

Optimization Strategy of Powder Production

Monash Industry Team Initiative (MITI)

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Background

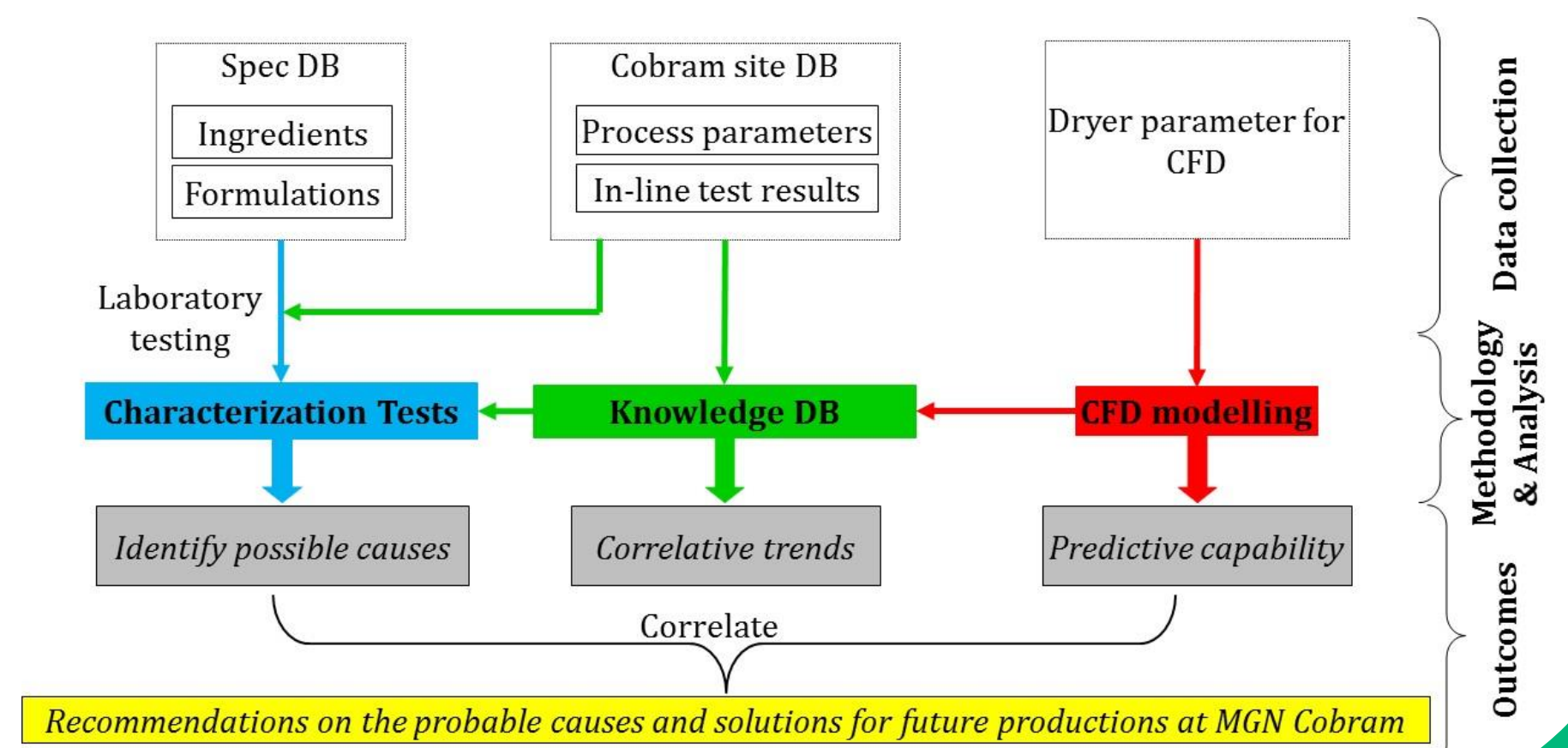
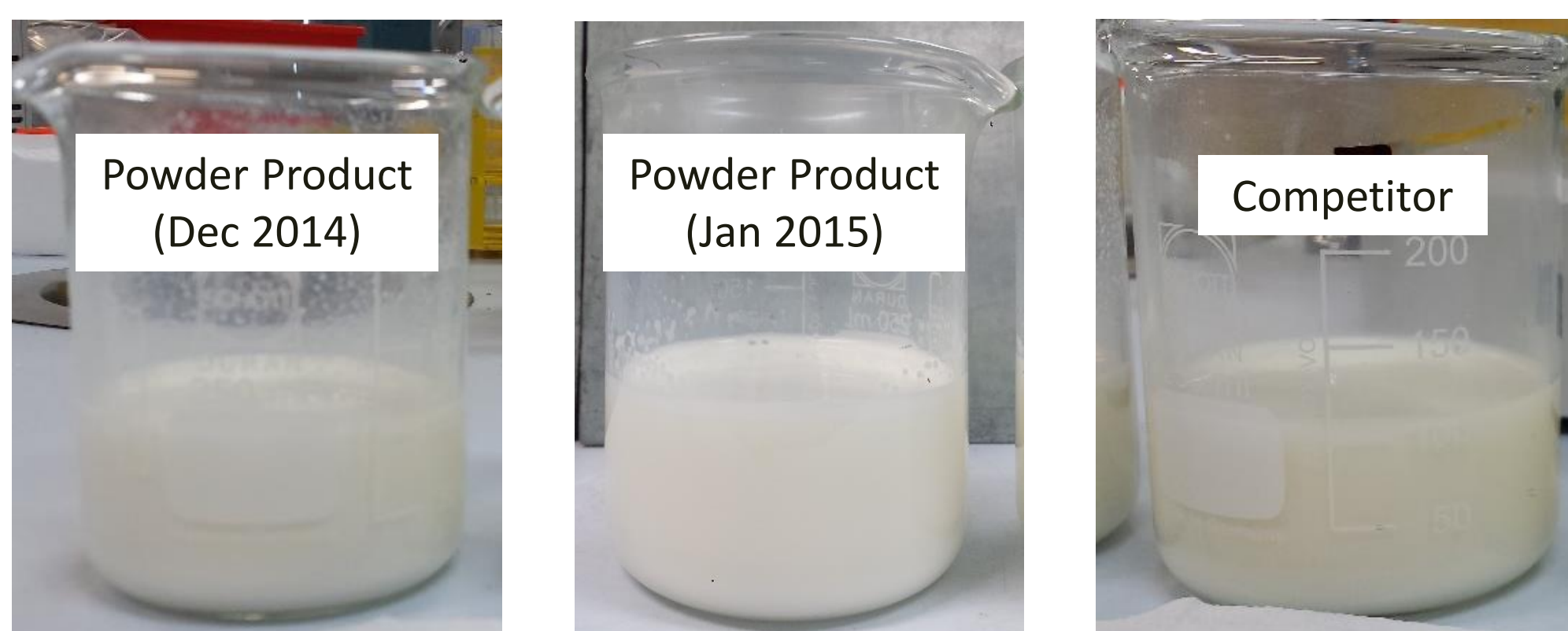
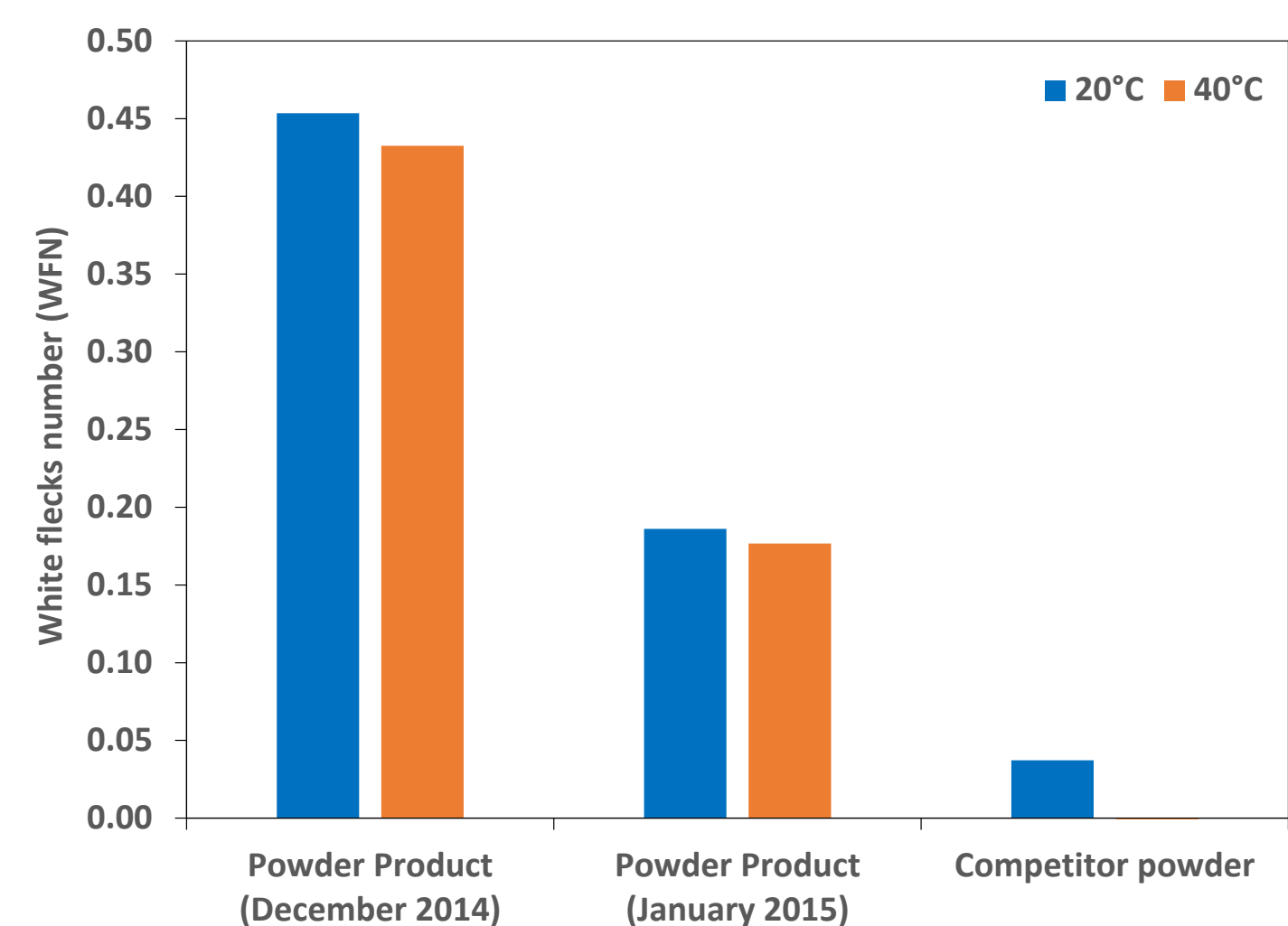
- Production at the Cobram site of Murray Goulburn Nutritionals has been running for 20 years
- Over this duration, data has been collected and stored in regards to processing conditions and inline functionality testing, however the manner in which the data is stored has not allowed for immediate correlation and utilization
- Intent to develop a database of process conditions and inputs to help predict outcomes of physical and functional properties
- Currently, some powder products produced at MGN Cobram has improvement opportunities with regards to dissolution properties

