RAINFOREST ALLIANCE

ORIGIN PERFORMANCE AND RISK REPORT

COFFEE SNAPSHOT

Brazil

INTRODUCTION

Our "Coffee Snapshot" series provides stakeholders—from roasters to buyers—with a localized overview of the key sustainability challenges in different coffee producing origins. This "snapshot" report, focused on Brazil during 2020-2022, summarizes trends emerging from an analysis of our own internal proprietary data, external research, and expert input. In other words, the insights and recommended sustainability interventions highlighted here reflect the collective "hive mind" of our ever-growing global alliance.[1]

Photo credit: David Dudenhoefer

KEY SUSTAINABILITY ISSUES[2]

COFFEE PRODUCTION ECONOMICS

CLIMATE CHANGE

AGROCHEMICAL HANDLING

GENDER EQUALITY

[1] The report is not meant to highlight how Rainforest Alliance farms are performing compared to non-certified farms. The analysis first looks at priority issues within the value chain in the country of focus and then analyzes Rainforest Alliance farms' performance amidst the priority issues. More details on the data sources used and methodology can be found at the end of the report

[2] That is not to say that there are no other issues present, however, these are the key issues that research concludes are needing the most attention currently. Amongst other potential social issues, worker's rights (e.g., contracts, accommodation, and safe usage of chemicals), and gender equality (e.g., lower access to training and technologies compared to men) are worthy of mention in terms of social issues to monitor in Brazil (Rainforest Alliance 2022; Lopes-Ferreira 2022).

THE COFFEE SECTOR IN BRAZIL

Brazil Is one of the largest coffee producers in the world, but much of this production comes at a great cost. Large scale industrialized farming typical of the Brazilian coffee sector is becoming increasingly vulnerable to climate change and market shocks linked to rising production costs.

330,000
Total coffee producers

8.4 MILLION
Direct/indirect jobs across value chain

34%
Share of global coffee production

58.1 MILLION 60-kg BAGS
Coffee production 2021/2022

78%
Smallholder coffee growers (<10 HA)

62%
Total production from medium-large producers (>10 HA)

MAIN CROP HARVEST

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
■	■	■	■					■	■	■	■

1ST LARGEST COFFEE EXPORTER GLOBALLY

7.5 HA
AVG farm size

29 60-KG BAGS/HA
AVG yield

Sources: CNCAFE 2022; USDA 2022; USDA 2021; Sustain Coffee 2018; Gain 2021;

15%
Of total country volume Rainforest Alliance Certified

8.5 MILLION
60-kg bags Rainforest Alliance Certified coffee

1,863
Certified producers

30,968
Workers on certified farms, permanent and seasonal

Sources: Rainforest Alliance 2021/2022*, USDA 2022
* Certified figures are the sum of UTZ Certified and Rainforest Alliance 2020/2021 totals with multiple certification taken into consideration

ECONOMIC

COFFEE PROFITABILITY

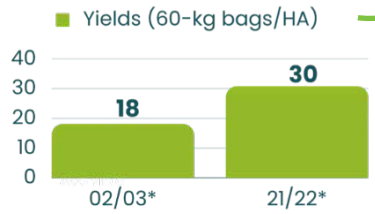
While coffee yields are currently high overall, farmers are not pursuing practices that will make maintaining high yields possible in the long run (18-84 percent loss in land suitability is predicted by 2050 without usage of regenerative agricultural practices such as shade cover).

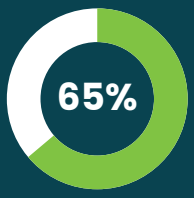
To adapt to climate change's effects on yields, and rising production costs, farmers will need to adopt practices such as renovation and rehabilitation (R&R) and reduce dependency on synthetic fertilizers (which make up a large part of production costs). This is especially important for the 78 percent of producers that have less than 10 HA of land and produce 38 percent of the coffee in Brazil. Low or negative profitability would lead them to switch to other crops or out of agriculture entirely.[3]

Usage of good agricultural practices can more than double average yields. Rainforest Alliance monitoring data shows that farms with usage of good agricultural practices, such as proper usage of fertilizers, herbicides and pesticides, irrigation, shade trees and cover crops can result in production yields as high as 72 60-kg bags/ha., more than double the country average.[4]

COFFEE YIELDS TOTAL BRAZIL AVG

*Yields, for comparison purposes, are on average of the previous three years to account for crop fluctations





COFFEE FARMERS' % INCOME FROM COFFEE

With an avg of 55%-77% of total income

NATIONAL POVERTY RATE

Meaning 28% of the population lives on less than USD 6.85/day

$ USD

6,128

AVG COFFEE FARMER IN BRAZIL

Avg net household income

$ USD

6,051

BENCHMARK NET LIVING INCOME (Avg. during 2021)[5]

60-70%

TOTAL PRODUCTION COST INCREASE SINCE 2021

56-72

60-KG BAGS/HA

AVG yield range of farmers using best practices

2x increase in yields with best practices. As observed on Rainforest Alliance monitored farms.

