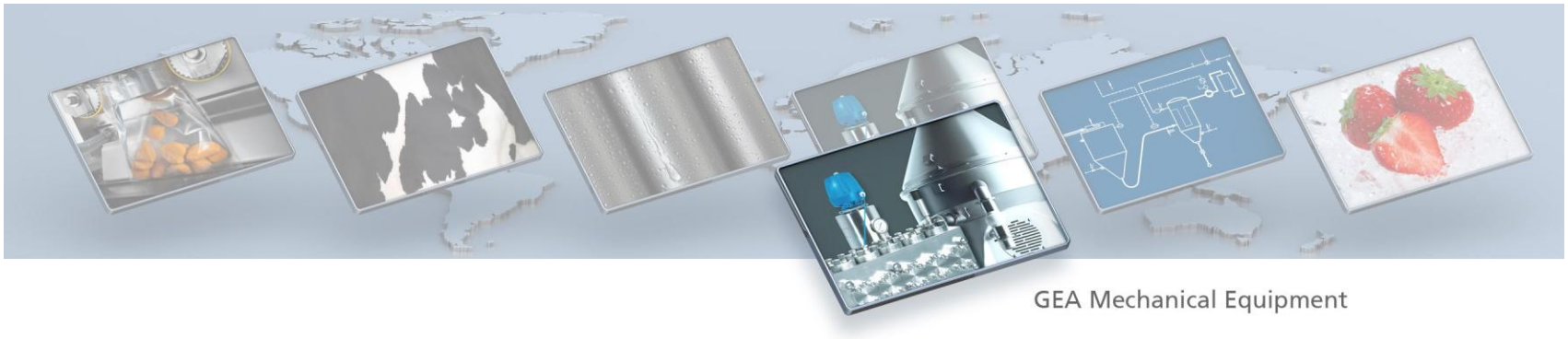


Decanters in Wineries

Presented By: Kevin Dawe

Business Development Manager

GEA Westfalia Separator Australia Pty Ltd

GEA Mechanical Equipment

Contents:

- General Decanter Operation
- Harvinex – Decanter on Harvester
- Vinex – Must Decanter
- Lees Decanter
- Summary