Project Scope

- Develop a framework for systematic interrogation of production issue
- Establish a tabulated library of production data and established standard operating procedure of entry
- Assess the causes of poor dissolution during reconstitution by defining and conducting tests on some powder products

Achievements

VFB CONDITIONS									
Row Labels	Average of 'A' Inlet Air Temp. (°C)	Average of Press. of Air	Average of 'B' Inlet Air Temp. (°C)	Average of Press. of Air3	Average of 'C' Inlet Air Temp. (°C)	Average of Press. of Air4	Average of Fines Ret	Average of Hopper Temperature (°C)	Average of VF Exhaust Air Temp
Powder Product	40.65	1.87	23.34	1.77	24.81	1.61	2.92	33.02	39.81
101534	41.02	2.08	23.96	1.94	25.04	1.69	2.92	34.32	42.94
101535	45.83	1.96	21.87	1.80	27.34	1.59	3.01	36.01	45.44
101561	36.90	1.74	24.00	1.67	25.10	1.59	3.50	35.13	42.20
10:05pm	34.80	1.73	24.10	1.66	25.20	1.60	4.10	35.30	41.80
9:05pm	35.50	1.74	23.80	1.66	25.10	1.58	3.40	34.50	41.90
11:05:00 PM	40.40	1.76	24.10	1.68	25.00	1.60	3.00	35.60	42.90
101562	43.79	1.63	23.95	1.58	28.16	1.54	3.20	36.08	44.95
101563	38.10	1.72	22.85	1.66	27.35	1.58	3.05	35.80	43.15
101601	26.67	0.85	16.07	0.83	16.73	0.77	2.43	22.33	24.90
101602	40.05	1.74	24.03	1.68	25.04	1.61	3.09	33.15	40.14
101880	40.22	1.47	23.87	1.44	23.08	1.45	2.47	30.70	36.05
101881	40.01	1.83	23.93	1.82	21.46	1.83	2.60	30.09	35.99
102046	40.09	2.24	24.04	2.08	24.52	1.72	2.93	31.99	36.34
Grand Total	40.65	1.87	23.34	1.77	24.81	1.61	2.92	33.02	39.81



Conclusions

- The following parameters have been evaluated to have limited impact on the solubility of some powder products
 - Raw ingredients
 - Presence of calcium
 - Homogenization pressure variation
- Significant improvement with regards to the solubility of powder products by enhancing the processing conditions

