

## Introduction to Olive Oil Production Olive Oil Processing Course

California, USA - October 2014



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## Mill Design

### Where?

- As close to production as possible.
- High enough to avoid floods and improve drainage.
- Not too close to a town.
- Far from industrial areas or areas with frequent smoke/air pollutants.
- Three-phase power availability.
- Potable water availability.
- Conveyor belts, pump stators and transfer hoses built in phthalates-free material



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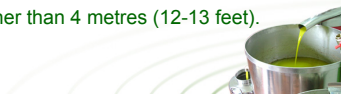
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## Mill Design

### The building

- Fenced.
- Minimise dust in the surrounding areas.
- HACCP, ISO 9000 and ISO 14000 compliance.
- Construction materials should not transmit odours or residues to the oil.
- Waterproof materials, not absorbent, washable, resistant and easy to clean and disinfect.
- Metallic structures must be protected (Stainless steel).
- Roof and ceilings higher than 4 metres (12-13 feet).



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## Mill Design

### The building

- Protected lights.
- Glass policy.
- Inside to outside doors and windows.
- Clean/dirty areas recommended.
- Proper aeration to avoid excessive heat and vapours.
- Pipe identification through colour codes.



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## Mill Design

### Circulation perimeter

Receival area

Processing area

Storage area

(Laboratory)

Office

Waste management area

Boiler room

(Bottling room)



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## RECEIVAL AREA

- Conveyor belts set up in an angle lower than 28°C
- Fruit sampling system
- Fruit weighing system (optional)
- De-leafing unit and evacuation system
- Fruit washing units
- Proper drainage systems!!! Easy to clean or unblock
- Fruit storage hoppers (optional)
- Fruit crushing (optional)
- Designate forklift tracks and allow sufficient room for manoeuvring



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## PROCESSING AREA

- Crushing system (optional – usually on top of malaxer)
- Malaxing units (Vertical system, horizontal system, sealed units, batch system, continuous system)
- Solid – liquid separation. Decanter in 2 or 3 phases.
- Pomace evacuation (piston pump or underground auger)
- Liquid – liquid separation. Separator y evacuation trenches
- Settling system (optional).
- Hot water taps for cleaning equipment
- It should be easy to keep clean



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## Receival area



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## Processing area



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## Processing area



PABLO  
CANAMASAS  
Oil production and quality

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## TANK FARM



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## TANK FARM

- Insulated.
- Electric illumination only.
- Well designed drainage system.
- Temperature control system.
- Secure.
- A proper bulk filling system to load tankers
- Preferable to work with flexible hoses during first years before setting up hard piping
- Proper trench system for sediments/water evacuation
- Hot water access

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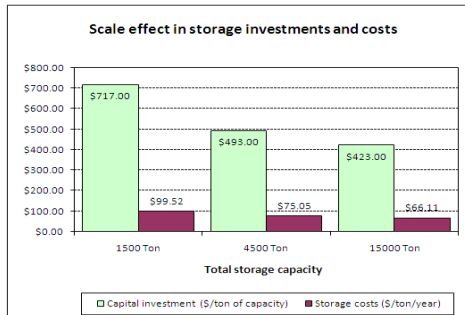
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## TANK FARM



## Laboratory

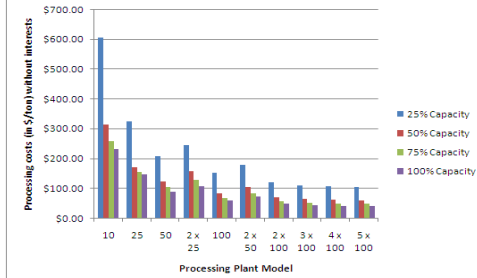


## Plant throughput

- Determined by the peak daily requirement of the grove/s.
- Usually limited by the decanter capacity.
- Difference between nominal capacity and real capacity of the decanter.
- 2-phase or 3-phase system?
- Sizing of pomace evacuation pump (2 phases) or underground auger (3 phases)
- Sizing of washing machines.
- Selection of crushing and malaxing capacity.
- Vertical separators (3 phase system requires 1 extra VC)
- Storage capacity.

## Economic analysis

Processing Costs Analysis




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## Economic analysis

Capital investment per ton/day capacity




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## Waste management area




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## Waste management

- 2 o 3 phases?
- How are we going to deal with disposal of the product?
- Take into consideration winds direction to decide where to set up the boiler!!
- Depitting systems (optional)
- Hoppers to store pomace? Or pools where to dispose off the pomace?
- Sensors to measure level of pomace in hoppers/pits

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