



**POWER4BIO**  
REGIONS FOR  
BIOECONOMY

# THREE ZEROS OBJECTIVE CITRICOS DEL ANDEVALO

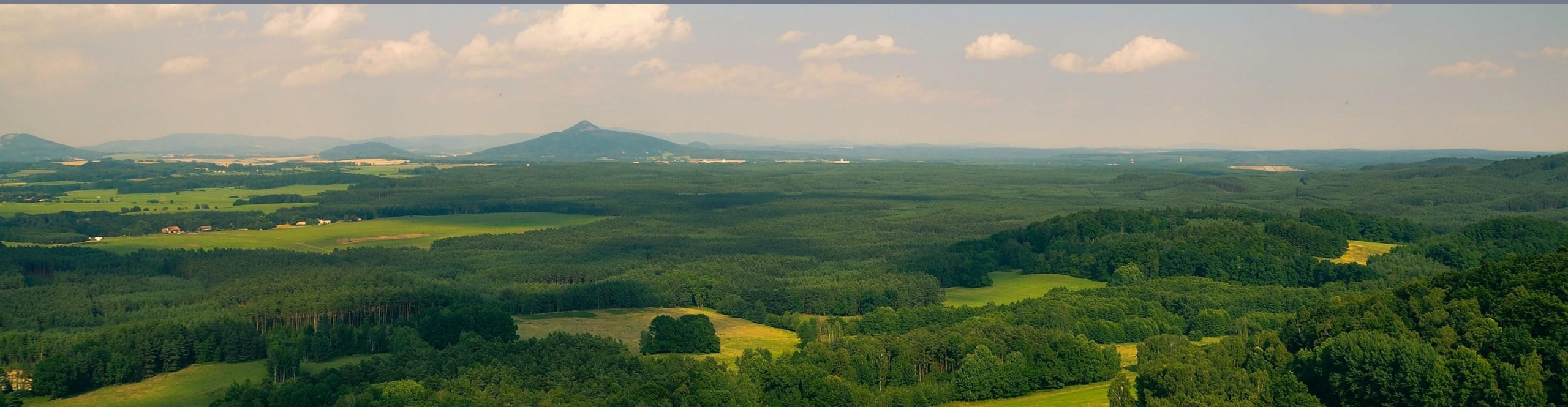
Pablo Garcia – Cítricos del Andévalo

This project has received funding from the European  
Union's  
Horizon 2020 research and innovation programme  
under grant agreement No 818351





# THE JGC GROUP



- Winery & Juice Facilities: 15
- Direct employment: 980
- Indirect employment: 1.460
- Farmers: 40.000
- Hectares: 155.000
- 2018 Turnover: 930 MM €
- Sales in more than 155 countries



## CURRENT RATIO :

Over 1 million liters / employee

Over 1 million € / employee

## 88 packing lines

2000-2018 Investment: 860 MM €

Annual capacity of 3 billion units.

Equivalent to 12 million per day.

Wineries and Juice Facilities	Nº Lines
JUMILLA	24
DAIMIEL	22
ALMERÍA	7
HUELVA	5
SEGORBE	14
D.O. WINERIES	16
<b>TOTAL PACKAGING LINES</b>	<b>88</b>



# AGRO-INDUSTRIAL PROJECT FOR THE PRODUCTION OF FRESH ORANGE JUICE



- We grow oranges for squeezing, not for external appearance.
- We harvest oranges at their optimal point of ripeness.
- Our crops are almost organic. We only treat the trees in case of disease, not systematically.
- Oranges are squeezed in less than 24 hours after they are harvested.
- Juice only goes through a flash pasteurisation

