

Project Name: Powder transfer (holding silo to buffer hopper)	Start Date: 19.11.2015
Project Leader: AN Other	End Date: 05.07.2016
Project Type: Increase powder transfer rate per hour	Industry: Dairy Manufacturing

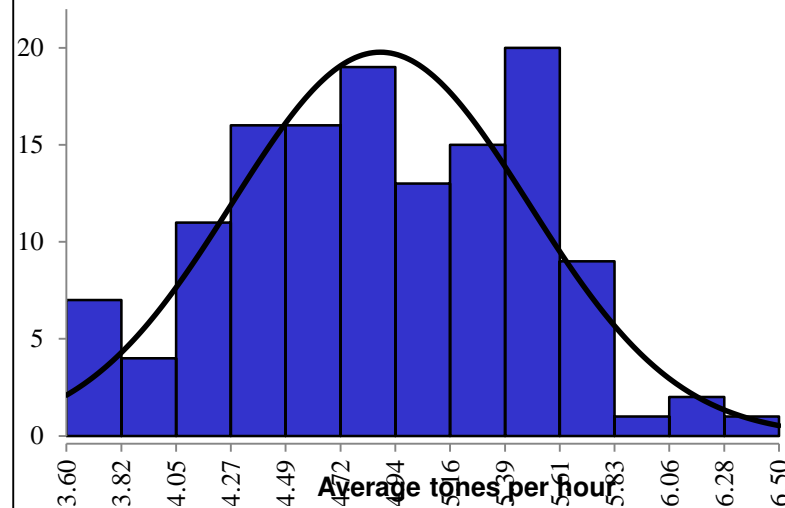
DEFINE: PROBLEM / BASELINE / GOAL

Problem: The 2015 Powder transfer rate is lower than the bulk and Avapac packing line capabilities of 5 and 7 tones per hour respectively. This leads to higher labour and rebagging costs to process the powder than if the packing line capabilities were being achieved.

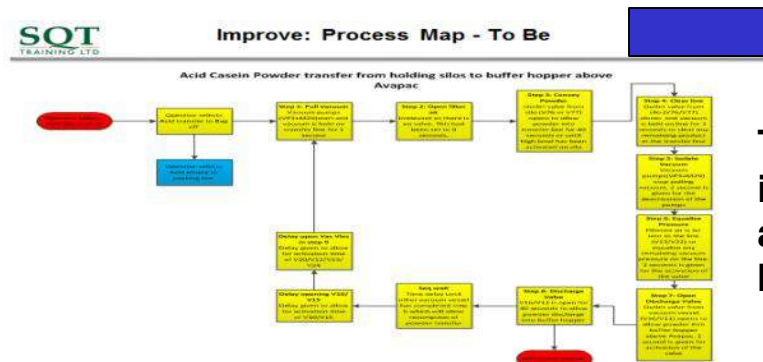
Baseline: Average powder transfer rate of 4.9 tones per hour was being achieved during the 2015 season.

Goal: Increase the Powder transfer rate to 6 tones per hour.

MEASURE: PROCESS / EXPERT KNOWLEDGE / DATA

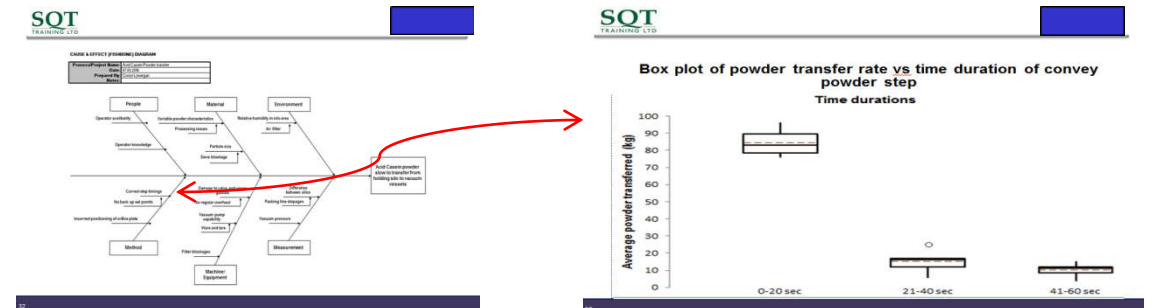


The histogram analysis identified a mean of 4.9 and a standard deviation of 0.6 tones in the Powder transfer rate which indicated an issue with variation or consistency of the process



The process map helped identify each step where automation timings could be optimised.

