



BIOFORTUNE GROUP

**INOCULATED & CONTROLLED
COFFEE FERMENTATION**

Honduras - Guatemala - Taiwan - USA



Who we are

BioFortune Group is a corporate group of 7 different business entities in Honduras, 1 in Guatemala, 1 in Taiwan and 1 in Panama, that is dedicated to the production of exotic coffee varieties, as well as botanicals, fruits and herbs, by implementing industry best practices complemented with leading-edge precision agriculture technologies that are aligned to long-lasting traditions and environmental responsibility as well as deep scientific knowledge. Blue Mountain Coffee and Fortune Mountain Coffee are the cornerstone and main operating companies in Honduras

- Our farms are located in the north of the department of El Paraiso at altitudes between 1200 to 1600 mts, and produce 25 different highly-coveted coffee varieties
- We are a socially responsible enterprise, utilizing latest industry practices that are in sync with protecting the environment and that apply strategies to mitigate climate change
- We believe and leverage the latest technologies in each of the phases of agri-food production, harvesting and processing
- We are a vertically integrated venture, starting from nurseries all the way to production and post-harvest of coffee, botanicals, fruits, vegetables and herbs



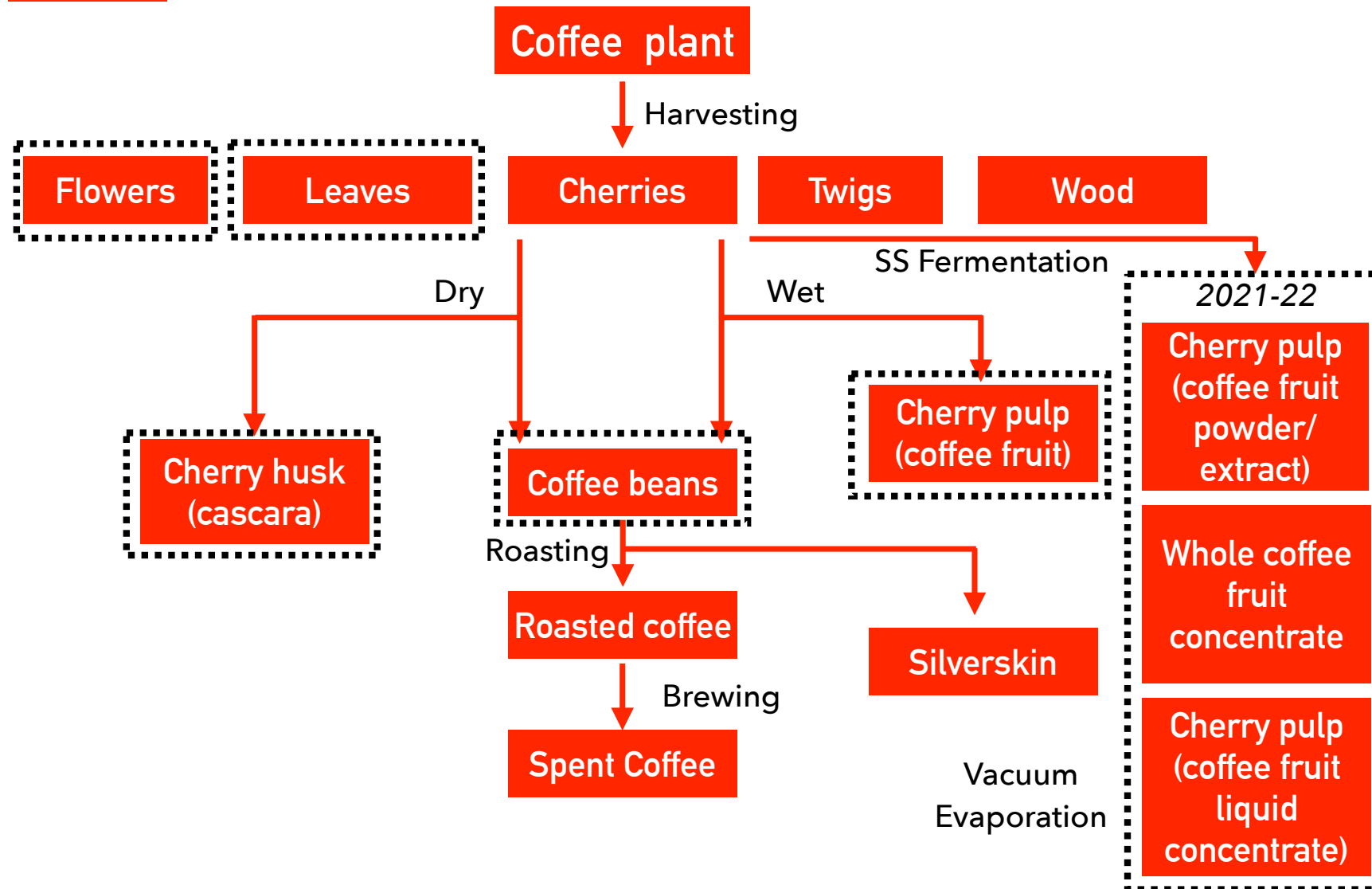
Our Companies



11



Our Coffee Product Portfolio



Pre and Post Harvest Tactics Matrix based on a Carbon Smart Agriculture

Pre Harvest / Agricultural Measures

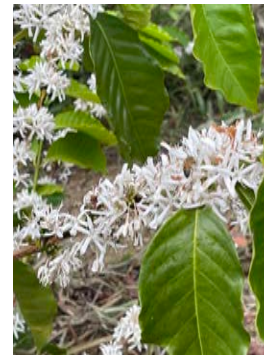
Precision Agriculture



Organic Fertilization



Bee Protection



Targeted Reforestation



Microbiota Mapping



Mechanized Herb cutter/biomass



Weather Monitoring



Pre and Post Harvest Tactics Matrix based on a Carbon Smart Agriculture

Post Harvest Measures

Circular Economies - "Waste to Wealth"