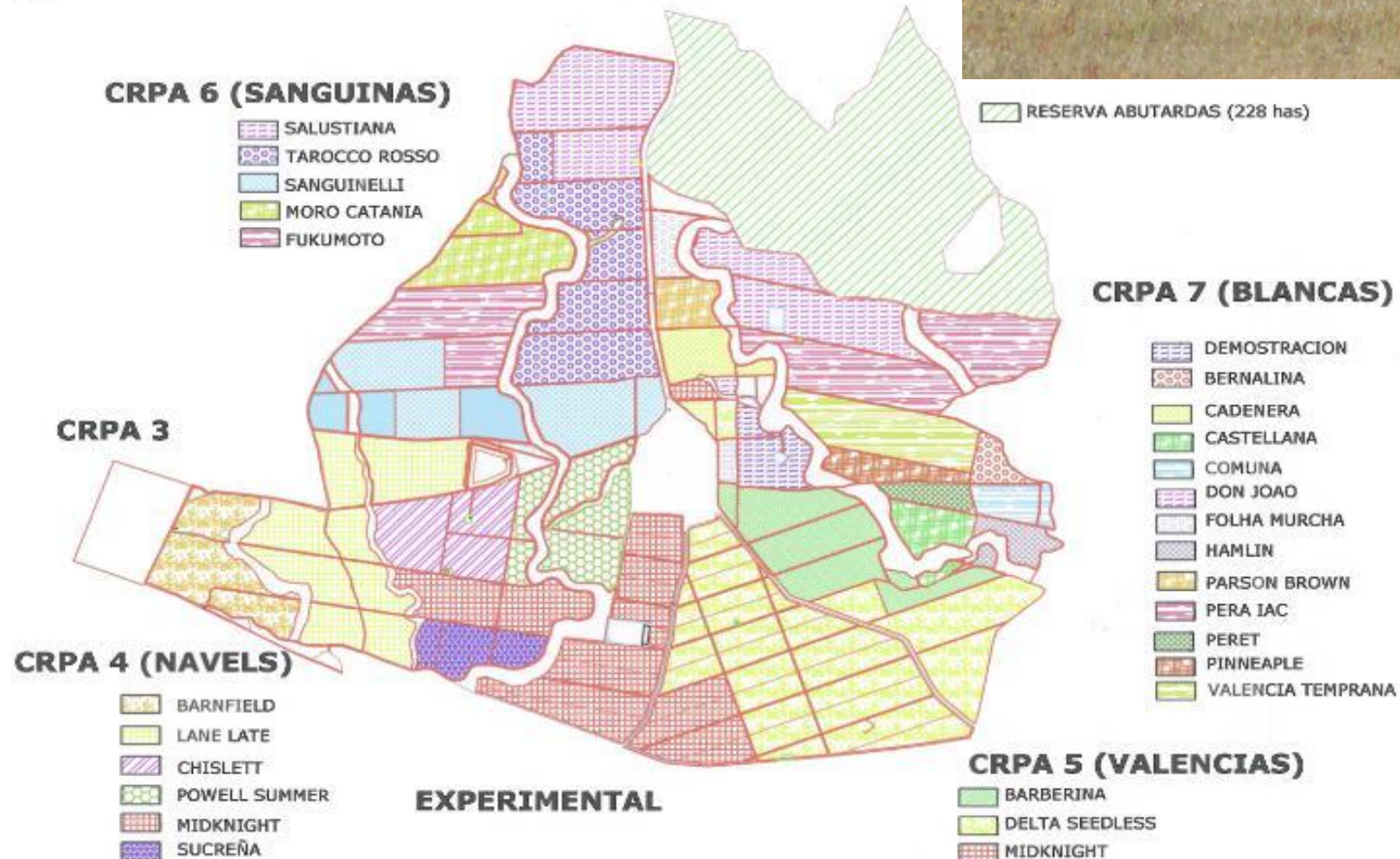


ALL THIS ALLOWS US TO BE DIFFERENT, WITH A NATURAL ORANGE JUICE OF AN EXCELLENT ORGANOLEPTIC QUALITY.



# AGRICULTURAL PROJECT

## PLANO FINCA LA DEHESILLA. LOCALIZACION DE VARIEDADES



- 1,500 hectares of crops, with 1 million trees
- 230 hectares dedicated to the great bustard.
- 28 varieties of oranges, picked at 6 different times of the year
- We have an experimental crop where we select the best varieties for juice.
- We process oranges during 10 months per year.
- We have long-term contracts with farmers who use the same agricultural model

