

The International Milling Industry

July 28, 2023

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VP – Plant Operations/Quality – Seaboard Overseas

My Goals for You Today

To appreciate that:

1. Your skills are highly valuable here and globally. You need never worry how to earn a living.
2. The industry is very similar globally, just slightly different aspects of the business process to manage
3. If you do your job better, people eat/live better
4. Learn a thing or two

Our standing amongst the majors

US Flour Milling Companies in cwt/24 hrs

1.	Ardent Mills	496,800
2.	ADM Milling	285,900
	Seaboard (non US)	183,167
Plus 62,600 Feed and 27,901 dry corn = 273,667 cwt/24hr		
3.	Grain Craft	169,699
4.	Miller Milling	94,600
5.	Bay State	91,972
6.	General Mills	80,500
7.	N. Dakota Mill & Elev	52,500

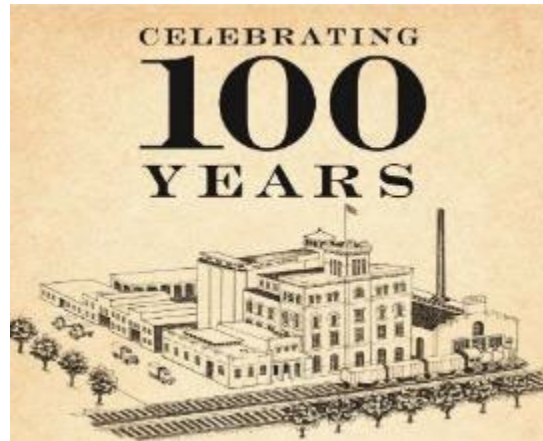
Source – Grain and Milling Annual, Sosland Publishing



105 Years Ago....



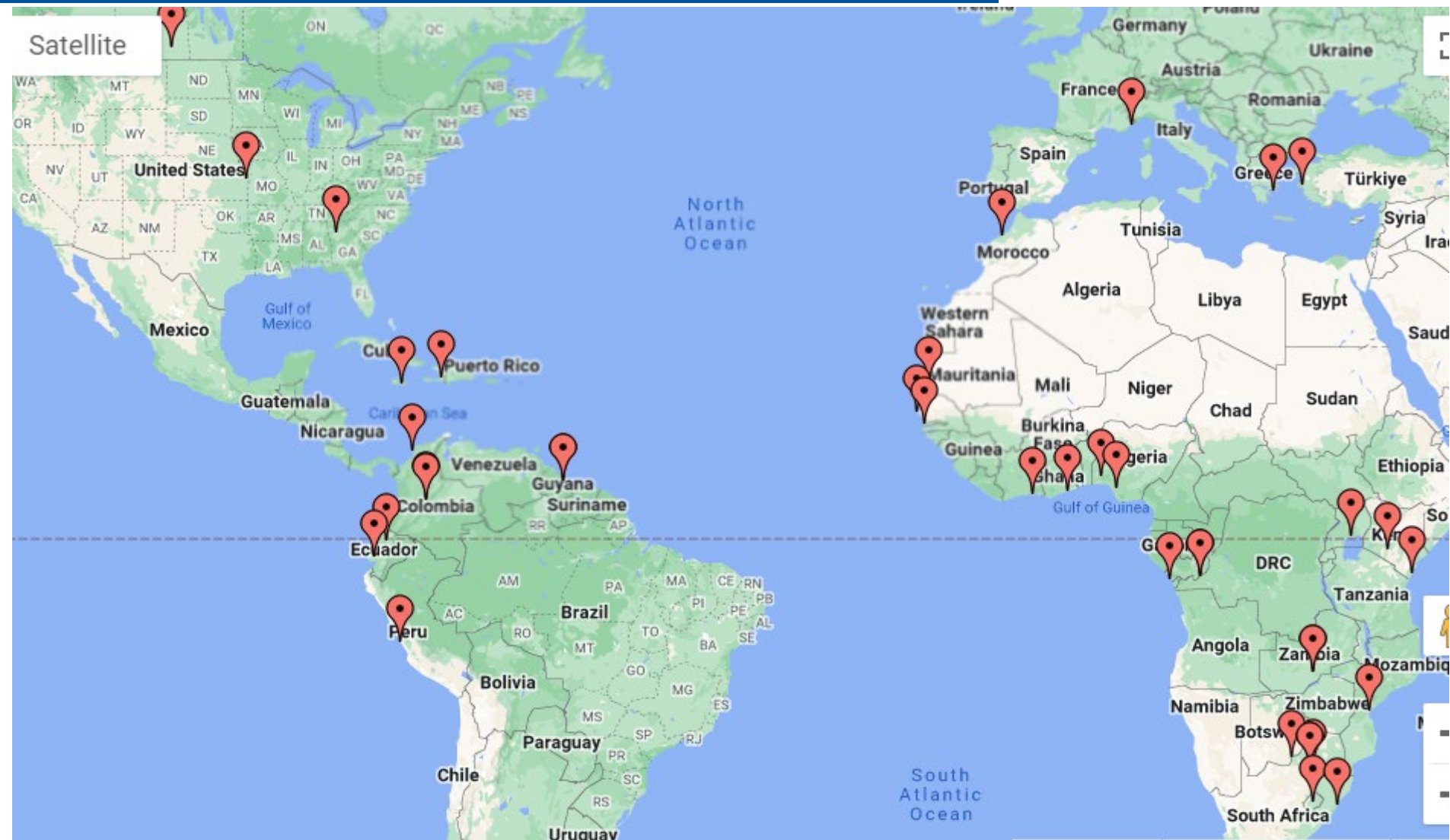
Left to right: Jack S. Miller, general superintendent, U.S. and overseas operations, Seaboard Allied Milling Corp.; Cyril P. Foray, minister of external affairs, Sierra Leone; Victor C. Studley, vice-president and head of the International department, Commerce Trust Co.; John Akar, Sierra Leone's ambassador to the United States; Don Alexander, assistant vice-president in the international department of Commerce Trust; James H. Linn, vice-president of Commerce Trust; Tinga Selsay, consulate general of Sierra Leone in New York, and Clark A. Ridpath, mayor pro tem of Kansas City.