ANALYZE: DRIVERS / ROOT CAUSES / VITAL FEW



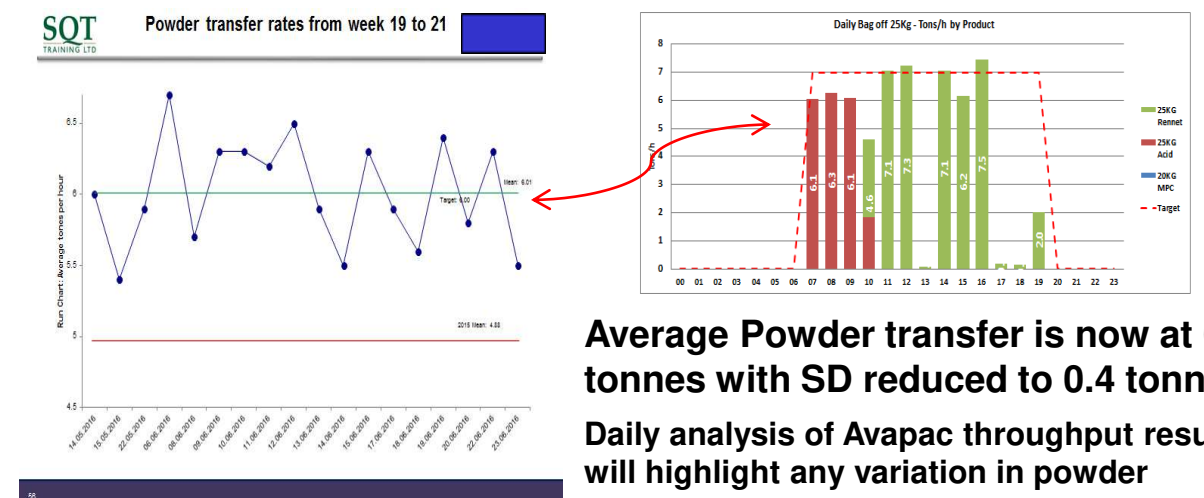
The fishbone analysis illustrated the different factors impacting on the transfer rates and the box plot identified automation timings as a big hitter

IMPROVE: INNOVATION / IMPLEMENTATION PLANNING

Action	Owner	Deadline	Status	Impact/Result	Lesson Learnt
Centralising position of orifice plate	C. Lonergan & Crafts	20.03.2016	Complete	Positive	Orifice plate needs to be centred following every time the process line is opened
Overhaul process valves	K. Tunstead & contractors	15.03.2016	Complete	Very Positive	Deterioration to valve seals had reduced our vacuum strength. These valves required yearly overhaul.
Optimise automation settings	C. Lonergan, operators & automation personnel	25.03.2016	Complete	Positive	Reduced idle time where there was little powder transfer. Also identify automation network change which had negative impact on powder transfer rate
Redesign powder pick from holding silos	K. Tunstead, G. Reddy, C. Lonergan & contractors	2016	Overdue	Undetermined	Process expert needs to observe process issue

- After a series of controlled experiments automation timings were optimised.
- The Set-up process was revised to ensure a mistake proofed method of centring the orifice plate
- Valve seals which were reducing vacuum strength were replaced and are now on an annual PM
- A more durable longer life Valve seal is also being sourced

CONTROL: RESULTS / SUSTAINING



Average Powder transfer is now at 6.1 tonnes with SD reduced to 0.4 tonnes
Daily analysis of Avapac throughput results will highlight any variation in powder transfer rate