



ECHO Asia Conference 2019



# Why Grade Coffee?

- First description of grading was 1836 in Brazil
  - 1st, 2nd and inferior grades all based around broken/whites
- All coffee sold will have a grade assigned to it
- Provides the basis for any coffee contract
- Can be complicated, but is a mix several variables that we can use to build a step by step picture of very useful information



Helps communication between the buyer and seller Information tells us:

- Where the coffee comes from
- How it has been processed
- If defects are likely to be present
- How consistently it will cup
- How a coffee will roast
- How the coffee may change over time
- What the value of the coffee is likely to be



# How is Coffee Graded?

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- Elevation
- Bean Size
- Cup Quality





# Elevation

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- Not all countries grade this way
- Different countries have different standards
- SHB: Strictly Hard Bean
- SHG: Strictly High Grown







# Elevation

Grade	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua
SHG/SHB	1200 – 1650m	>1200m	>1500m	>1500m	>1500m
HG/HB	950 – 1100m	900 – 1200m	1200 – 1400m	1000 – 1500m	1300 – 1500m





# Elevation

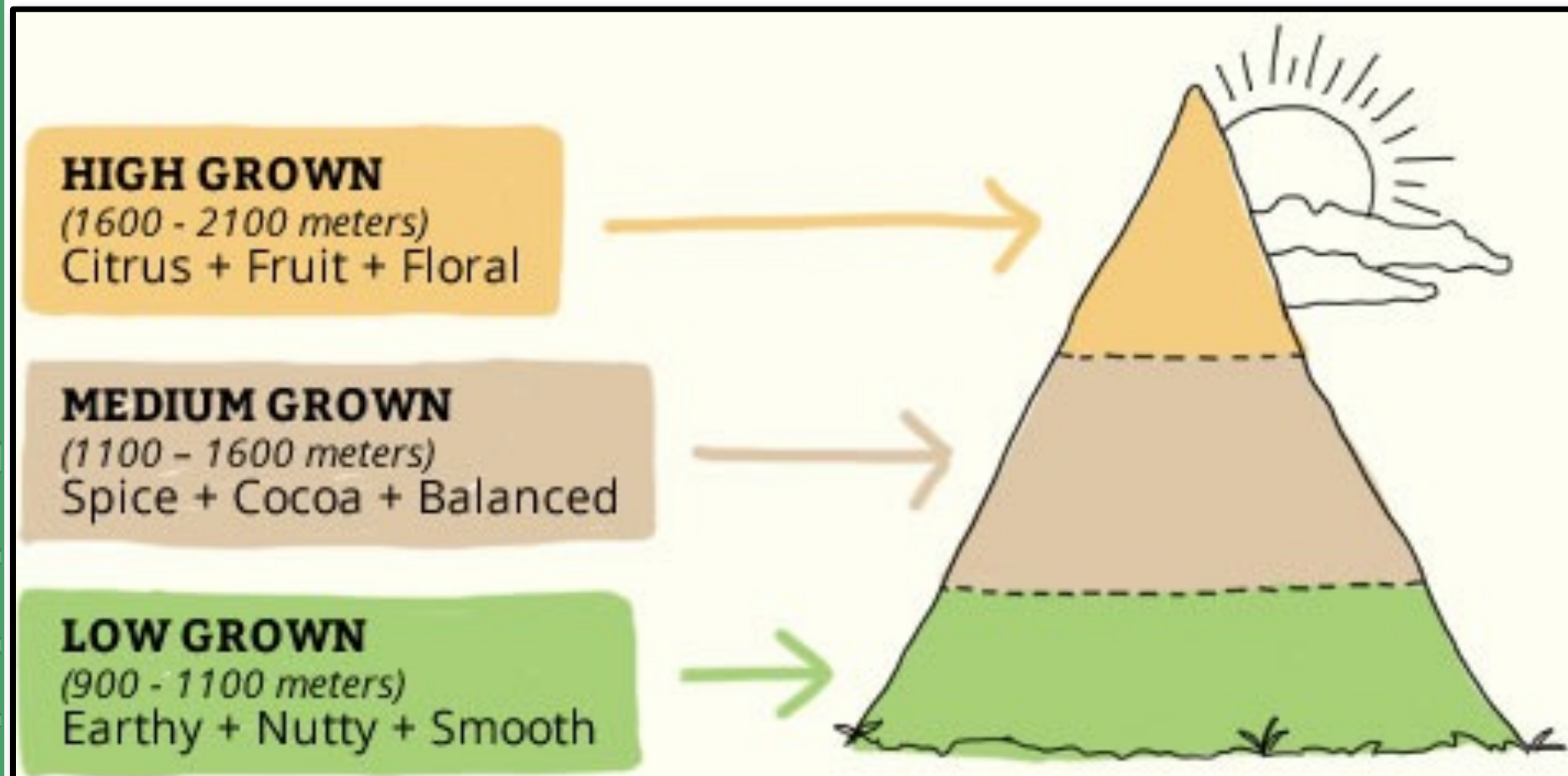
- Why do we grade with elevation.

