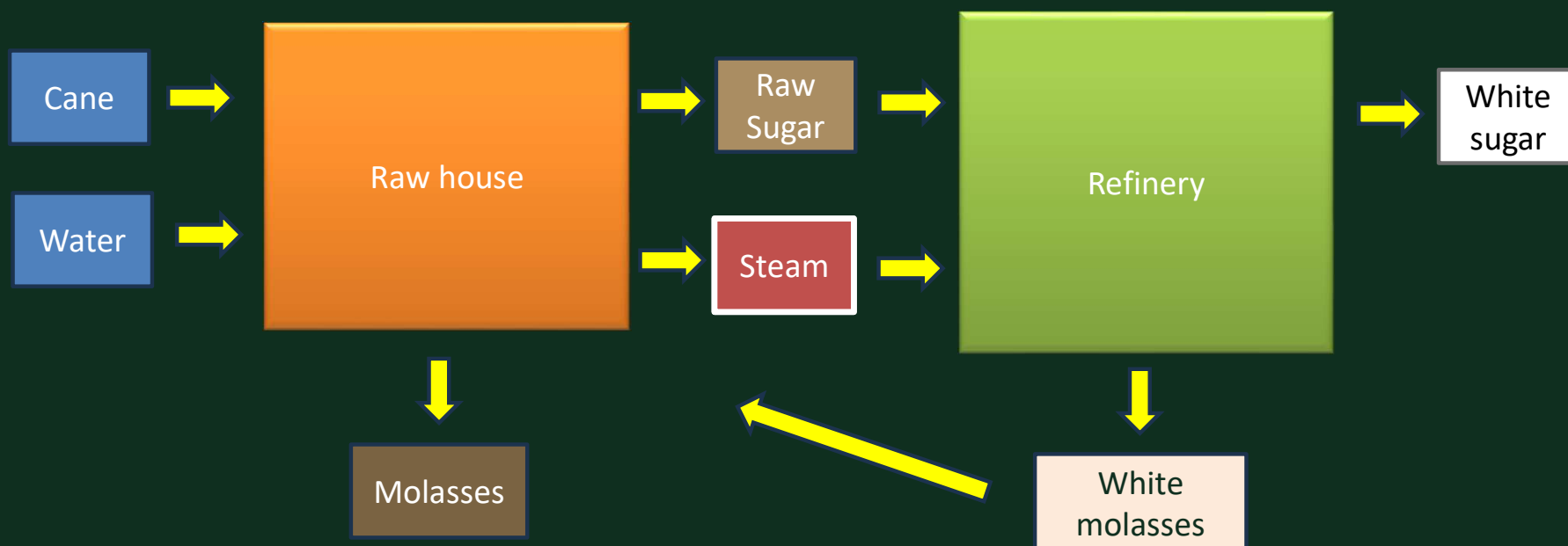


# The “Batch Pan Scheduling Problem” in a white sugar refinery

Industry Representative : Dr Richard C Loubser

# The sugar production process



# Refinery

- Melt raw sugar
- Filter syrup
- Decolourise syrup – carbonatation, sulfuration, ion exchange
- 4 stage pan boiling and crystallisation
- Drying
- Packing