Certified Processes



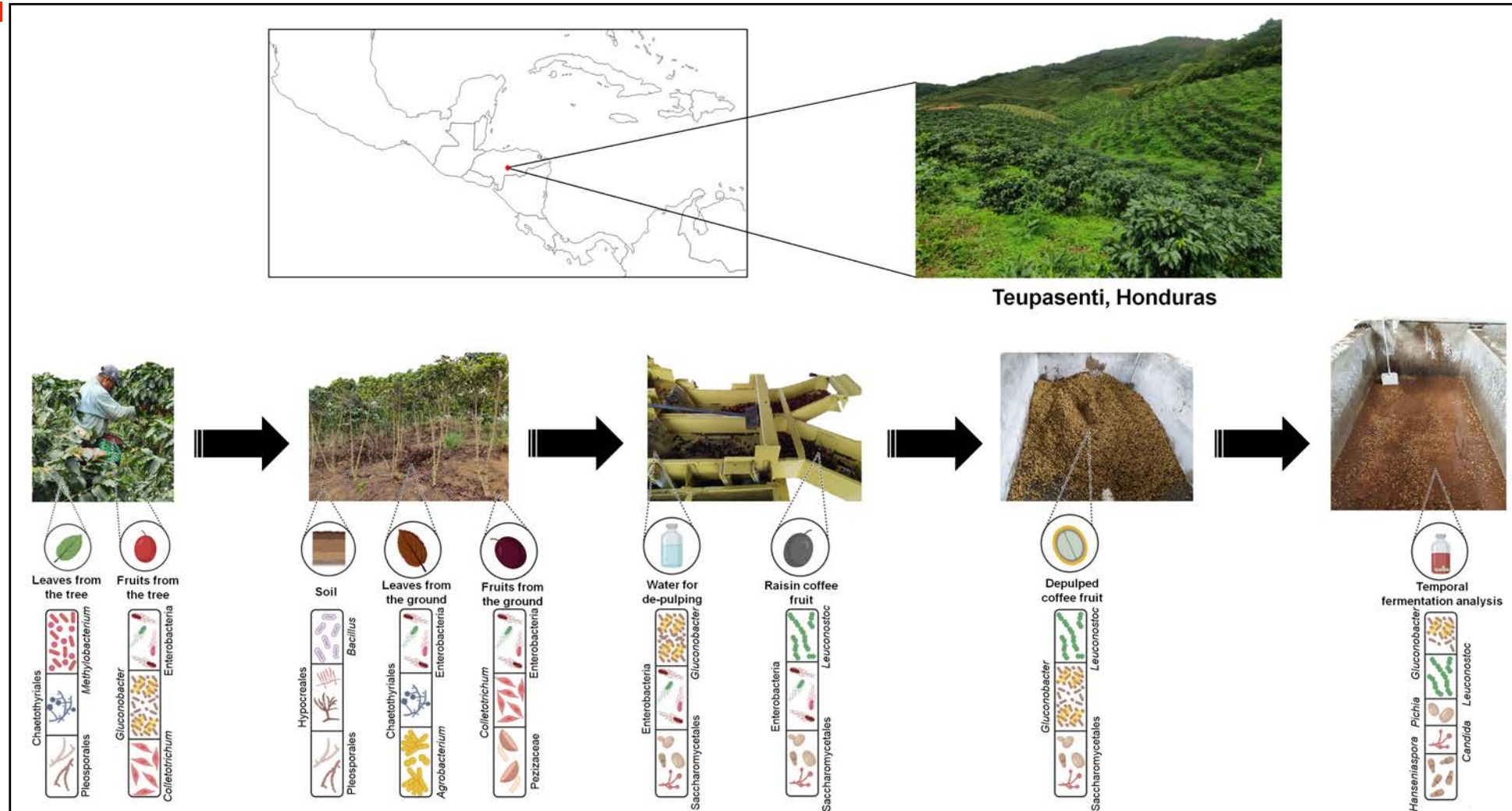
Reduced Carbon footprint construction



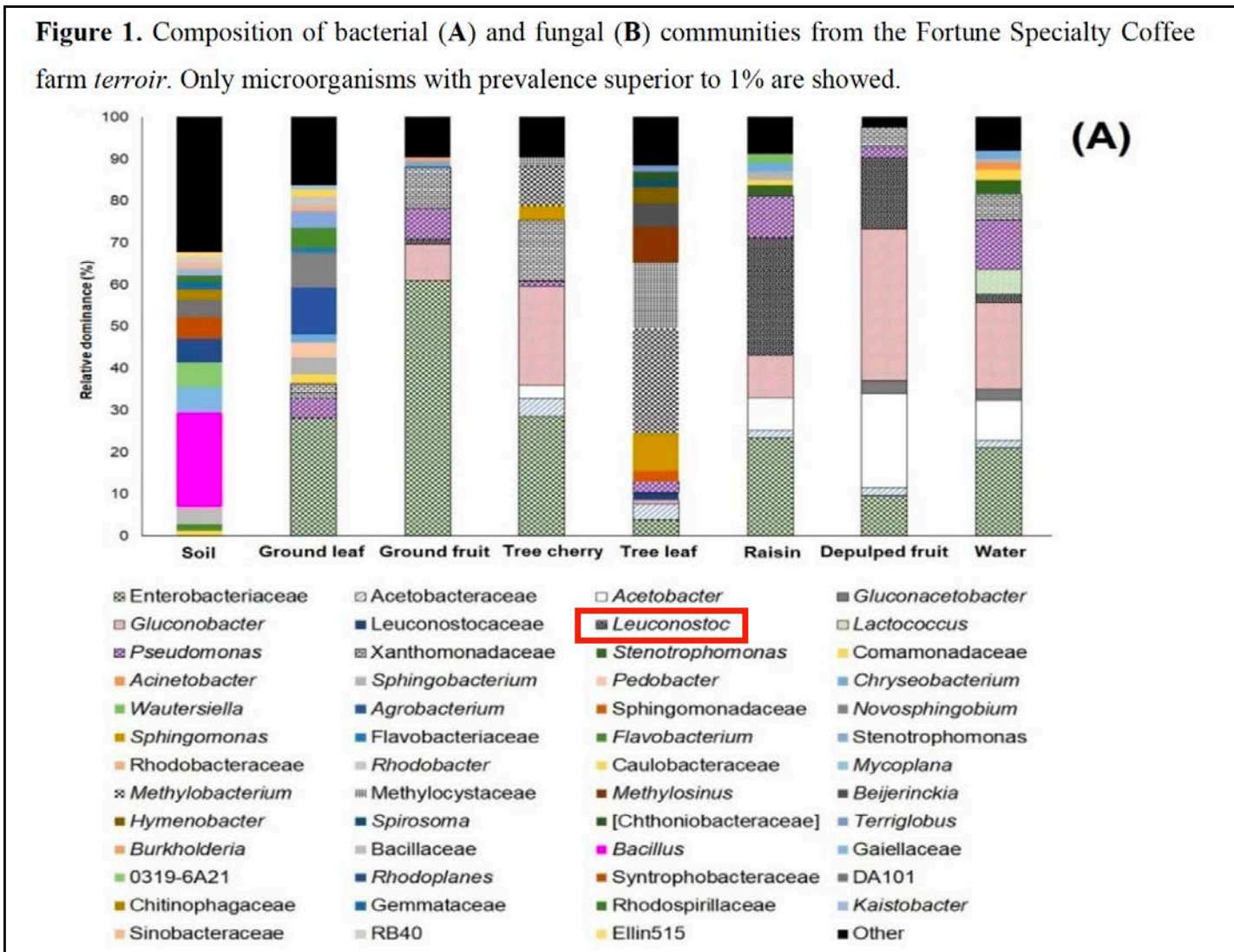