Low Altitude:

- Lower acidity
- Earthy flavors
- More basic flavors

High Altitude:

- Higher acidity
- Cleaner flavor
- More complex





# Bean Size

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- Some countries grade the bean size.
- Most coffee contracts indicate an acceptable bean size and acceptable percentage of the shipment that is within the stated beans sizes range.
- Assumes larger is better however most Ethiopian coffee is smaller in size yet is considered one of the best coffee producing countries.
- Peaberry is the smallest yet some countries value it more.
- Consistency is important to roasters







# Bean Size

<i>1/64 “</i>	<i>mm</i>	<i>Class</i>	<i>Central America and Mexico</i>	<i>Columbia</i>	<i>Africa and India</i>
<b>20</b>	<b>8</b>	<b>Very Large</b>	<b>Superior</b>	<b>Supremo</b>	<b>AA</b>
<b>19.5</b>	<b>7.75</b>				
<b>19</b>	<b>7.5</b>				
<b>18.5</b>	<b>7.25</b>	<b>Large</b>		<b>Excelso</b>	<b>A</b>
<b>18</b>	<b>7</b>				
<b>17</b>	<b>6.75</b>				
<b>16</b>	<b>6.5</b>	<b>Medium</b>	<b>Segundas</b>	<b>Excelso</b>	<b>B</b>
<b>15</b>	<b>6</b>				
<b>14</b>	<b>5.5</b>	<b>Small</b>	<b>Terceras</b>		<b>C</b>
<b>13</b>	<b>5.25</b>	<b>Shells</b>	<b>Caracol</b>		<b>PB</b>
<b>12</b>	<b>5</b>				
<b>11</b>	<b>4.5</b>		<b>Caracolli</b>		
<b>10</b>	<b>4</b>				
<b>9</b>	<b>3.5</b>		<b>Caracolillo</b>		
<b>8</b>	<b>3</b>				



# Cup Quality

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- Absence of defects
- Intensity of attributes
  - sweetness
  - acidity
  - fragrance and aroma
  - mouthfeel
  - aftertaste
  - balance
- Many different cupping forms/scales but most follow the SCA Cupping Protocol





Specialty Coffee Association  
Arabica Cupping Form

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Table no: \_\_\_\_\_

Quality Scale

6.00 - GOOD	7.00 - VERY GOOD	8.00 - EXCELLENT	9.00 - OUTSTANDING
6.25	7.25	8.25	9.25
6.50	7.50	8.50	9.50
6.75	7.75	8.75	9.75

Sample No.	Roast Level of Sample 	Fragrance/Aroma	Score	Flavor	Score	Acidity	Score	Body	Score	Uniformity	Score	Clean Cup	Score	Overall	Score	Total Score
		6 7 8 9 10		6 7 8 9 10		6 7 8 9 10		6 7 8 9 10		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		6 7 8 9 10		
		Dry	Qualities	Break	Aftertaste	Intensity	High	Low	Level	Heavy	Thin	Balance	Sweetness	Defects (subtract) Taint - 2 Fault - 4		
Notes:														Final Score	82	

