

A project initiative of the Victorian dairy industry proudly sponsored by the Gardiner Dairy Foundation in partnership with Monash University

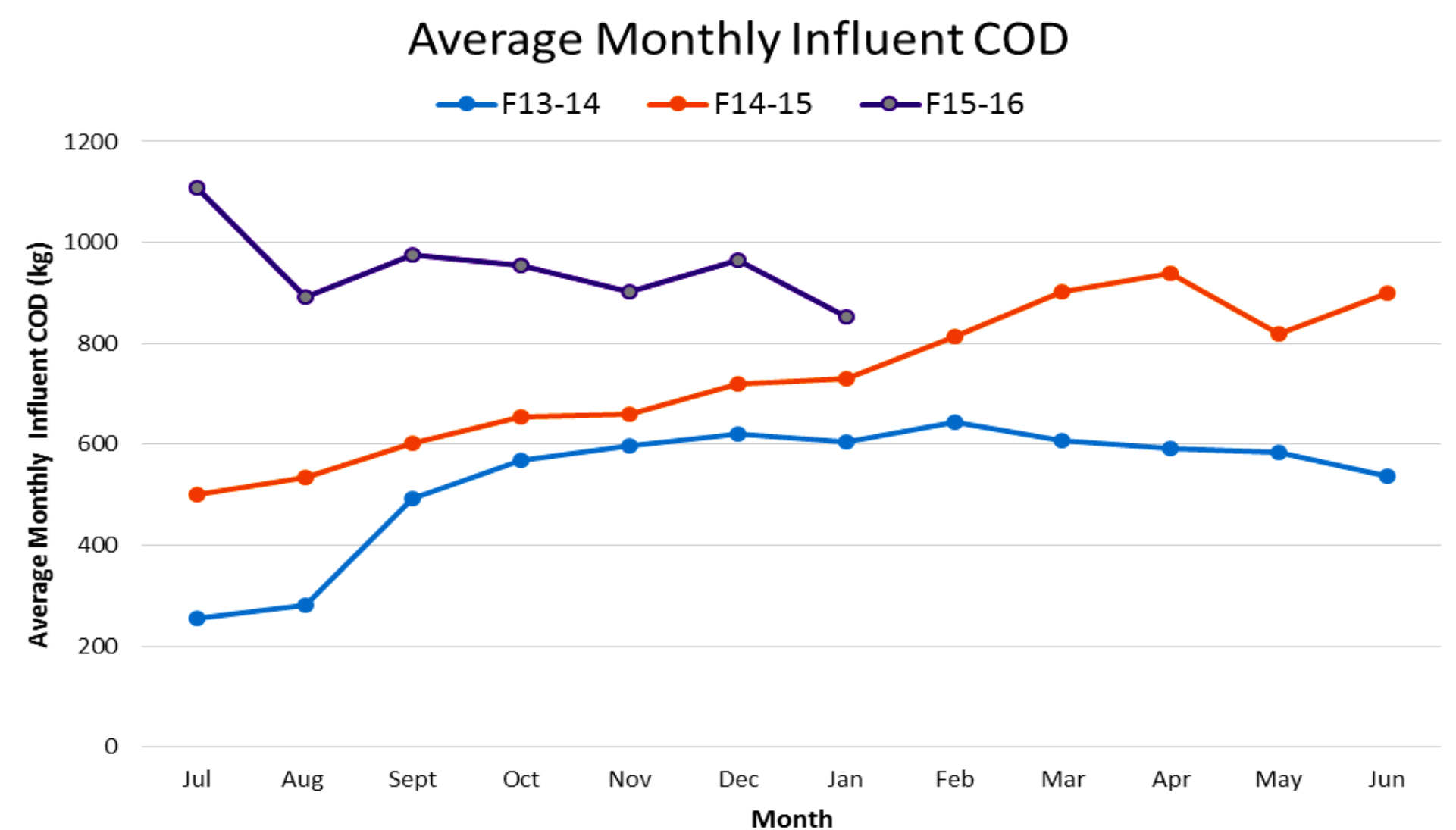
Monash Industry Team Initiative (MITI) 2015-2016