Controlled/Standardized Processes



Microbiota Mapping to understand further fermentation process



Microbiota Mapping to understand further fermentation process

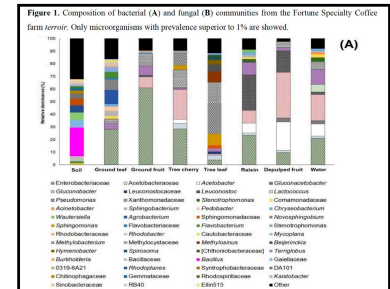
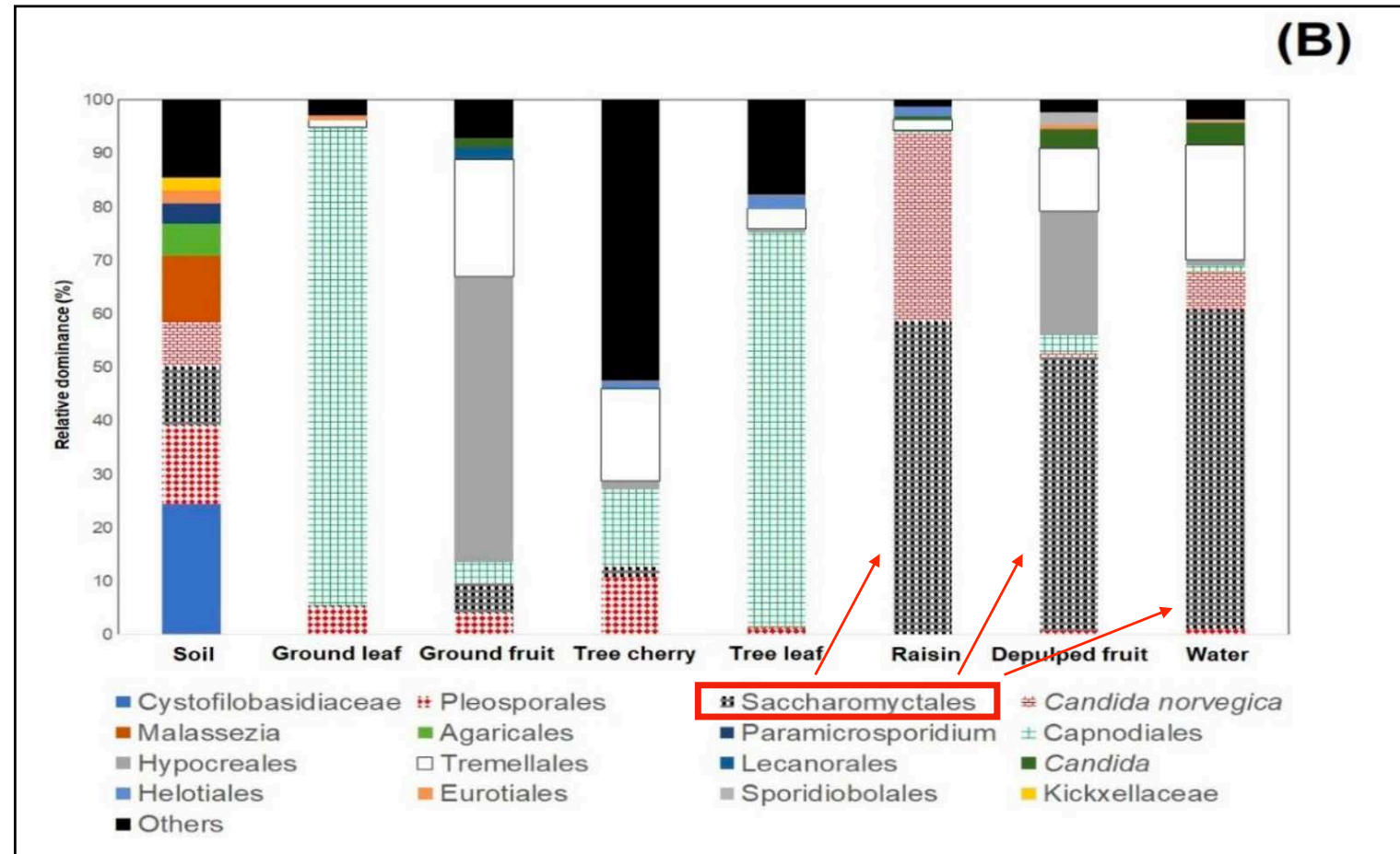