Sample No.	Roast Level of Sample 	Fragrance/Aroma	Score	Flavor	Score	Acidity	Score	Body	Score	Uniformity	Score	Clean Cup	Score	Overall	Score	Total Score
		6 7 8 9 10		6 7 8 9 10		6 7 8 9 10		6 7 8 9 10		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		6 7 8 9 10		
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# SCA Cupping Protocol

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- Roast Profile
- Brew Ratio
- Water Temp
- Calibration and Certification  
through the Coffee Quality Institute





# Coffee's Potential

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- Cultivar/Variety
- Micro Climate
- Harvest Selection
- Processing Method and Practices
- Storage
- Shipping
- Roasting
- Extraction and Brewing







# Coffee's Potential

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- Cultivar/Variety
- Micro Climate
- **Harvest Selection**
- **Processing Method and Practices**
- **Storage**
- Shipping
- Roasting
- Extraction and Brewing





# Coffee Family Tree



**Café Imports**  
Importers of fine specialty coffees





# The Coffee Belt

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- Elevation and Micro Climate
  - The Farmer can't change thier location but...





# COFFEE ORIGIN

**Arabica** coffee is grown in relatively cool climates in the region between the Tropic of Cancer and Capricorn. The optimum temperature is between 15-24°C (59-75°F) year round. Photosynthesis is slowed above these temperatures and frost damage can occur when temperatures hover around 0°C. It is typically grown between 600-2200masl.

Ideally, 1500-2500 mm of rain will fall over a nine month period with a three month dry season coinciding with the harvest. Areas with less rainfall can use irrigation to compensate. A period of moisture stress (rain after a dry spell) helps cause a homogenous flowering and therefore promotes a clearly defined harvesting season. Coffee producing countries with more than one wet and dry season will have more than one harvesting season.