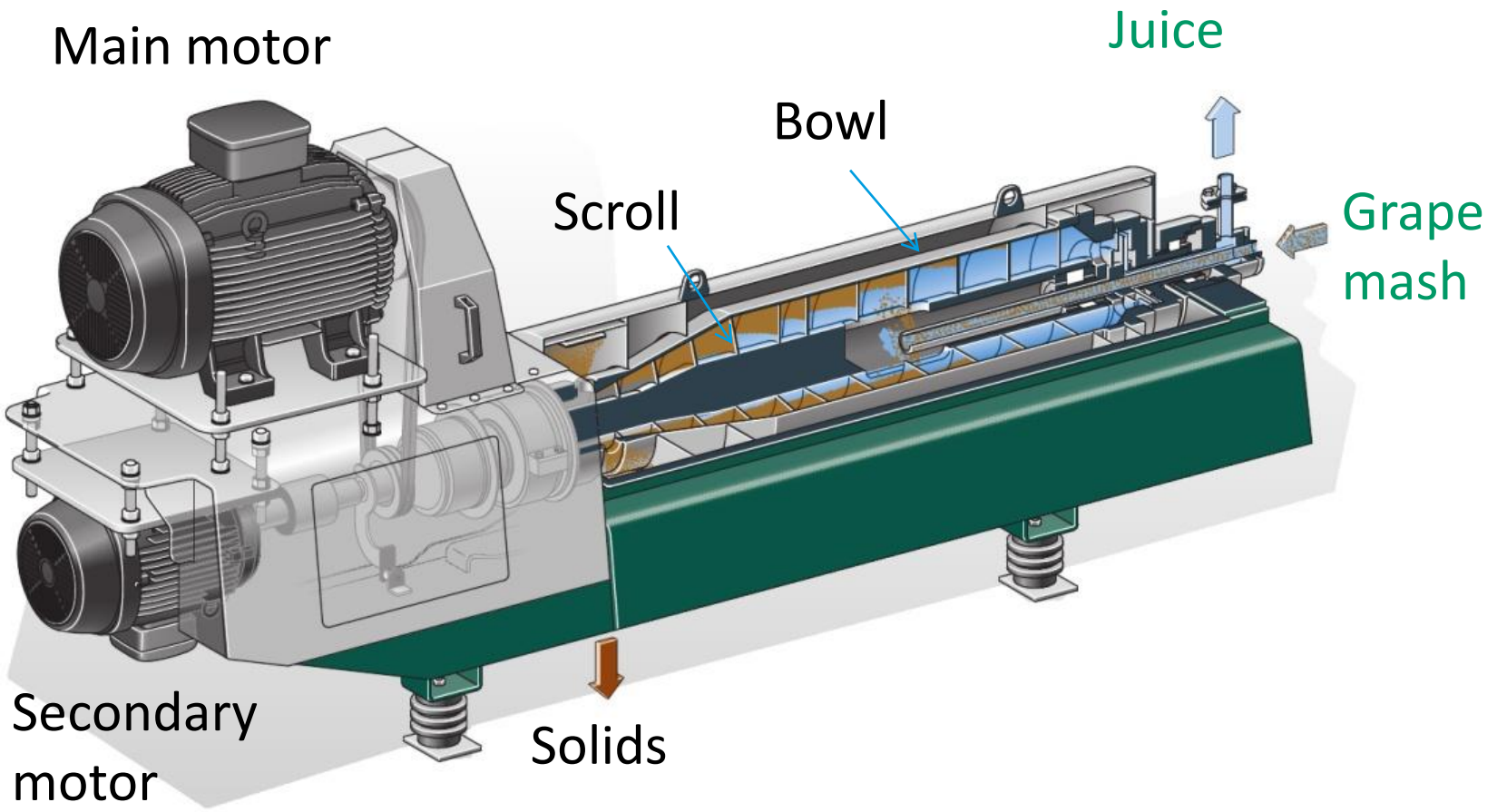
Decanter Operation

Click for YouTube video

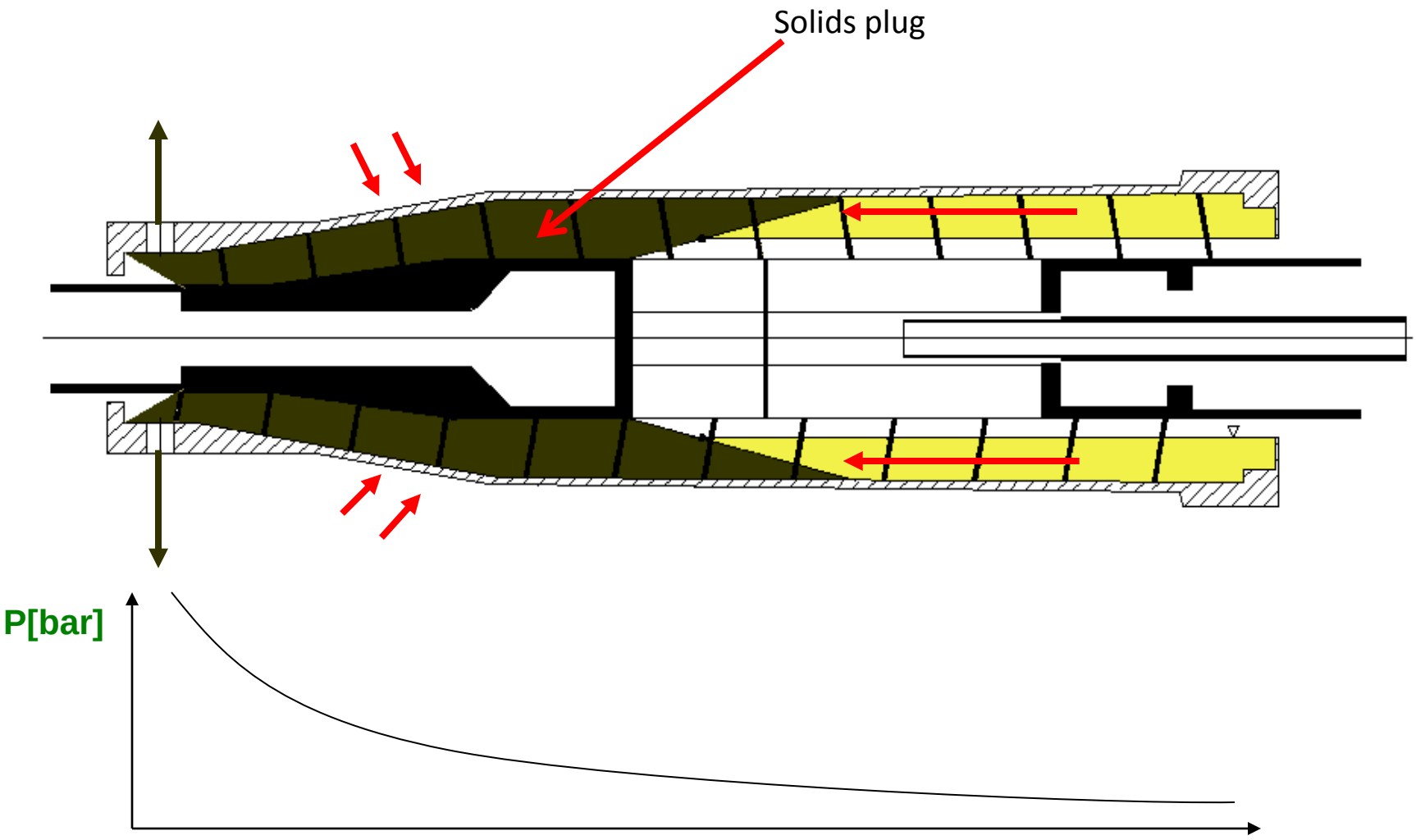
Decanter Operation

Click for YouTube video

Decanter Operation



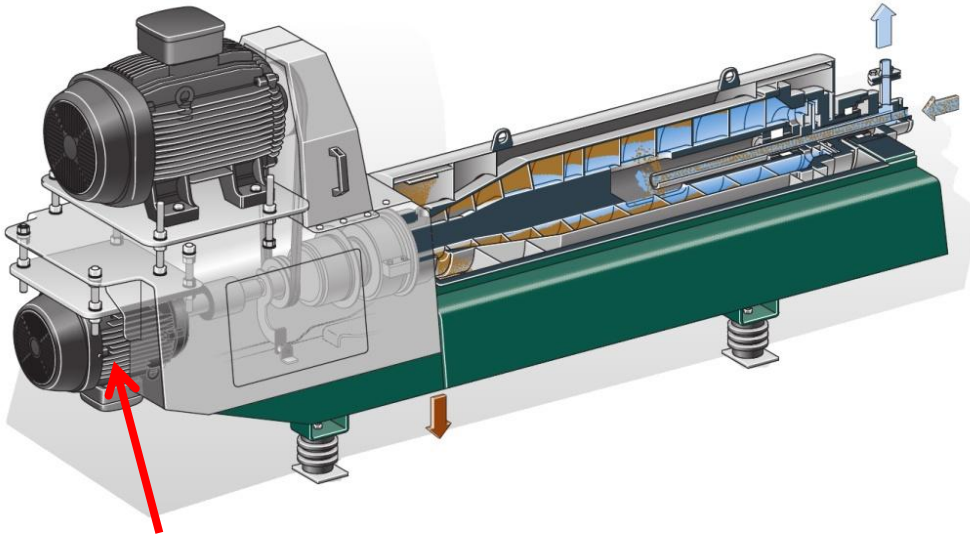
Decanter Operation



Decanter Operation

The load on the secondary motor is measured and converted to torque

- the higher the load the higher the torque
- the higher the torque the more solids in the decanter bowl
- the more solids, the higher the torque = dryer cake
- Scroll automatically regulates scroll speed to maintain torque
- Torque is maintained regardless of any change in feed solids