Chemical Oxygen Demand (COD) Baseline Development and Process Optimisation

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Project Background

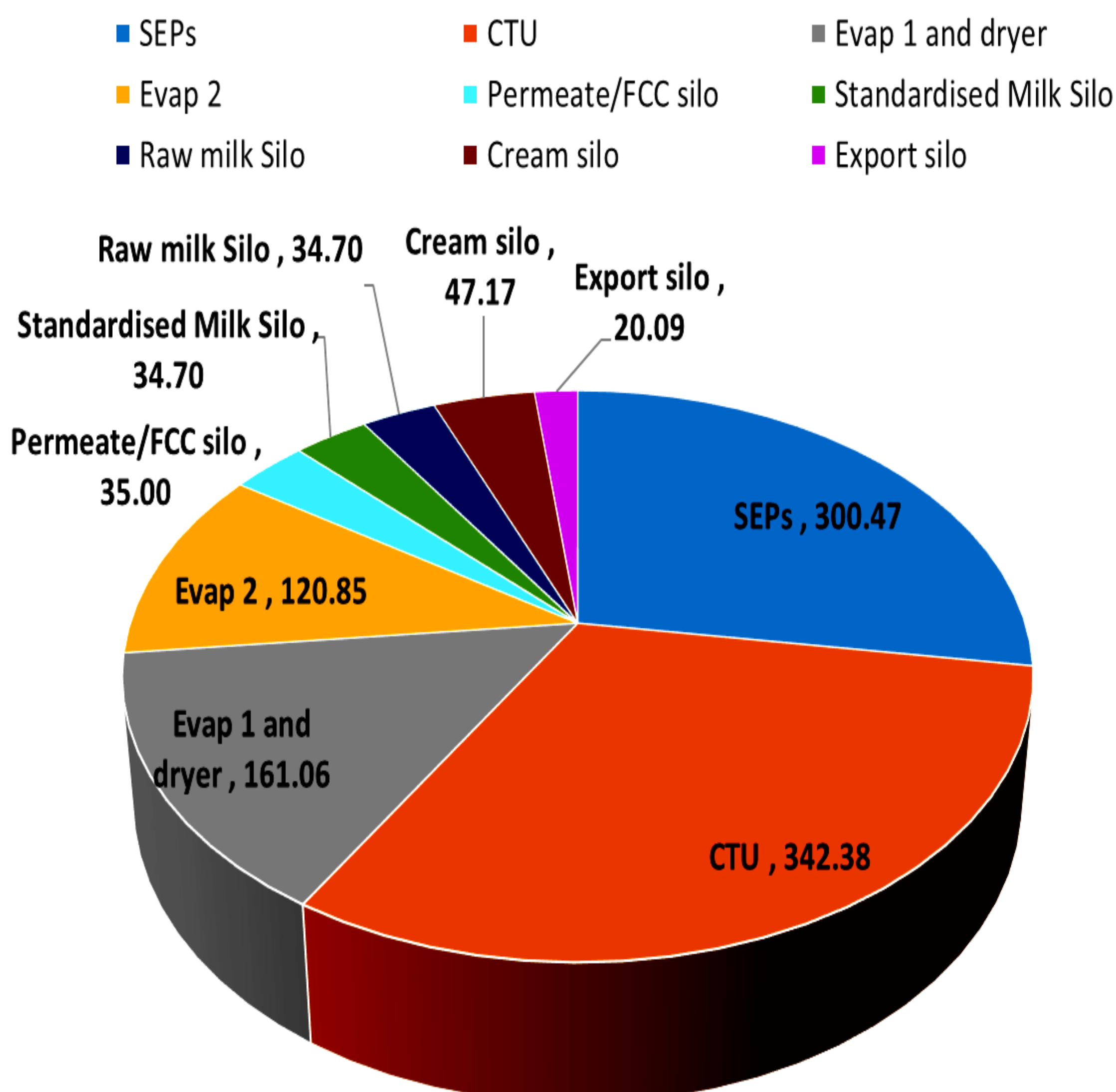
- Recent rise in Chemical Oxygen Demand (COD) leads to both environmental and product loss concern to the Burra Foods management.
- Source of COD are mainly from process equipment discharge during operation, as well as Clean-In-Place (CIP) flush discharges.
- COD is the measurement of organic compounds in effluent discharge, sourced from solids present in milk products.