FOR 2022/2023 CROP

Production decline due to frosts related to climate change

Sources: Rainforest Alliance 2022; CCSD 2021; World Bank 2022; USDA 2022

DRIVERS

- RESTORATION & REJUVENATION
- USAGE OF BEST PRACTICES
- IRRIGATION
- PROPER USAGE OF CHEMICAL INPUTS

RECOMMENDED INTERVENTIONS

"Maintaining optimized coffee production economics is a growing challenge for farmers, but one that can be tackled through joint actions and interventions, such as assisting farmers in managing production costs (through technical guidance and training), providing guidance on low-input activities such as in integrated weed and pest management, as well as improved access to organic pesticides, and supporting regenerative practices that reduce farmer dependence on costly inputs"

-Miguel Gamboa, Sector Lead Coffee, Rainforest

[3] Rainforest Alliance 2022; CCSD 2021; Caldarelli 2019

[4] Rainforest Alliance 2022; USDA/ATO/Sao Paulo 2022

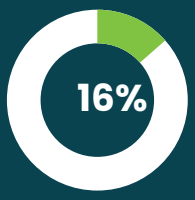
[5] "Responsible Coffee Sourcing: Towards a Living Income for Producers" by Kaitlin Y. Cordes, Margaret Sagan et al. (Columbia.edu)

ENVIRONMENTAL

CLIMATE CHANGE

Without adaptation interventions, climate change is expected to reduce the land suitable for coffee growing by 18-84 percent by 2050.

Climate change is already affecting farmer yields. In 2022, farmers faced extreme weather related to climate change from severe droughts to extreme hailstorms. The previous year several regions were hit by the worst outbreak of frost in more than 40 years. All told, this led to a 16 percent reduction in forecasted production for 2022/2023. For some producers, drought led to a 50 percent production decline. Climate change is expected to make it difficult for farmers to maintain current coffee production levels. Overall, temperatures are expected to rise which could lead to an 18-84 percent decline in the area suitable for coffee production by 2050 in Brazil. The effects will likely impact unshaded plantation in particular. The adoption of agroforestry systems with 50 percent shade cover can help to reduce mean temperatures, especially at altitudes between 600 and 800 m.[6]



SEVERE FROSTS IN JUNE/JULY 2021

Affected flowering and fruit setting, killed young trees. **Leading to 16% production decline for 2022/2023 crop.**

2021 DROUGHT-LOWEST RAINFALL IN 90 YEARS

Affected bean production, overall tree health etc. **Leading to 50% production decline for some producers, even up to 80% loss if continues.**

Sources: Rainforest Alliance 2022; Gomes et al. 2020; Coffee Intelligence 2022; NRI 2012; Perfect Daily Grind 2021 ; Wall Street Journal 2022 ; DaMatta et al 2006

THESE CLIMATE CHANGE RELATED EFFECTS HAVE CAUSED COFFEE PRICES TO SPIKE.

Sources: FactSet 2022; Wall Street Journal 2022

ARABICA COFFEE FUTURES
As of Dec 14, 2022

OBSERVED AND PREDICTED EFFECTS OF CLIMATE CHANGE

- RISING TEMPERATURES
- CHANGING SEASONALITY
- CHANGING RAINFALL
- EXTREME WEATHER EVENT

KEY IMPACTS OF CLIMATE CHANGE ON COFFEE PRODUCTION

- CHANGING MANAGEMENT
- DYING TREES/NET AREA LOSS
- POOR CHERRY DEVELOPMENT
- POOR FLOWERING/FRUIT SETTING

LOSS OF LAND PRODUCTIVITY HINDRANCES ARE ALREADY HAPPENING

SEVERE FROSTS IN JUNE/JULY 2021
Affected flowering and fruit setting, killed young trees

2021 DROUGHT-LOWEST RAINFALL
Affected bean production, overall tree health, etc

RECOMMENDED INTERVENTIONS

Climate change is already having a significant impact on coffee production in Brazil and globally. These impacts are likely to intensify in the near future, unless adaptation measures are put in place. Such measures include helping farmers make the shift from full sun, monocrop systems to biodiverse agroforests where climate-smart farming practices—such as intercropping and establishing riparian buffers—are implemented. Of course, the transition is only possible with increased technical support and trainings, and improved access to finance mechanisms, such as weather-indexed crop insurance, so that farmers can continue to invest in climate-smart farming practices.