# THE FACTORY

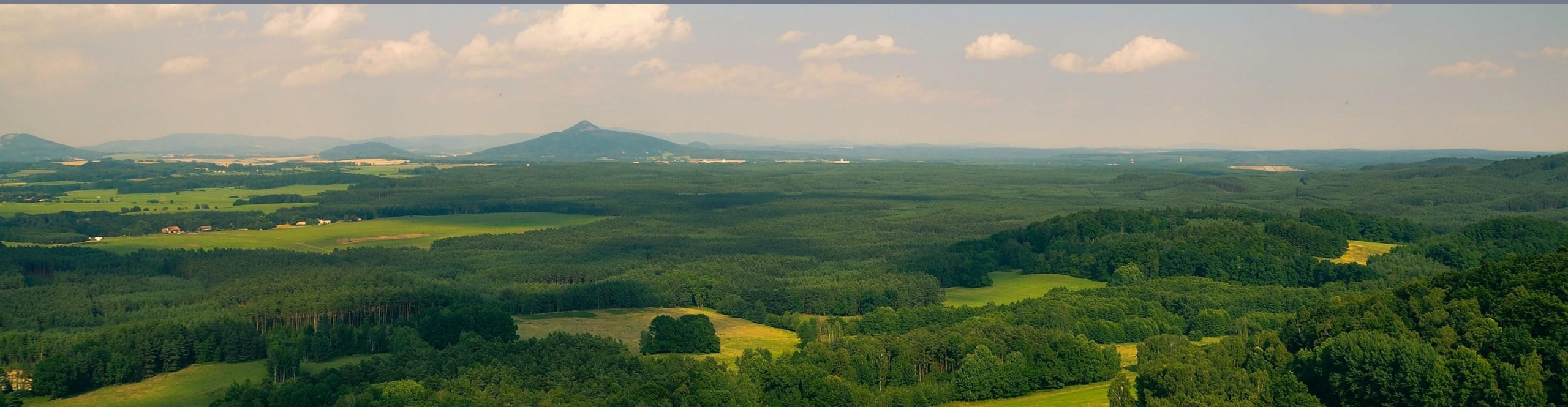


- Investment: 130 million euros.
- Squeezing capacity: 400,000 tons of oranges per year
- 2.000 tons of oranges are processed every day.
- 1 million bottles are filled every day
- 18 premium quality aseptic macrotanks of 4 MM litres each (at 4°C).
- 5 Aseptic high-speed filling machines
- Flash pasteurisation
- Use of 100% of the byproducts