Project Outcome

- The total COD loading of entire plant operation will be at 1096.42 kg with an estimated range of +/-15%.
- This estimation may vary in accordance to the type of product run as well as the production run time.
- The baseline calculation takes account of the normal plant operation and discharges.
- One of each of the grouped equipment is included as the baseline calculation in order to account for normal plant operation.
- A weekly dashboard reporting tool is generated to summarise the identified Product Loss events of abnormal plant operation to raise site awareness.

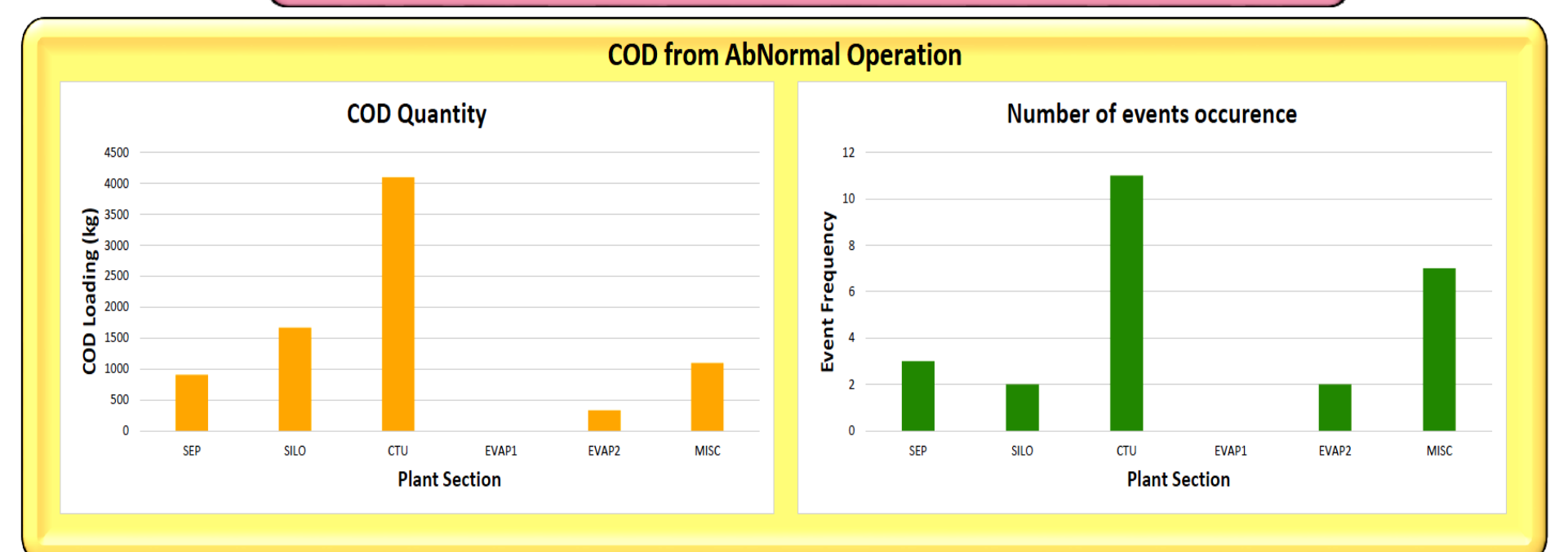
COD Source Distribution (kg)



Equipment's Addition to COD

Top 3 COD Issues of the week

Identified COD Issue	COD Quantity (kg)
Cream Silo 1A to drain product left in silo	100
Silo 8 HSC blocked lines	50
Silo 12 overfilled at 92%	30



Key Recommendations

- Review water push set points for product recovery and CIP set at CTU plant section.
- Review Bottom CIP with washes of lines and silos under the same set point.
- Installation of COD meter at CTU plant discharge point and Bottom CIP to closely monitor COD loadings accurately.
- Product loss events such as leakages, froth formation and equipment issues require immediate action.
- Raise site awareness towards action on reducing COD loading as a collaborative action.