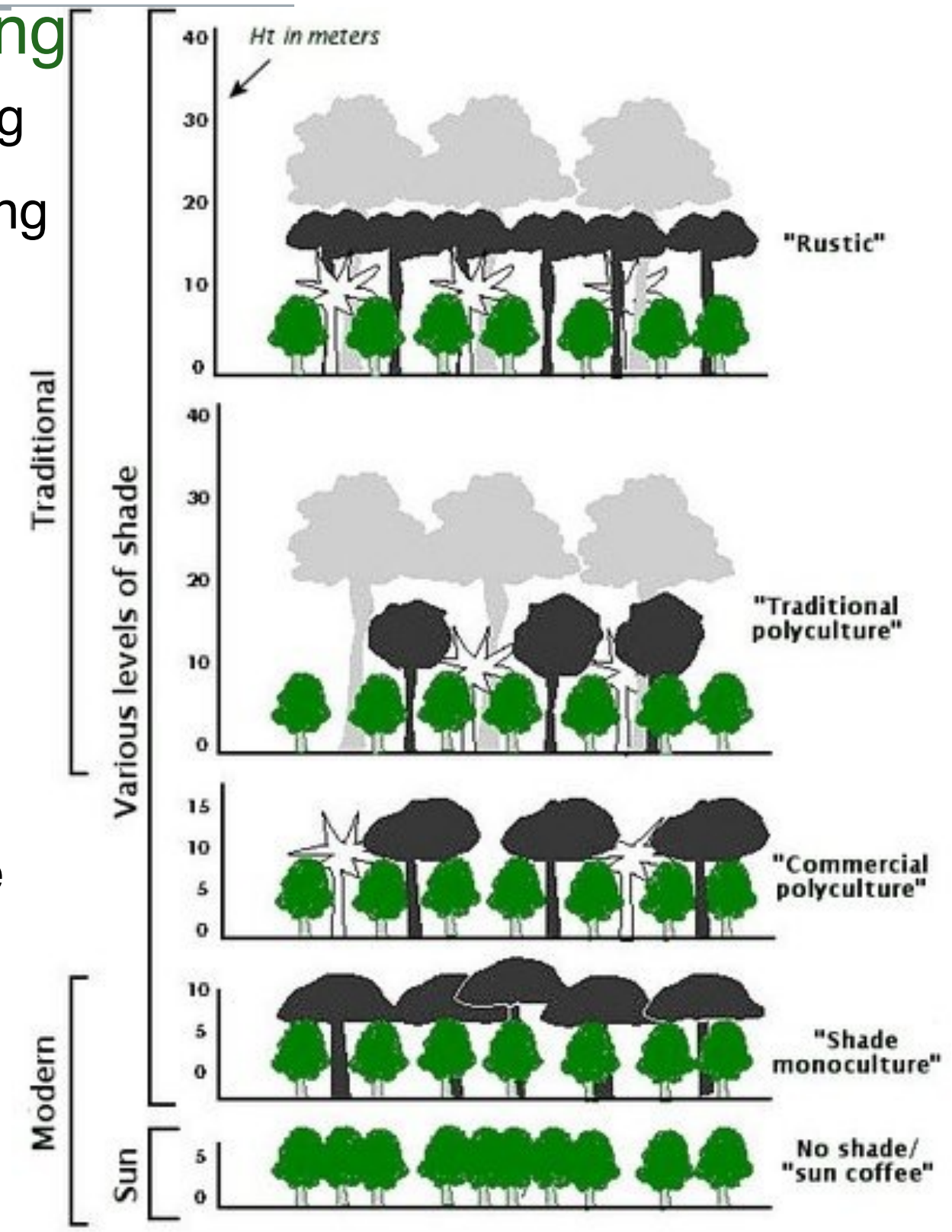




# Coffee Farming

## Types of coffee farming

1. Smallholder coffee farming
2. Co-operative coffee farming
3. Private coffee farm
4. Industrial coffee farm
5. wild coffee
6. shade grown coffee
  - Rustic
  - Traditional Polyculture
  - Commercial Polyculture
  - Monoculture
7. sun coffee





# Aspects of Farming

- Global Latitude
- Altitude above sea level
- Soil type
- Slope gradient
- Rainfall
- Temperature
- Humidity
- Sunlight
- Wind
- Coffee variety

## ***Terroir***

Is the special characteristics of the geography, geology and climate of a certain place and how they interact with the plants genetics





# Types of harvesting

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- As a rule harvesting is once a year
- Cherry Development:
  - Arabica - 6-8 months
  - Robusta - 9-11 months
  - Liberica & Excelsa - 10-14 months
  - If 2 harvests there will be a main and secondary harvest (Kenya, Columbia)
- Harvesting lasts 6-8 weeks (full process up to 12 weeks).
- Harvesting methods:
  - Selective picking (by hand)
  - Strip picking x2 (by machine & by hand)



**All Specialty Coffee Is Hand Picked!**





# Coffee harvesting

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## Selective picking

Yield:

30mins / tree = 5-8kg cherries

100kg cherries = 12-20kg roasted

## Hand strip picking

## Machine strip picking

Yield:

600kg per hectare (10000m<sup>2</sup>)

(up to 1600kg/h in Vietnam)







# Hand Picked VS Strip Picked

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**COFFEE A**



**COFFEE B**



**COFFEE C**





# Coffee harvesting

## Variables

### Picking

- Selective - Vs - Strip Pick (by hand or mechanically)

### Cherry Ripeness

- Ripe cherry = 60% - 65% moisture content
- Overripe & part dried cherry = 25% – 35% moisture content

### Mucilage Removal

- Yes (fermentation or mechanical) - Vs - No

### Drying Depth

- Washed/Pulped Natural - 2.5cm
- Natural - 5cm







# Coffee Processing

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- **must be processed as soon as possible after harvest**
- **all the different processing methods influence the flavor of the coffee**
- **Process types**
  - **Dry Process “naturals”**
  - **Pulped naturals / semi-washed**
  - **washed / fully washed**