Microbiota Mapping to understand further fermentation process

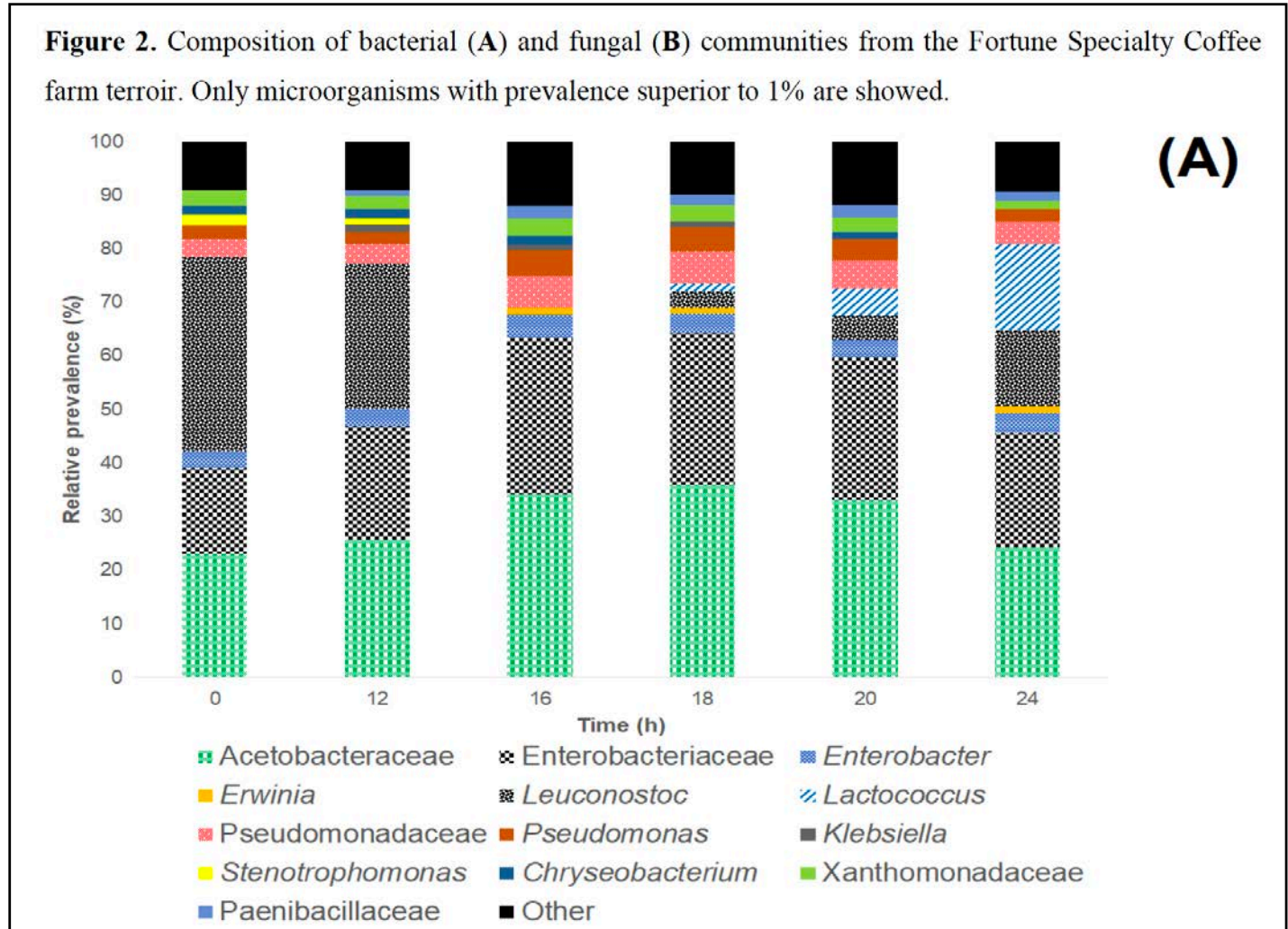
Table 1. The Origin and Number of *S. cerevisiae* Strains from Coffee and Cacao Analyzed in This Study