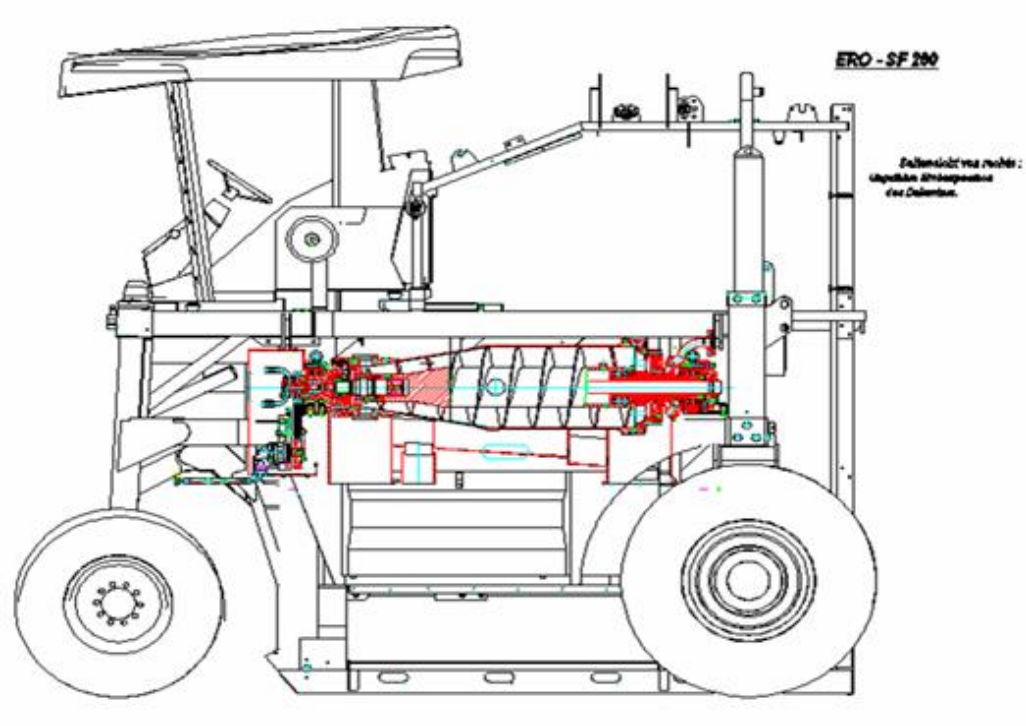


Secondary motor

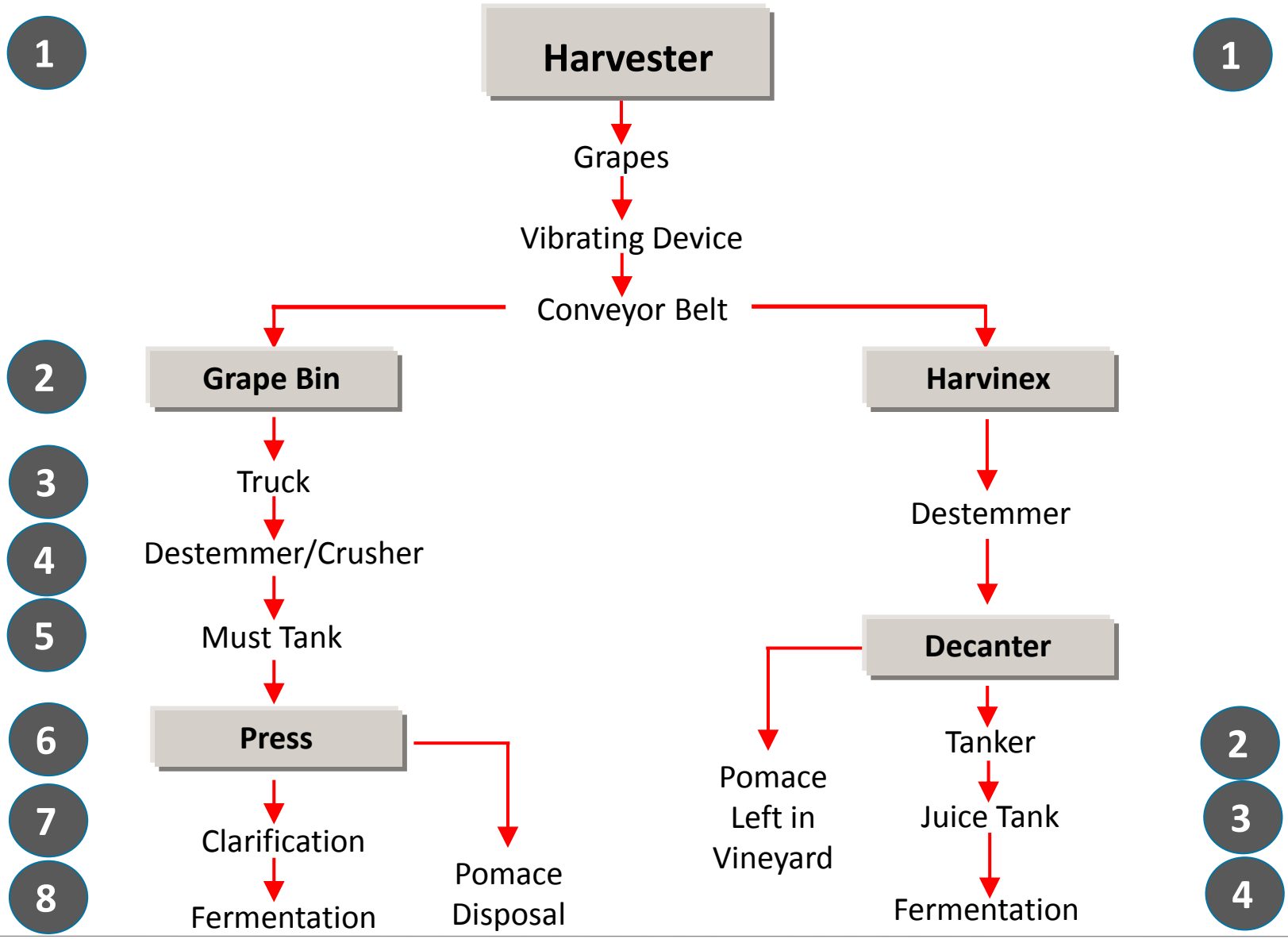
Harvinex

Harvinex:

- Decanter installed on full harvesting machine
- Replaces pressing technology
- Relocates the juice extraction process directly into vineyard



Harvinex


1
Harvester
1
Grapes
Vibrating Device
Conveyor Belt
2
Grape Bin
Harvinex
3
Truck
Destemmer
4
Destemmer/Crusher
5
Must Tank
Decanter
6
Press
Tanker
2
Pomace
Left in
Vineyard
7
Clarification
Juice Tank
3
8
Pomace
Disposal
Fermentation
Fermentation
4