# THE THREE ZEROS OBJECTIVE



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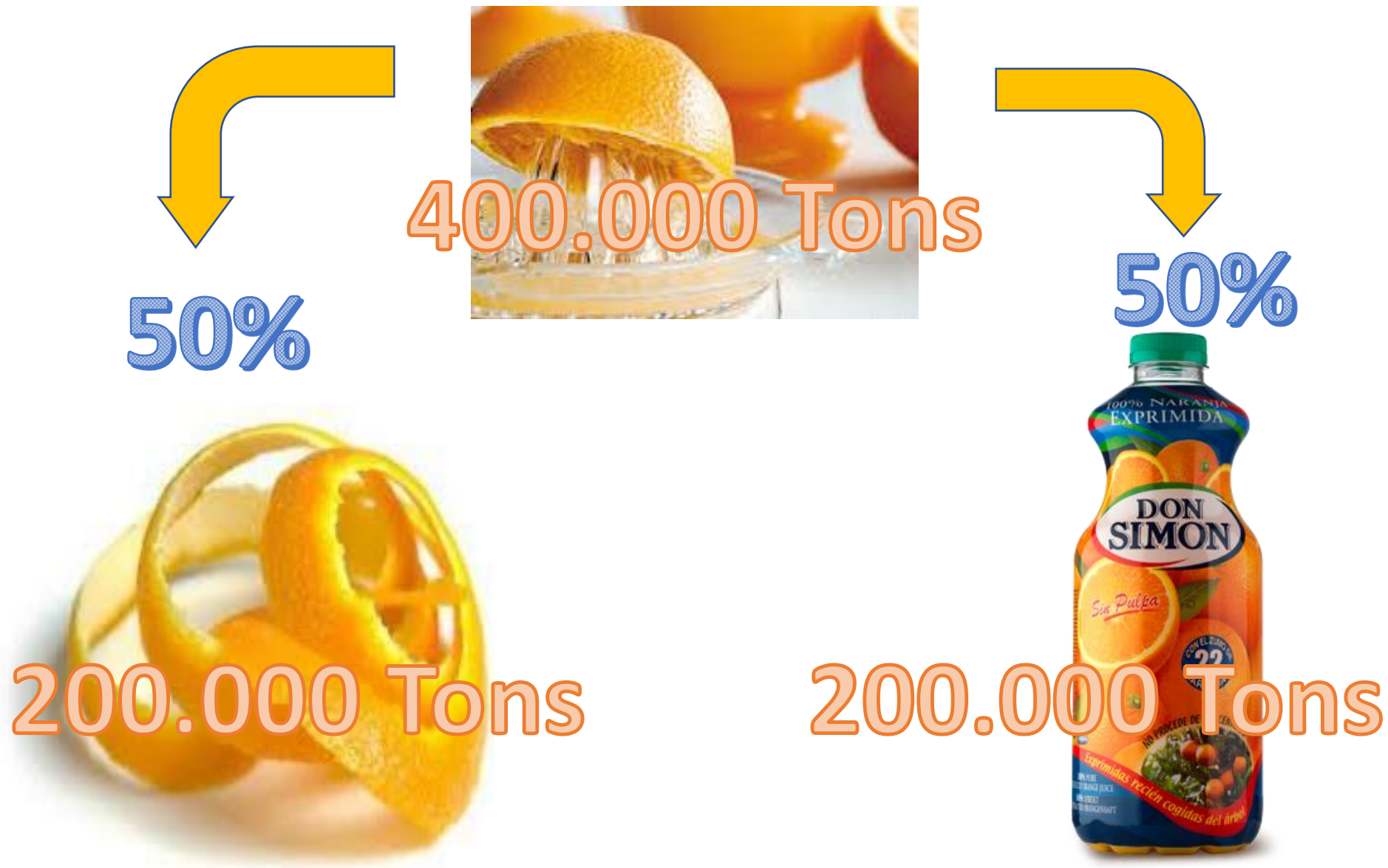
- ZERO WASTE WITHOUT RECYCLING
- NET ZERO WATER CONSUMPTION
- ZERO GREENHOUSE GASES