Origin	Isolates
Cacao Origin	
Colombia	1
Costa Rica	11
Dominican Republic	7
Ecuador	12
Ghana	5
Haiti	7
Ivory Coast	6
Madagascar	1
Nicaragua	2
Nigeria	7
Papua New Guinea	2
Peru	9
Venezuela	8
Coffee Origin	
Colombia	6
Costa Rica	3
Ethiopia	3
Guatemala	2
Honduras	14
Indonesia	12
Kenya	2
Mexico	2
Nicaragua	3
Peru	5
Rwanda	5
Uganda	4
United States	1
Yemen	5

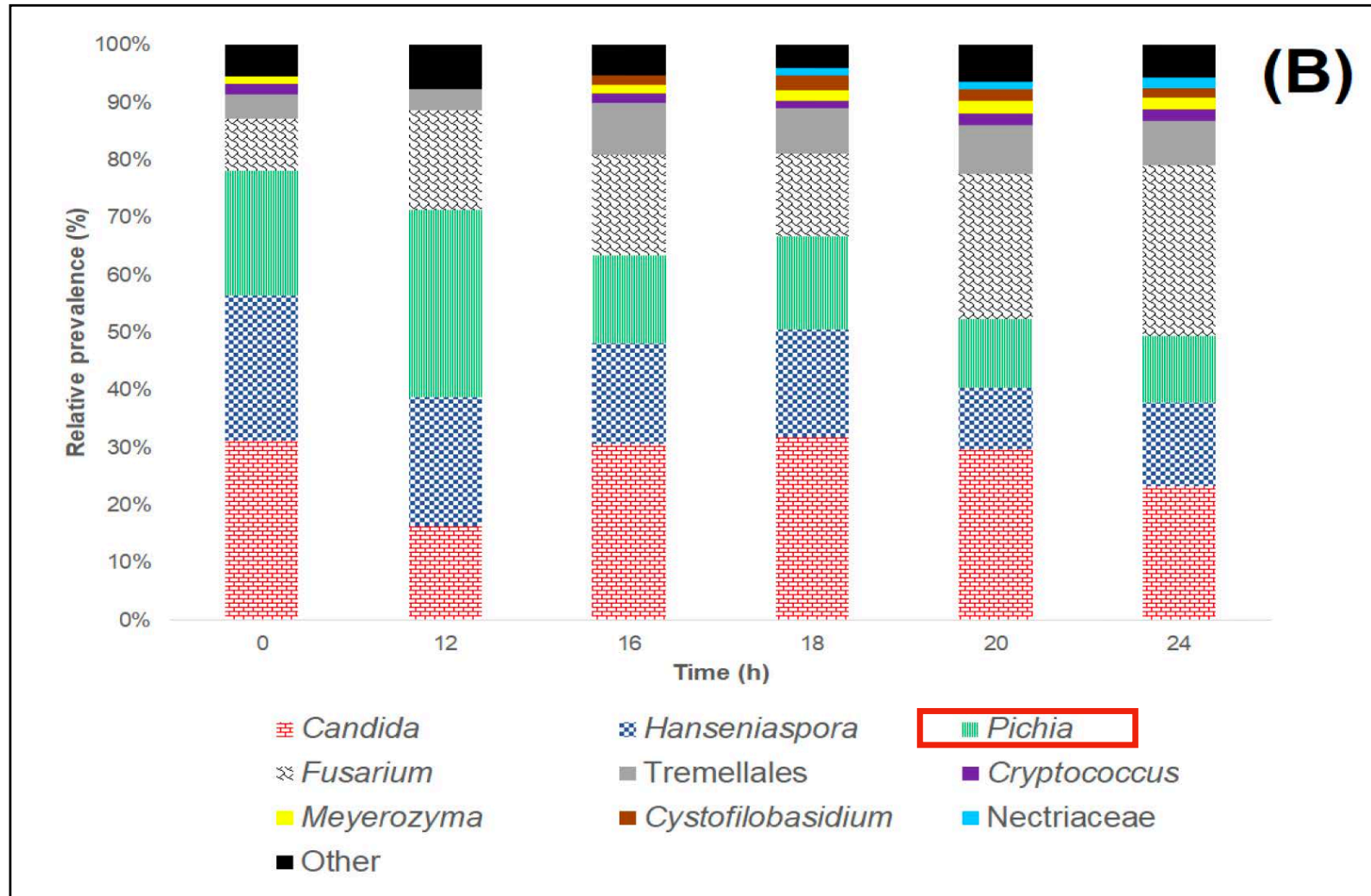
The five Ghana cacao strains were isolated [14] and analyzed by RAD-seq [19] in previous studies. All others were isolated in this study. See also Table S1.



Microbiota Mapping to understand further fermentation process



Microbiota Mapping to understand further fermentation process



Understanding the fermentation process in coffee - 'business as usual' depends on variability to obtain the final product

Precursors - 'raw materials' -
 Depend on varietal, nutrition
 Climatic conditions, shade



Metabolites - the 'end products' -
 Volatiles, alcohols, esters, organic acids

Microbiota: yeasts/bacteria - depend on altitude, agronomic practices

LAB / Sacharomyces (alcoholic) / Pichia (Non Sach) / acetobacter

Process: Washed (submerged/solid state/'anaerobic')

Depending on the process, certain yeast/bacteria will have activity

Honey

Natural - fermentation and oxidation