# PROCESSING METHODS

www.torchcoffee.com



PICK RIPE  
CHERRIES

SUBMERGE  
IN WATER  
REMOVE FLOATERS

DEPULP

FERMENT

REMOVE  
MUCILAGE

SOAK  
IN CLEAN  
WATER

DRY

HULL

RE-DRY

PREPARE  
TO SHIP

Mechanical



Kenya



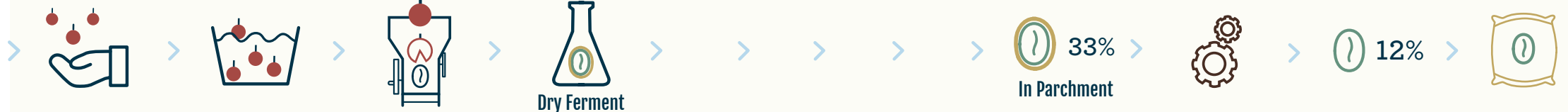
Wet  
Ferment



Dry  
Ferment



Wet  
Hulled



Honey



Natural







# Drying

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Patio



Mechanical



African Raised Bed







# Screens



- Need a minimum of 4 screens....



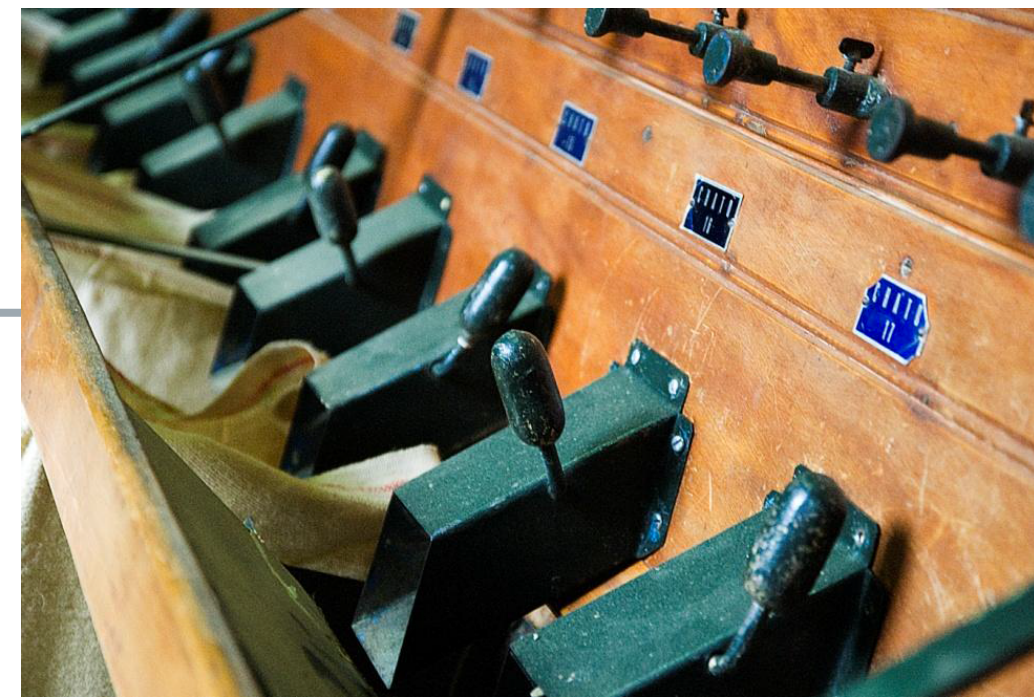


# Coffee Sorting

## Gravity Separation

Uses air flow and vibration removes less dense beans:

- Fermented Beans
- Insect Damaged Beans
- Malformed Beans



## Hand Sorting







# Coffee Defects

## What Are Coffee Defects?

“Anything that diverges from a normal bean inside the lot and that can be produced in the field or during the harvest, processing, transport or storage” (Teixeira & Tiexiera 2005)

- Defects present a range of taints in the aroma and cup
- Categorization
  - Primary and secondary defects
  - Scoring systems count different defects with different severity.
  - Examples are:
    - Insect damaged beans
    - Black or partial black beans

**Green Arabica Coffee CLASSIFICATION SYSTEM**

**SPECIALTY COFFEE ASSOCIATION OF AMERICA**

**SPECIALTY GRADE**  
No Category I Defects Allowed.  
No more than 5 Full Defects.

**QUAKER**  
An unripe bean that does not fully develop during roasting.

**STANDARD METHOD OF CLASSIFICATION**

**SAMPLE WEIGHTS:**  
Green Coffee – 350 grams | Roasted Coffee – 100 grams

**GREEN COFFEE MOISTURE CONTENT:**  
Washed Coffee: should be between 10 – 12% upon import.

**SCENT OF THE GREEN COFFEE:**  
Coffee must be free of foreign odor.

**BEAN SIZE:**  
No more than 5% variance from purchase contracted specification, measured by retention on traditional round-hole grading screens.