ZERO WASTE WITHOU RECYCLING



# ZERO WASTE WITHOUT RECYCLING





ZERO WASTE WITHOUT RECYCLING



**WHAT DO WE DO WITH  
THE ORANGE PEEL?**

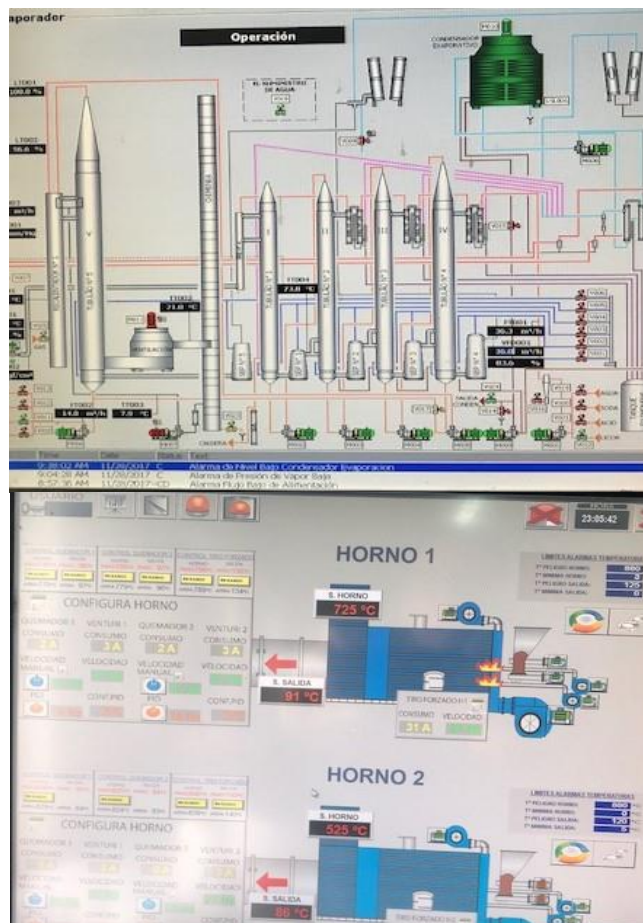
# ZERO WASTE WITHOUT RECYCLING

CRUSH

PRESS

DRY

PELLET





# ZERO WASTE WITHOUT RECYCLING



**WHAT OTHER  
PRODUCTS DO WE  
OBTAIN FROM THE  
ORANGE PEEL?**

# ZERO WASTE WITHOUT RECYCLING



**200.000 TONS OF ORANGES  
PEEL PER YEAR**



- **PELLETS** **20.000 TON/YEAR**
- **D – LIMONENE** **400 TON/YEAR**
- **ORANGE ESSENTIAL OIL** **400 TON/YEAR**





# NET ZERO WATER CONSUMPTION



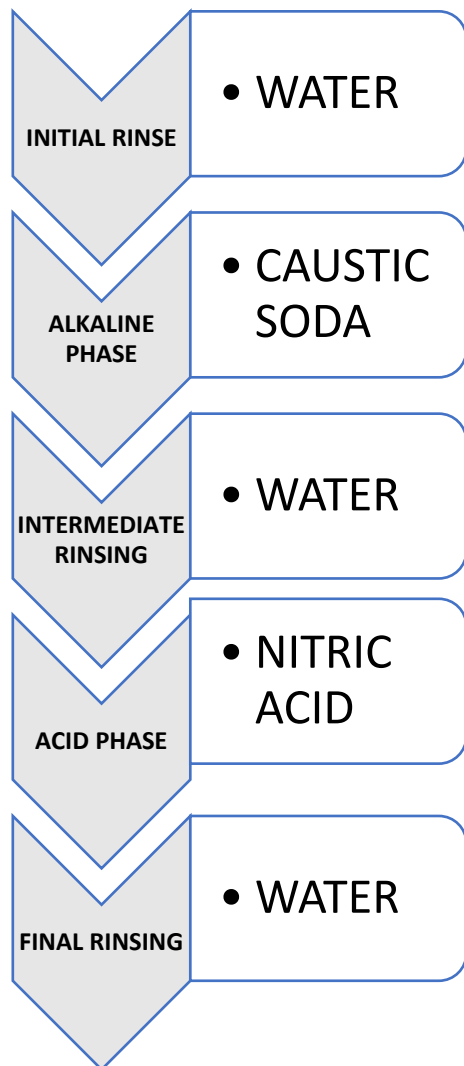
# NET ZERO WATER CONSUMPTION



**OBJECTIVE:**  
**REUTILIZATION OF 100% OF THE**  
**WASTEWATER GENERATED IN THE FACTORY**



# NET ZERO WATER CONSUMPTION



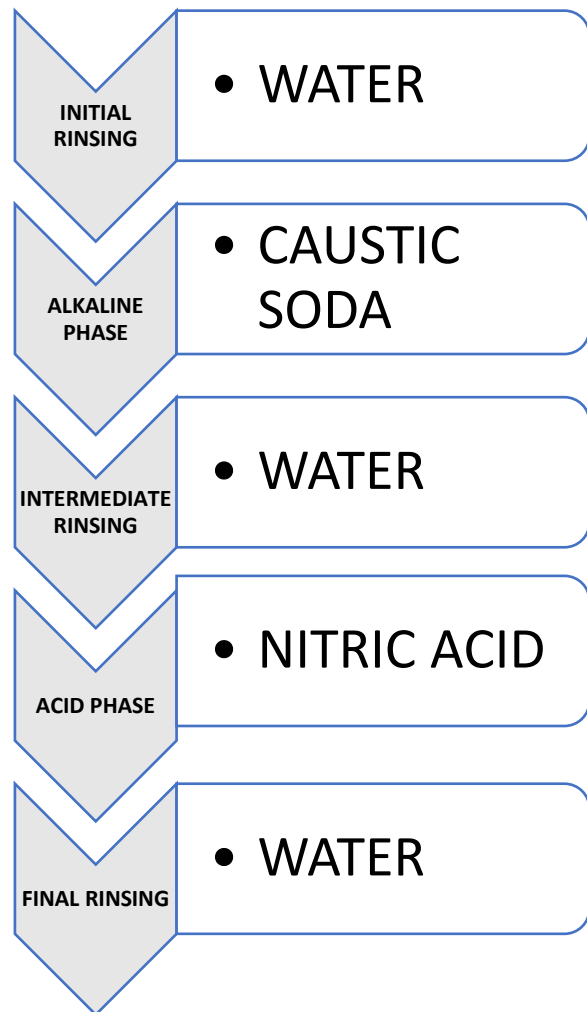
Na

## CHEMICAL CLEANING STANDARD CYCLE

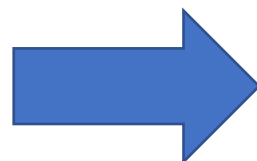
- The wastewater contains sodium from the alkaline detergents, it cannot be reused for tree irrigation.
- The Na content in the water is approximately 30-40 meq/l.
- The Na is accumulated and increase soil salinity. The trees absorbes it and die eventually .

# NET ZERO WATER CONSUMPTION

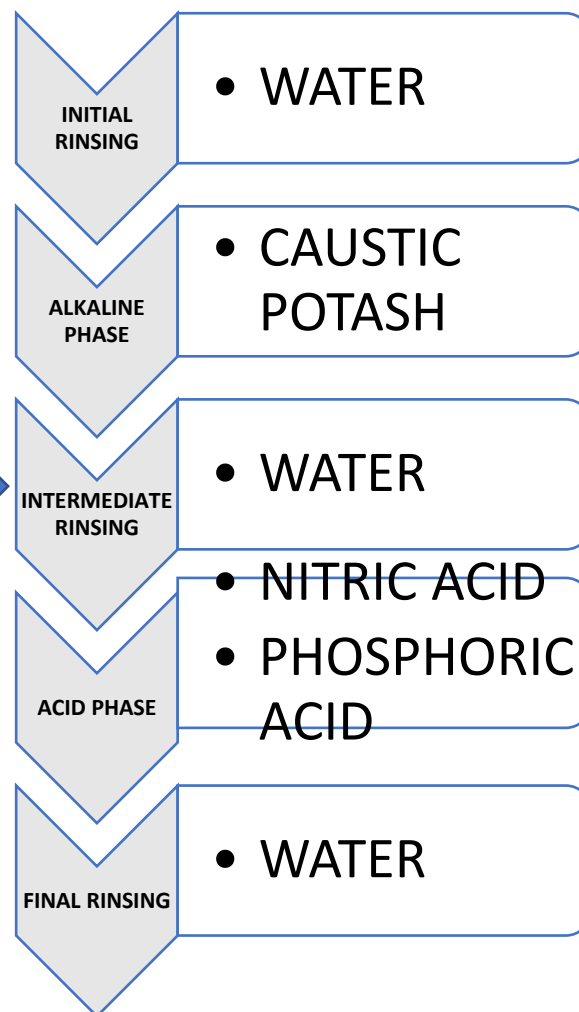