Understanding the fermentation process in coffee: why inoculation makes sense? Inoculation eliminates variability



pH control



Brix control



Temperature control



Agitation control



Controlled inoculated fermentation

When you use starter cultures you can "predict the results" from your fermentation, as long as you control the parameters and monitor it correctly, which will result on consistency. Using selected and aromatic strains (specifically to coffee fermentation) will result in the diffusion of known sensorial notes into the beverage, allowing you to target specific markets.

Results of controlled inoculated fermentation with the same varietal, same farm, same lot



**Farm: Finca Hebron, Teupasenti,
El Paraíso, Honduras
Altitude: 1,200 Mts
Varietal: Parainema**

Process	Profile	Score
Natural	Fruit aroma, sugar cane, malic acidity, red cherry, pineapple and almond. Silky Post taste - tropical fruits	84.50
Honey	Sweet and floral aroma. Honey notes, black tea, winery (green grapes), blackberry. Malic acidity, creamy body. Balanced cup	85.75
Washed (inoculated) in bioreactor	Floral aroma, with vanilla notes, black tea, maple, plum, blueberry, blackberry. Bright malic acidity, silky body. Sweet ad prolonged post taste	90.1
Washed (without inoculation) in cement tank	Sweet aroma, banana and pineapple notes	83.0



Questions? Comments?