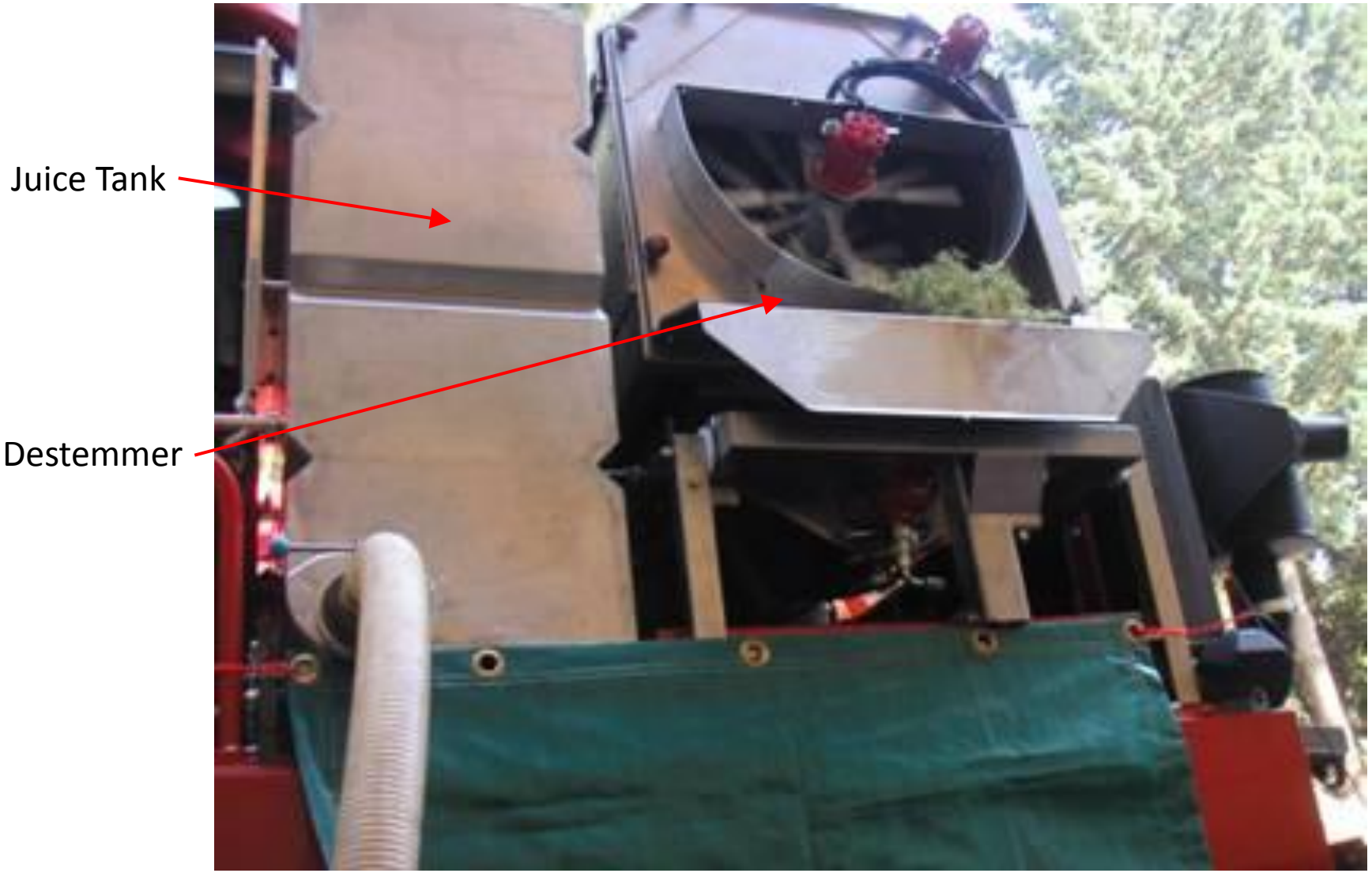
Harvinex

Harvinex

Harvinex Video

Harvinex Video

Harvinex



Harvinex

Decanter

Solids Discharge in front of rear wheel

Harvinex

The decanter can be drained completely of juice by elevating the front end of the harvester