-Dr. Celia Harvey, Climate Lead, Rainforest

[6] Golmes et al 2020; Coffee Intelligence 2022; Ilyun Koh et all 2020; USDA 2022; Venancio et al 2020

ENVIRONMENTAL

DEFORESTATION

Deforestation Occurrence in Brazil Since 2014 vs. Rainforest Alliance Certificate Holders. The Rainforest Alliance monitors potential deforestation due to expansion of coffee production area.

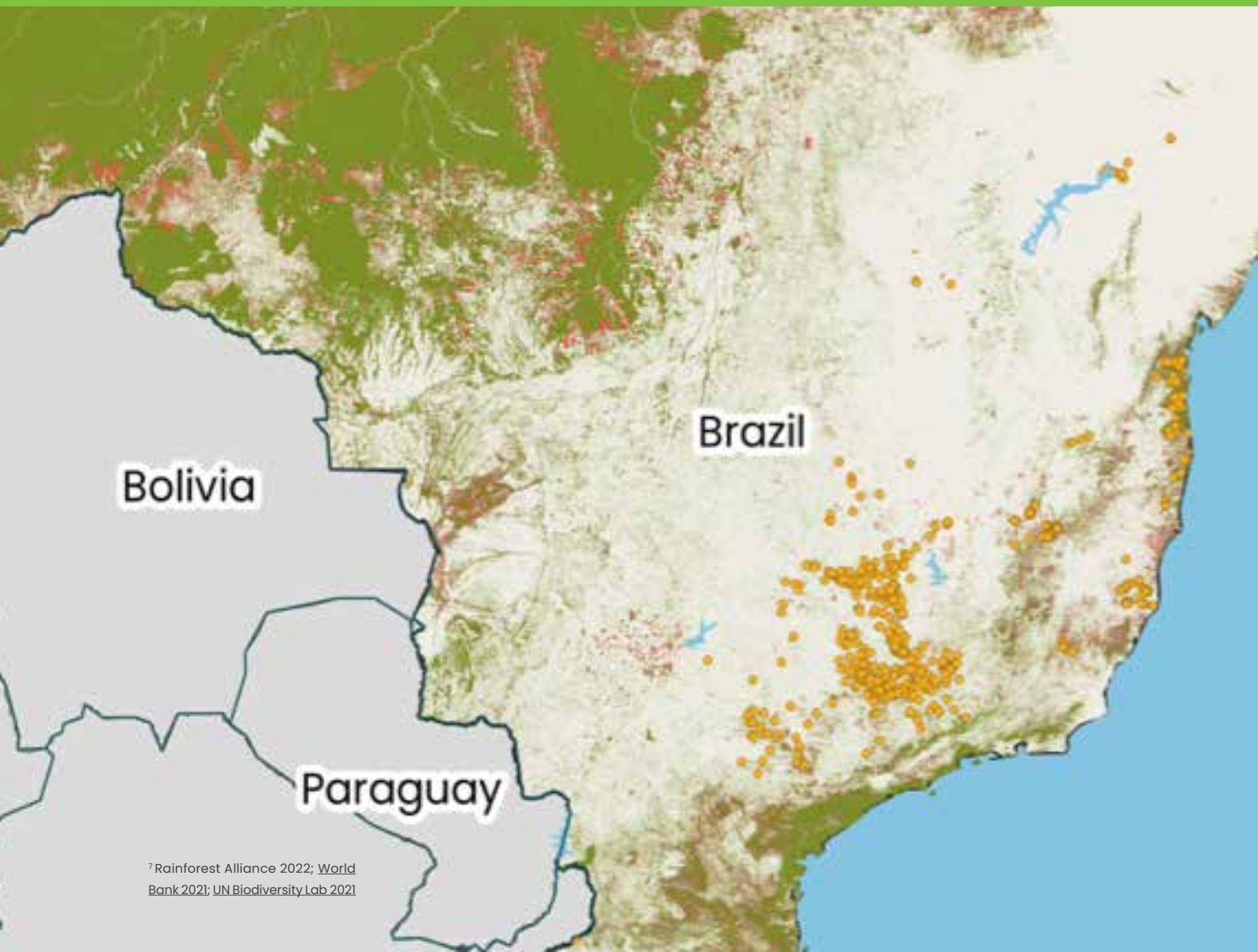
Please note, deforestation data in the Cerrado and Atlantic Forest –where most coffee production in Brazil occurs—is extremely limited. While our mapping can give us some insight into possible deforestation trends, it cannot be used to guarantee that deforestation is not occurring in coffee-producing regions.[7]