**TABLE OF DEFECT EQUIVALENTS:**

CATEGORY 1 DEFECTS	FULL DEFECT EQUIVALENTS	CATEGORY 2 DEFECTS	FULL DEFECT EQUIVALENTS
Full Black	1	Partial Black	3
Full Sour	1	Partial Sour	3
Dried Cherry/Pod	1	Parchment/Pergamino	5
Fungus Damaged	1	Floater	5
Foreign Matter	1	Immature/Unripe	5
Severe Insect Damage	5	Withered	5
		Shell	5
		Broken/Chipped/Cut	5
		Hull/Husk	5
		Slight Insect Damage	10

**ROAST UNIFORMITY:**  
Specialty Grade – No quakers allowed

**CUPPING METHODOLOGY:**  
Cupping is a professional technique for evaluating coffee's fragrance, aroma, taste, body and aftertaste. ISO milliliters of hot water are poured directly onto 8.25 grams of roast and ground coffee and allowed to steep. Using a large spoon, the coffee is stirred, sniffed, allowed to settle, then vigorously sipped at various temperatures to reveal its flavor characteristics.

**FLAVOR CHARACTERISTICS:**  
Upon cupping, sample must exhibit distinctive attributes in the areas of taste, acidity, body and aroma as determined between buyer and seller. Must be free from faults and taints.

**GREEN COFFEE COLOR GRADIENT**  
Unroasted coffee's color ranges from a blue-green to a pale yellow depending upon origin, processing or age.

Blue-Green | Bluish-Green | Green | Greenish | Yellow-Green | Pale Yellow | Yellowish | Brownish

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# Storage & Transportation

## 2 Key storage variables affect storage time

- **Relative Humidity**
  - Ideal is 60%-Reduces risk of mould growth
- **Temperature Range**
  - Lower temperatures reduce risk from RH
  - Under 20°C is target in relation to RH
- ICO Resolution 420 recommended moisture content prior to shipment is 8% - 12.5%
- Coffee should be stored away from defective taints e.g. Rio'





# Coffee Bags

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- Hessian (Natural)
- Bulk Bags
- Vacuum Packed
- 30kg to 21 Tons





# Certification

Recognised third party certification schemes within the coffee industry



\*Rainforest Alliance

Fair Trade



Utz certified

\*\*COE



\*\*/\*\*SCA

\*\*/\*\*Direct Trade

\*Focused on Small Holder Farmer  
\*\*Not Sustainability Certifications  
\*\*\*Not a Certification



# Auditing Requirements

Certification Seal	No Fertilizer	Environmental Criteria	Social Criteria	Economic Criteria	Quality Standards
Organic	√√	√			
Fairtrade			√√	√	
Rainforest Alliance		√√	√		
Bird-friendly	√√	√√			
UTZ Certified		√	√	√	
CQI/SCA					√√
Direct Trade				√√	
COE					√√
Starbucks C.A.F.E		√	√	√	√√
4C		√	√√	√	√

√: Moderate criteria - √√: Very Strong criteria



# Contracts and Trading

## Futures market

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What is a futures market?

*A market that allows you to buy specific weights of coffee at a specified price within a specified future delivery period .*

What are the futures markets in coffee?

- *ARABICA - New York - NY 'C' - ICE*
- *ROBUSTA - London - EURONEXT*





# Consistency is Key

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- Internationally coffee is traded at NYSE Prices
  - NYSE Plus
  - Estate Pricing
  - Domestic Markets
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- Direct Trade vs Coffee Traders