## STANDARD CIP



Na



## MODIFIED CIP



K

N, P



# NET ZERO WATER CONSUMPTION



- Reutilization of 100% of the water used in the Factory for irrigation. This represents 12% of the total water consumption of the factory.
  
- NPK fertilisers
  - Nitrogen (N). Small amount. Covers 5% of the trees' needs for nitrogen.
  
  - Phosphorus (P). Nitrogen acid was replaced by phosphoric acid in some of the chemical cleanings, 100% of the trees' needs for phosphorus are covered.
  
  - Potassium (K). Sodium hydroxide was replaced by potassium hydroxide in the basic chemical cleanings, 100% of the trees' needs for potassium are covered.

# ZERO GREENHOUSE GASES





# ZERO GREENHOUSE GASES

**GENERATION OF BIOGAS  
(METHANE) THROUGH THE  
ANAEROBIC TREATMENT OF THE  
WASTEWATER**

**40% REDUCTION OF THE  
NATURAL GAS CONSUMPTION  
IN THE FACTORY**



# ZERO GREENHOUSE GASES

- Use of 10.000 tons/year of biomass (olive pit) for drying the orange peel.





# POWER4BIO website and social media



[www.power4bio.eu](http://www.power4bio.eu)



@power4bioproject



@power4bio



@power4bio



# Thank you for your attention!

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