PROTECTED AREAS

FOREST

DEFORESTATION

LICENSED FARMS



[7] Rainforest Alliance 2022; World Bank 2021; UN Biodiversity Lab 2021

SOCIAL

GENDER EQUALITY

6,442*

ESTIMATED NUMBER OF WOMEN TRAINED IN SAFE WORKING PROCEDURES ACCORDING TO RACP DATA.

*This data provides only a snapshot of certificate holder activities. Please note, that there could be double counting within this data, and that the percentage of files submitted by surveyed farmers is only 37% of what was expected. More data will become available as RACP continue to develop.

Sources: Rainforest Alliance 2022; Women in Coffee 2021

KEY ISSUES

- **LESS ACCESS TO TRAINING**
- **LESS ACCESS TO TECHNOLOGIES**
- **LESS ACCESS TO INTERNET**

SOCIAL

WORKER'S RIGHTS

ESTIMATED % OF COFFEE WORKERS WITH CONTRACTS IN BRAZIL

% OF NON-COMPLIANCE ON USAGE OF EMPLOYMENT CONTRACTS

Amongst Rainforest Alliance producers

KEY ISSUES

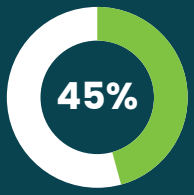
- **LOW ACCOMODATION STANDARDS**
- **CHEMICAL EXPOSURE**
- **LOW CONTRACT USAGE SECURING RIGHTS**

Sources: Rainforest Alliance 2022; Danwatch 2016

SOCIAL

AGROCHEMICAL HANDLING

Every year, Brazil intensifies its activity in agriculture and, as a result, it has become one of the biggest consumers of pesticides in the world. The high rate of these substances raises environmental and human health concerns. Nearly half of all approved chemicals used in coffee production are hazardous. In Brazil, 88-98 percent of farmers use some form of agrochemicals in their fields. Coffee is also and mainly produced as a monocrop (only 2 percent of farmers intercrop) and large fields and monocrops tend to lead to more pests and, consequently, higher pesticide use. Agrochemicals can pose a threat to biodiversity and to water, especially when not used correctly. For example, a study in Espirito Santo state found that there is a 45 percent chance pesticide contamination in surface water and a 25 percent chance of groundwater contamination. Unsafe agrochemical handling in Brazil stands out as a key issue impacting the environment, and negatively affects access to safe drinking water and worker safety. Employers regularly require workers to apply toxic agrochemicals but rarely provide personal protective equipment (PPE). As a result, pesticide poisoning is widespread.[8]



1,012 PRODUCTS

% of chemical products are very dangerous for the environment

131 PRODUCTS

% of chemical products are considered extremely toxic to human health

88-98%

% OF FARMERS USE SOME FORM OF AGROCHEMICALS

193

EU BANNED PRODUCTS FOUND IN BRAZIL COFFEE 2016-2019

EU BANNED PESTICIDES ARE LEGALLY PERMITTED IN THE COUNTRY

Sources: Rainforest Alliance 2022; Ministry of Agriculture, Livestock and Food Supply 2020; Díalogo China 2020; CNA 2018; GCP 2022

ENVIRONMENTAL IMPACTS OF AGROCHEMICALS THREATEN	Biodiversity	Soil health	Waterways
AGROCHEMICAL HANDLING ISSUES REQUIRE MANAGEMENT	Storage	PPE	Disposal
HUMAN HEALTH IS AFFECTED THROUGH POISONING, EVEN LEADING TO DEATH	Acute & chronic illness		

RECOMMENDED INTERVENTIONS

"Companies, governments, and civil society organizations should work together to increase awareness and understanding of the importance personal protection equipment, and the safe application and disposal of agrochemicals among farmers. Supply chain actors should also promote and reward farmers for pursuing low-input, regenerative practices and promote precision agriculture, including investing in machinery, risk-management tools, and supporting the development of technical knowledge for integrated pest management with reduced application of chemical inputs."