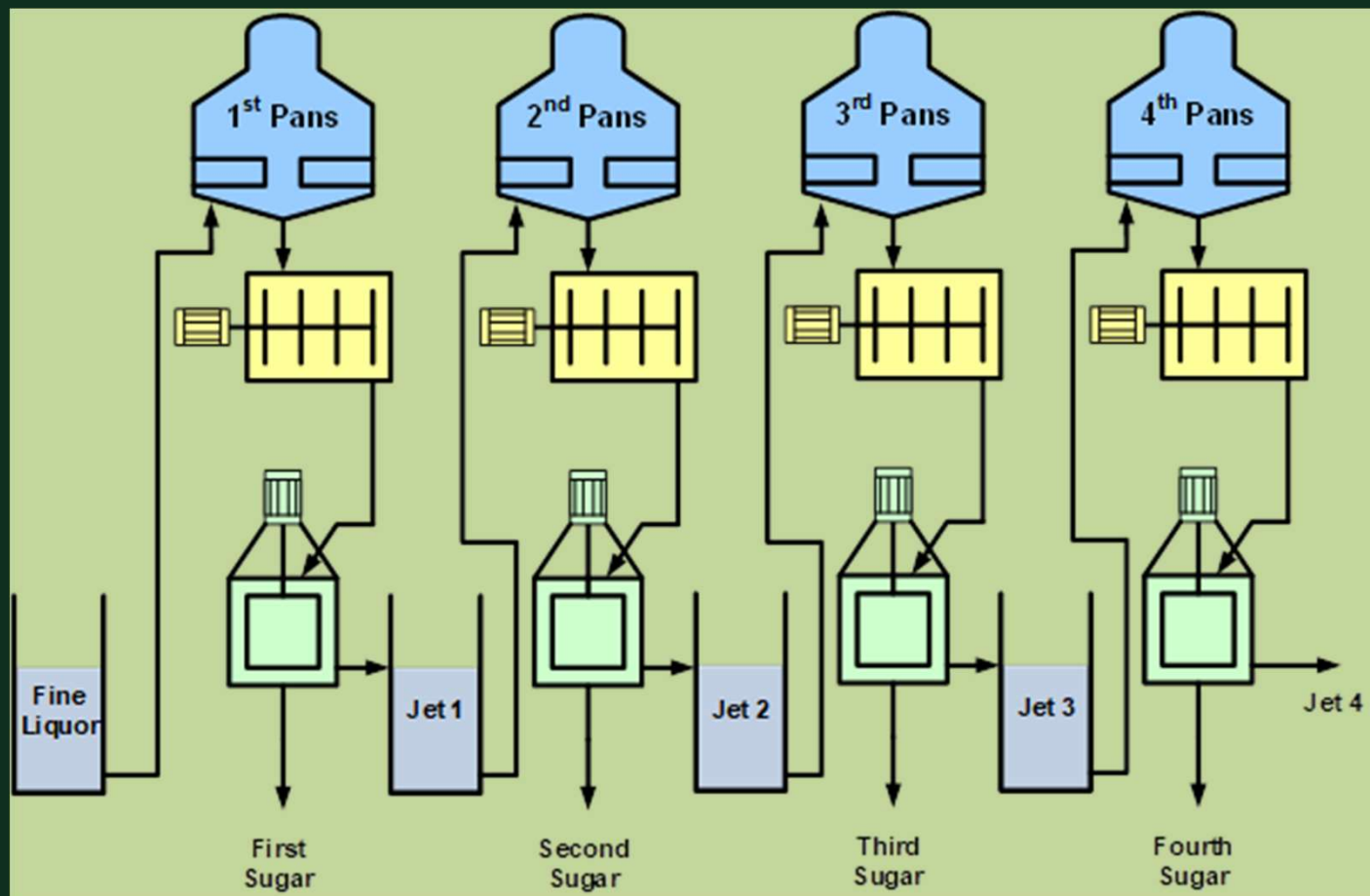
# Pan boiling

Batch pans

Strike receiver

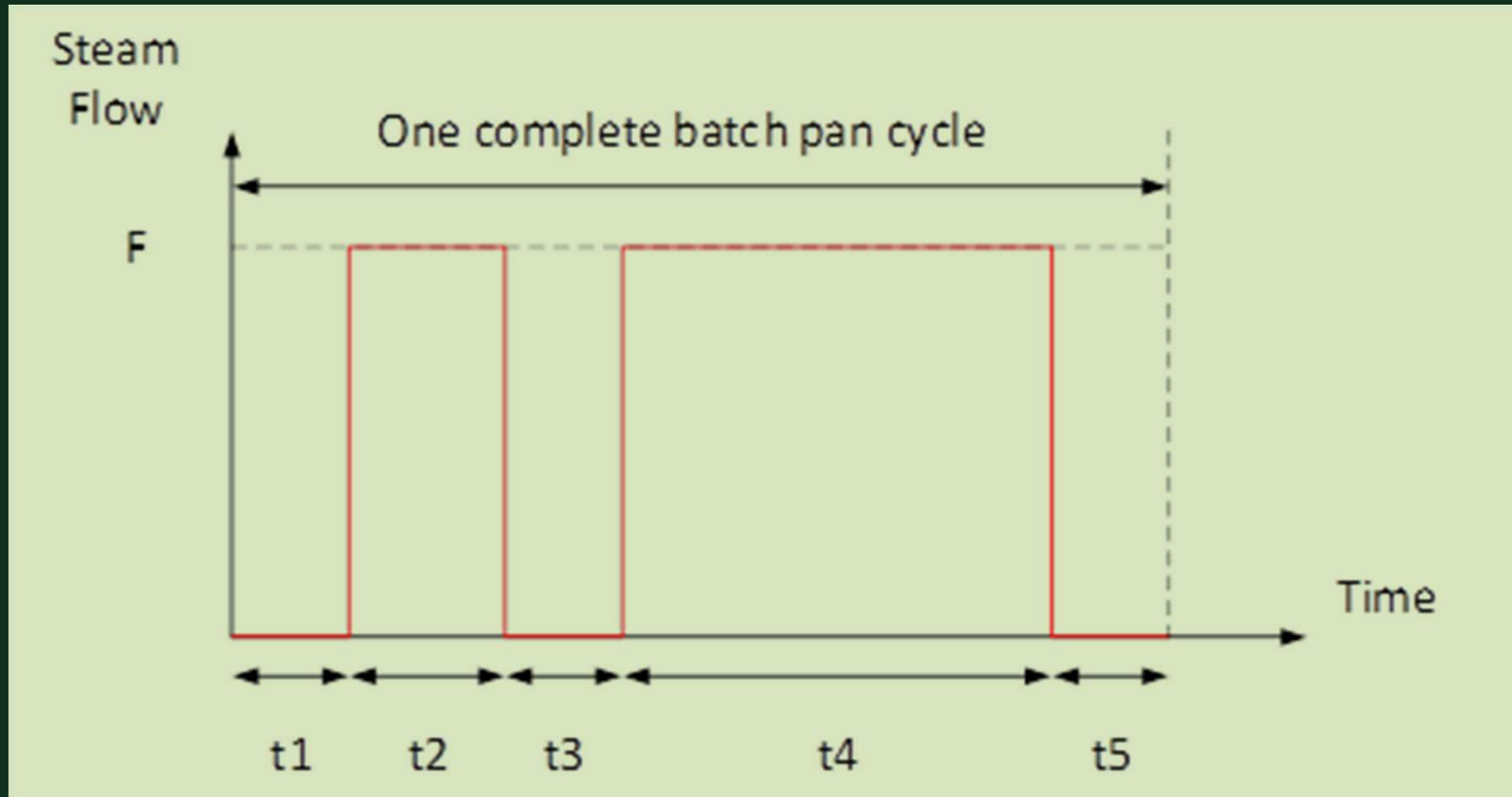
Centrifugal

Liquor storage tank



White molasses

# Pan steam usage



# Available data

- Pan capacity
- Concentration
- Steam usage
- Crystallisation rate
- Cycle times

# Scheduling rules

- Smoothest steam demand
- Liquor must be available before batch starts
- Receiver must have enough space
- Correct proportions of sugar available for blending
- Minimum number of pans

# Questions

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