself, the first left-wing president of Colombia, elected in August 2022, has magnified this production, expressing his desire to replace 'oil with avocados' as the country's primary source of revenue. Serna belongs to 'Colombia Humana', the same party as the president, but they seem light years apart on this issue.

While the head of state has publicly said also something different, emphasising that it is necessary to prevent the formation of large estates and protect small producers, it is clear that there are two competing agricultural models. Avocados are the expression of an intensive production system based on monoculture and massive start-up investments. Small producers have neither the means nor the capital to actively enter this market. On the contrary, they end up being crushed by this system, because by increasing the pressure on the earth, they are automatically pushed away from it. There is only one result, according to Serna: 'They are privatising nature, imposing a development paradigm based on a purely export culture. In this way, we are sacrificing our food sovereignty.'

The Corporación Autónoma Regional del Quindío is responsible for overseeing compliance with environmental regulations. The public body has opened thirteen investigations into possible infringements in recent times. In Pijao, one company was forced to uproot 810 trees planted in a protected area. Further north in the department, in the town of Salento, another company was fined 63 million pesos (editor's note: €12,000) for using water without authorisation and planting trees in a forest-protection area.

'But that's pocket change. What are these trifling fines for companies that invest millions of dollars?' says Serna. 'The law prohibits monoculture in forest reserve areas, like much of Quindío,' adds the deputy, showing a map in which the overlap between protected areas and avocado production areas is clear. 'These groups act in defiance of the law because they know that the maximum inconvenience they can incur is an administrative fine.'

BOX 2 European Production

Although not remotely comparable to cultivation by large Central and South American producers such as Mexico, Colombia, Peru, Chile and South Africa, indigenous avocado production is developing within the European Union. This development is driven not only by the huge demand, but also by altered climate conditions in the Mediterranean, with temperatures never reaching below zero, thereby allowing the trees to survive the winter and provide good harvests in summer.

Most production takes place in Spain, where 18,000 hectares were cultivated for a production of 115,000 tonnes in 2021. In Portugal, 2,500 hectares were cultivated, followed by Greece, with just under 2,000, and Italy, with less than 1,000 (Eurostat data).



Conclusion (with open questions)

As we experienced during our stay in the country, the avocado is no stranger to Colombia's food culture.

The green fruit is present in most typical dishes, so much so that the Ministry of Agriculture estimates a per capita consumption of 6.3 kilos per year (in Europe we consume around 1.33 kilos per year; in the US around 3.8 kilos). But dominating these new plantations is a new variety, the Hass, which is still little known locally because it was never seen here until ten years ago.

With its typical wrinkled rind and small size,
Hass avocados are the most common avocados in
European and North American supermarkets.
And it is consequently occupying more and
more of the hills of Colombia.

The fruit is the star of a success story that started by chance. In the 1920s, Mr Rudolf Hass, a postman from Los Angeles, put avocado seedlings in his garden, attempting to graft them to strengthen the most common variety of the fruit, called *fuerte*.

The graft did not work in one plant and the grower was almost tempted to cut it down. Instead, he let it grow. Within a couple of years, the tree began to produce fruit that was different from what everyone was used to, with a thicker, wrinkled rind. The son of the amateur farmer tasted them and reported to his father that they were tastier than the traditional ones. The man then decided to patent this variety under his own name.

Today, 95% of avocados on the market are of this type, which is appreciated not only for its flavour, but also for its small shape, making it well suited to transportation from one end of the planet to the other, and for the fact that it turns black when it is ripe, providing an outward indication of the right time to eat it.

In many ways, the history of the Hass avocado is similar to that of the 'Cavendish' banana, which, despite being one of hundreds of varieties in the world, now has an almost absolute monopoly on international trade. This is based on a model that led to the creation of the 'banana republics' of Central America, with the land mostly organised into large estates controlled by foreign companies and local farmers forced to become day labourers.

The first open question that arises is therefore the following: 'How great is the risk that avocados become a new vector of land grabbing in a country like Colombia, which is still largely virgin and where the prospects opened by peace with armed groups are making foreign investors flock to it in droves?'

For large producers and exporters, as we have seen above, there are other problems. These relate to the lack of road infrastructure, ideological environmentalism and, above all, laws to protect forest reserves that are not tailored to the global market.

This is probably the crux of the issue and current clash between producers, activists and farmers, which is most evident in Quindío. This leads us to a second open question:

'What is more fair for Colombians? Keep intact the areas that perform ecosystem services for the whole world or "put them into production", with the idea that this will it bring wealth and benefits to the whole Country?'.

The underlying dilemma is the same as what is seen in many emerging or developing countries that have become global agricultural suppliers: a conflict between environmental protection and the growth of an export-driven economy. While it is difficult to imagine an alternative for staple foods, such as cereals, because they are the mainstay of the world's diet, avocados are a different story. It is, in the end, a superfluous product that can be easily substituted.

The exponential growth of consumption in the Global North, driven by multi-million dollar investments in marketing about the alleged health benefits of avocados, implies a series of final open questions addressed to each of us as citizens and consumers: 'What is the real price of food fads such as Quinoa yesterday and Avocados today? Are there alternatives that are more sustainable in terms of CO2 emissions, ecosystem preservation and protecting the dignity of the most disadvantaged populations? Is it possible to imagine a new global agricultural system in which the profits of a few are subordinate to the rights of all?'



We are a Non-Governmental Organization which has been fighting to achieve social, economic and environmental justice around the world for over 50 years. We operate in Africa, Asia and Latin America, with projects for international cooperation to develop an independent and sustainable economy together with local communities. In Italy, thanks to thousands of active volunteers, we promote projects, volunteering camps and a lifestyle based on solidarity and sustainability. We educate the citizens of tomorrow to respect human beings and our planet through laboratories of Global Citizenship Education.

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The project "Food Wave. Empowering urban youth for climate action" is aimed to increasing knowledge, the awareness and engagement of young people between 15 and 35 years on sustainable practices of consumption and production of food for the mitigation and adaptation to the climate change.

Co-financed by the European Union under the DEAR program, the project is promoted by the Municipality of Milan together with Mani Tese, ActionAid Italia, ACRA and 25 project partners in 17 countries.

To know more, visit: www.foodwave.eu