-Kim Schoppink, Advocacy Lead Nature, Rainforest Alliance

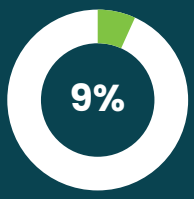
[8] Rainforest Alliance 2022; Lopes-Ferreira 2022; CNA 2018; Queiroz et al 2018; Díalogo China 2020; Coffeelands 2016

SOCIAL

AGROCHEMICAL HANDLING

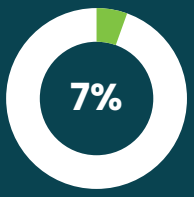
OF FARMS NOT STORING AGROCHEMICAL & APPLICATION EQUIPMENT PROPERLY

OF FARMS NOT USING PROPER DISPOSAL METHODS OF EMPTY PESTICIDES CONTAINERS

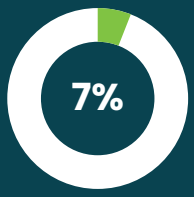


OF FARMS NOT RECORDING PESTICIDE APPLICATIONS

OF FARMS NOT UTILIZING MECHANISMS TO AVOID CONTAMINATION BY PESTICIDES

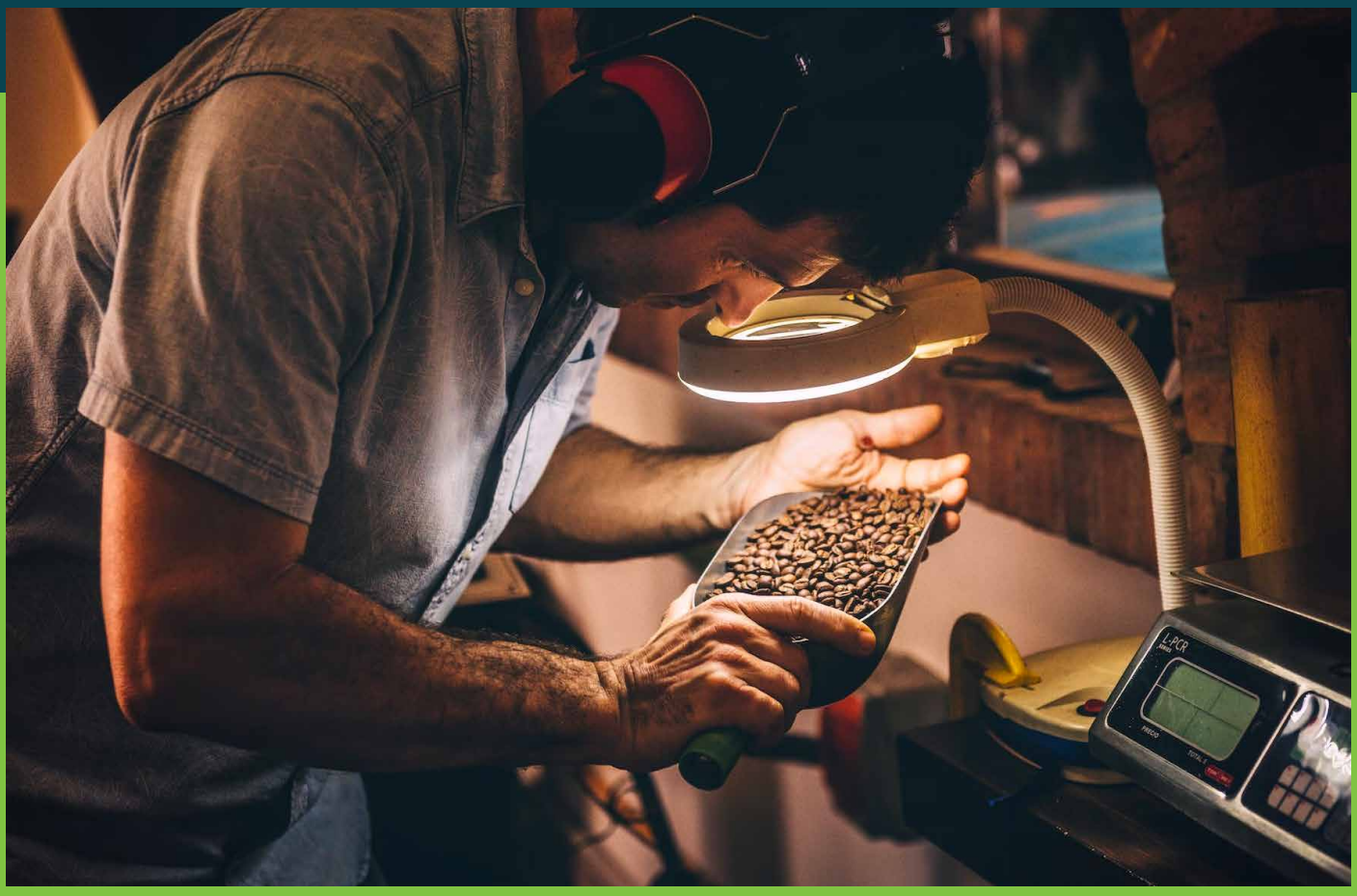


OF FARMS WITH PERSONS NOT WASHING & CHANGING CLOTHES AFTER PESTICIDE APPLICATION



OF FARMS NOT PREPARING AND APPLYING PESTICIDES ACCORDING TO THE LABEL

Sources: Rainforest Alliance 2022; Agrochemical Management Areas with the Highest Non-Conformance on the Rainforest Alliance Certification Platform.



CONCLUSIONS AND RECOMMENDATIONS

While more data is needed to address several possible risks in Brazil–such as potential deforestation in coffee producing regions—Rainforest Alliance research shows that Brazil's coffee sector is not immune to rising production costs and climate change. To combat declining yields, farmers may seek to increase their use of hazardous agrochemicals, which is concerning given that non-compliance with safe agrochemical handling is already prevalent. Therefore, interventions should be designed to help farmers adopt low input, climate-smart practices that can simultaneously help reduce farmers' costs while increasing their climate resilience.

The Rainforest Alliance has worked with several companies, NGOs, and government agencies to drive change in Brazil. Our recent and ongoing work includes:

OUR CURRENT WORK INCLUDES

THE BUSINESS CASE FOR COLLECTIVE LANDSCAPE ACTION

This five-year project aims to advance USAID's Sustainable Landscapes Program goals by reducing commodity-driven tropical deforestation and achieving large-scale restoration. In addition to Brazil, the project covers Ecuador, Peru, Colombia, and Indonesia.

SCALING CLIMATE-SMART REGENERATIVE COFFEE