Harvinex

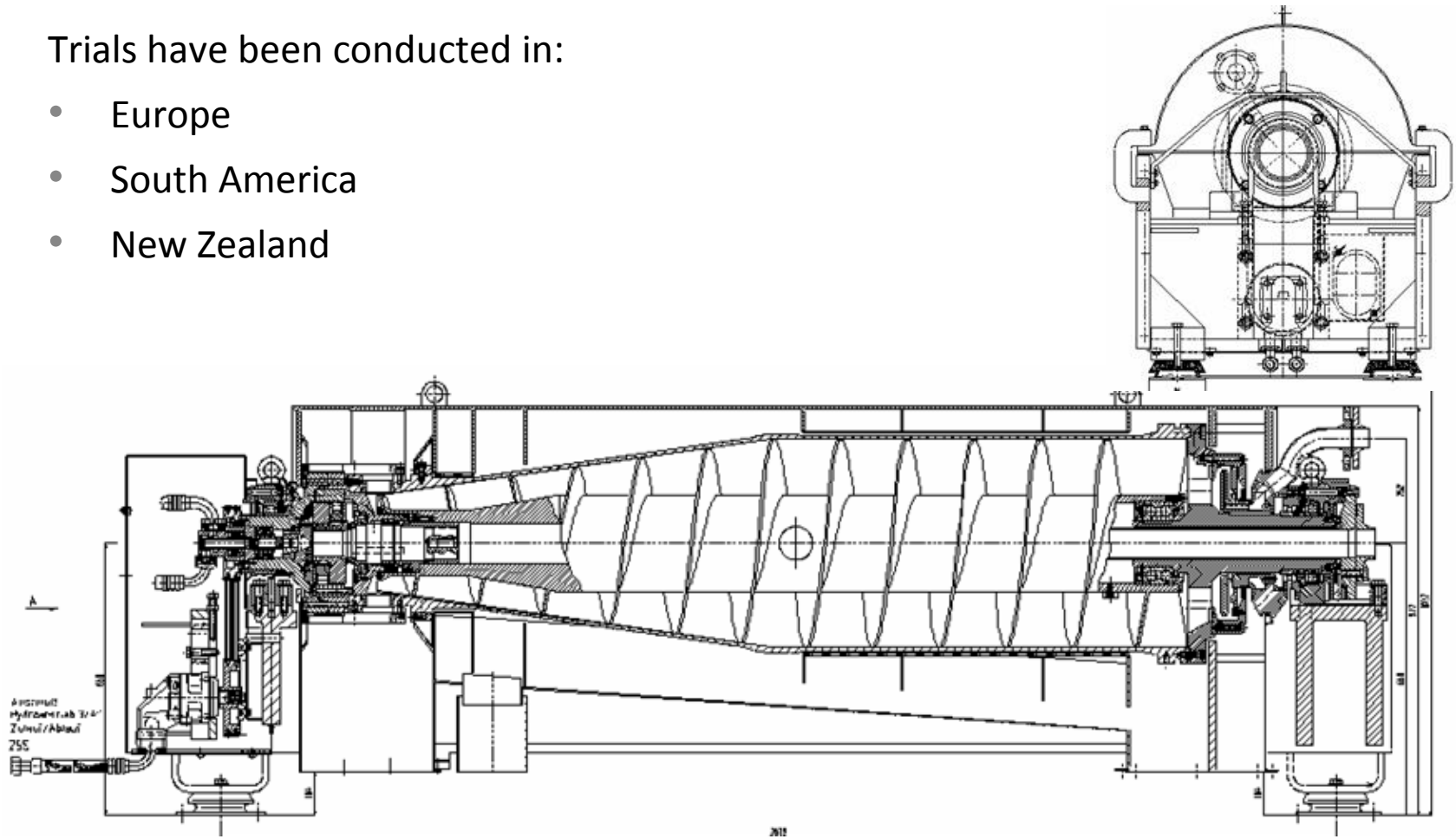
Tank Juice

Typical Decanter Pomace

Harvinex Trials

Trials have been conducted in:

- Europe
- South America
- New Zealand



The decanter model CA 501-01-99 was used for trials:

- Fully hydraulic bowl & scroll
- Bursting Protection in Case of Accident

Harvinex Trials

Results from New Zealand:

- Grape variety: Sauvignon Blanc
- Capacity: 7200 – 8200 l/hour
- 80% of all juice solids samples measured <2% most <1% v/v
- Average pomace dryness after decanter >35% d.s.

Future:

- Redesign Harvinex with model GCF 5000 or GCF 6000

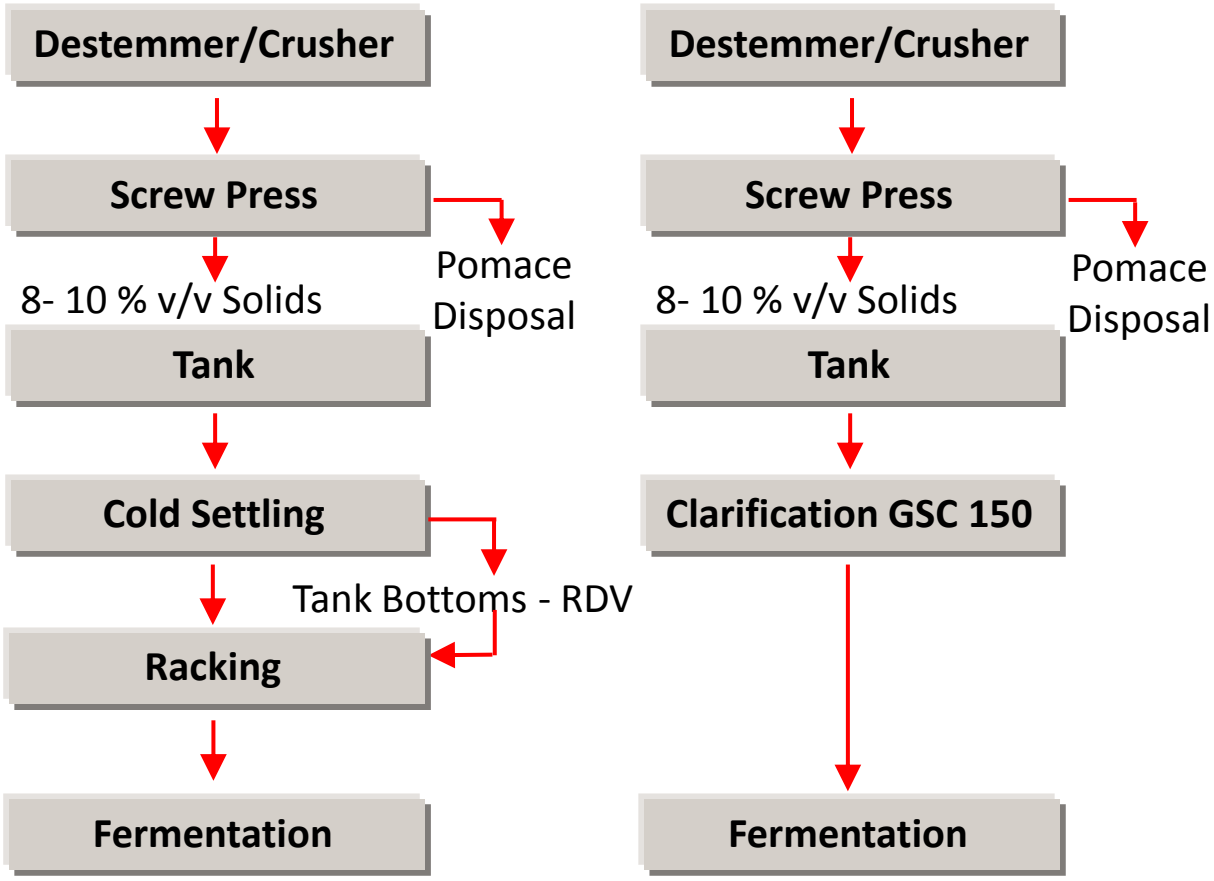
- Expected capacities
- GCF 5000 > 12,000 l/hr
- GCF 6000> 15,000 l/hr

