



## Resistance to herbicide

Glufosinate ammonium



Transgenic



Control

## Fruit maturation

Embrapa Café, IAPAR

Quality

Reduction of harvesting costs



## Coffea arabica



*C. arabica* plants transformed via *A. agrobacterium*

## Genes expressed in abiotic stresses

IAPAR

EMBRAPA



Water deficit

## Resistance to insects

EMBRAPA Cenargen



$\alpha$ -amilase inhibitor and Bt genes for coffee borer



## Coffee Genome Project



FAPESP

Embrapa

Recursos Genéticos e Biotecnologia

## ESTs

### OBJECTIVES – 1st FASE

- 45 cDNA libraries from different tissues
- 5' EST sequencing **≈200.000 total sequences**

Tissues and conditions

## ESTs

### OBJECTIVES – 1st FASE

- 5' EST sequencing of cDNA libraries from different tissues **150.000 clean sequences**
- Comparison with databases **≈30.000 Unigenes**

## Coffee Functional Genomics

Sequence

Phenotype

### Mapping ESTs – genetic and physical maps

Development of markers

Mapping

Selection of plants for agronomic traits



### Cup quality (chlorogenic acids, lipids, carbohydrates)

**"Mevalonate" Pathway to IPP Synthesis**

**Invertase, SUZY, SPS**

**Isoprenoids**

### Identification of genes involved in plant growth and development

**Flowering**

**Fruit set e maturation**

### Identification of genes involved in abiotic stresses

**Frost**

**Drought**

### Identification of genes involved in biotic stresses

**Leaf rust**

**Nematodes**