Deforestation, pesticide use, and climate vulnerability are all pressing issues in Brazil. That is why the Rainforest Alliance is working with Nespresso, Imaflora, and the FNC to equip Brazilian and Colombian coffee farmers with the skills and knowledge to pursue regenerative agriculture.

METHODOLOGY AND DATA SOURCES

This report draws upon a wide range of internal propriety data: certification data, internal risk maps, project monitoring and evaluation data, and expert opinions. It also draws on various external sources, including coffee industry reports, project reports, country-specific legislation, and academic literature. While several sources are used, there are limitations in the completeness of all the datasets used. Therefore, the weighing of risks is based on the frequency they are mentioned, focusing on the probability of occurrence, not necessarily on the severity of impacts.[8]

RISK MONITORING AND CERTIFICATION: ADVANCES IN OUR 2020 SUSTAINABLE AGRICULTURE STANDARD

Our 2020 Sustainable Agriculture Standard includes many new indicators for certificate holders to report on. The first set of these indicators will include:

HUMAN RIGHTS VIOLATION CASES **SUSTAINABILITY INVESTMENT NEEDS** **LIVING WAGE DATA**
PERCENT OF WOMEN PARTICIPATING IN TRAINING **MANAGEMENT CAPACITY ASSESSMENTS**

*Data from 2021 and 2022 is being processed

[9] The data presented is accurate at the time of publication based on the information collected from the above sources. Rainforest Alliance will not be liable for damage due to inaccuracies in the information. For more information about the method of analysis and sources, please contact us at tailoredservices@ra.org.

ABOUT THE RAINFOREST ALLIANCE

RAINFOREST ALLIANCE

The Rainforest Alliance is creating a more sustainable world by using social and market forces to protect people and nature. Our alliance spans 70 countries and includes farmers and forest communities, companies, governments, civil society, and millions of individuals. Together we work to protect forests and biodiversity, take action on climate, and promote the rights and improve the livelihoods of rural people.