- Release 2015

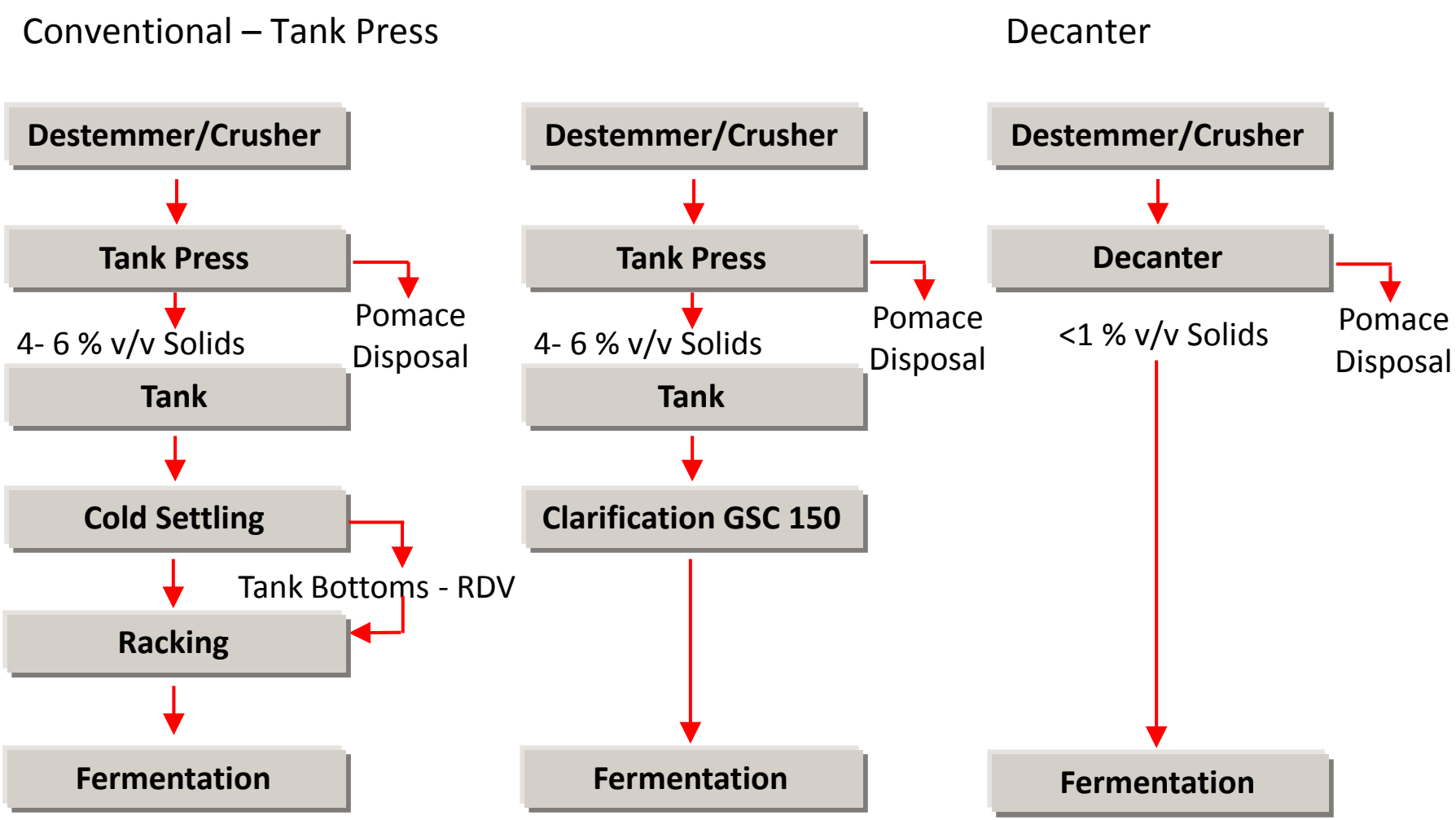
Vinex

Processing of must through a decanter

Conventional – Screw Press



Vinex


Conventional – Tank Press
Destemmer/Crusher
Tank Press
Pomace Disposal
4- 6 % v/v Solids
Tank
Cold Settling
Tank Bottoms - RDV
Racking
Fermentation
Destemmer/Crusher
Tank Press
Pomace Disposal
4- 6 % v/v Solids
Tank
Clarification GSC 150
Fermentation
Decanter
Destemmer/Crusher
Decanter
Pomace Disposal
<1 % v/v Solids
Fermentation

Vinex

Results on Must from New Zealand 2013 Vintage

Model: GCF 555

Capacity: 15-20m^3/hr

Juice Clarity: 0.4-0.6% v/v solids

Pomace: >35% Dry Solids

Lees Processing

Lees Processing:

Juice Lees

Juice Floatation Lees

White Wine Lees

Red Wine Lees

Lees Processing Performance:

Model GCF 555

Juice Lees

Feed Solids: 15-25% v/v

Capacity: 6-8,000 l/hr

Juice Clarity: <1.5% v/v

Solids/Cake: >40% D.S

Lees Processing

Lees Processing Performance:

Model GCF 555

Juice Lees

Feed Solids: 30-40 % v/v

Capacity: 3-4,000 l/hr

Juice Clarity: <2 % v/v

Solids/Cake: >40 % D.S

Lees Processing Performance:

Model GCF 555

Juice Floatation Solids

Feed Solids: 30-40 % v/v

Capacity: 2-4,000 l/hr

Juice Clarity: <2 % v/v

Solids/Cake: >40 % D.S

Lees Processing Performance:

Model GCF 555

White Wine Lees

Feed Solids: 30-40 % v/v

Capacity: 2-4,000 l/hr

Wine clarity: <2 % v/v

Solids/Cake: >45 % D.S

Lees Processing

Lees Processing Performance:

Model GCF 555

Red Wine Lees

Feed Solids: 30-40 % v/v

Capacity: 2-4,000 l/hr

Wine clarity: <2 % v/v

Solids/Cake: >50 % D.S

Decanters in Wineries

Summary:

- Continuous
- High Yield
- Homogenous Quality
- Balanced/Simple Process (less process steps)
- Low Labour

Presentation context

- This presentation was given as part of a workshop on grape and juice processing equipment convened by the Australian Wine Research Institute (AWRI) at the 15th Australian Wine Industry Technical Conference in July 2013.

- The main intention of the workshop was to provide attendees with information on equipment that is new or unusual or that has not been widely used in Australia.

- This and the other presentations given were prepared by equipment suppliers, not by AWRI, and AWRI does not necessarily endorse the views presented. Before the purchase of any major winery equipment, AWRI recommends appropriate background investigations being undertaken; including visits to facilities already using similar equipment, consultation with independent experts and the performing of in-house trials.

- AWRI received no payment from suppliers for the inclusion of their equipment in the workshop.

- For any further details on the workshop please contact AWRI Senior Engineer, Dr Simon Nordestgaard, by email at simon.nordestgaard@awri.com.au.