- Founded by Otto Bresky
- 1918: Seaboard Flour purchased its first manufacturing asset - a flour mill in Atchison, KS followed by the Imperial Brewing Company in 1919
- 1966: First overseas venture in Ecuador, followed by Sierra Leone immediately after, followed by Nigeria, followed by...
- 1981: Headquarters moved to Merriam, KS
- 1982: Sold domestic flour mills to Cargill, Inc. (now part of Ardent)

LOCATIONS

Satellite



Similarities with millers

“It’s the wheat!”



Receiving, storage, blending

- Instead of 25T lots, 5,000T lots (and more)
- No wheat reception for weeks, then several days of continuous discharge.
- Wheat and wheat selection is REALLY not the same from year to year and season to season. Frequent and extreme grist changes are possible.





MAIZE GRAIN SPECIFICATION (EAS 2:2017)

Parameter	Specification (max)Grade 1	Specification (max)Grade 2
Physical characteristics		
Moisture content(MC)	13.5% (Max)	13.5%(Max)
Foreign matter (includes sand, earth & stones)(FM)	0.5% (Max)	1.0%(Max)
Filth	0.1%(Max)	0.1%(Max)
Inorganic Matter(IM))	0.25%(Max)	0.5%(Max)
Broken grains(BG)	2% (max)	4.0%(Max)
Pest damaged grains(PD)	1.0%(Max)	3% (Max)
Discolored grains(DG)	1.5%(Max)	2.0%(Max)
Other Colored Grains (OC)	2.0% (Max)	2.0% (Max)
Other Edible Grains (OEG)	Absent	Absent
Toxic/Noxious Weeds Seeds (T/NWS)	Absent	Absent
Foreign Odours (FO)	Absent	Absent
Rotten and diseased grains(RD)	1.0% (Max)	2.0% (Max)
Immature & Shrivelled grains(ISG)	1.0% (Max)	2.0% (Max)
Live Pests	Absent	Absent
Other Injurious Substances	Absent	Absent
Total defective Grains(TDG)	5.0%(Max)	9.0%(Max)
Biological characteristics		
Mouldy grains	Absent	Absent
Chemical characteristics		
Aflatoxin (total)	10ppb(max)	10ppb(max)
Aflatoxin (B1)	5ppb(max)	5ppb(max)
Fumonisin	2 ppm(max)	2 ppm(max)

Locally grown grain

- 50kg lots
- Massive handling requirements
- Local grading schemes put into place
- No knowledge at the farm level whether Aflatoxin (or other mycotixins) may be an issue
- Tremendous opportunity near to harvest to capture a much lower price (basis) level.

The size of global trade

World Wheat Supply and Use 1/ (Cont'd.) (Million Metric Tons)

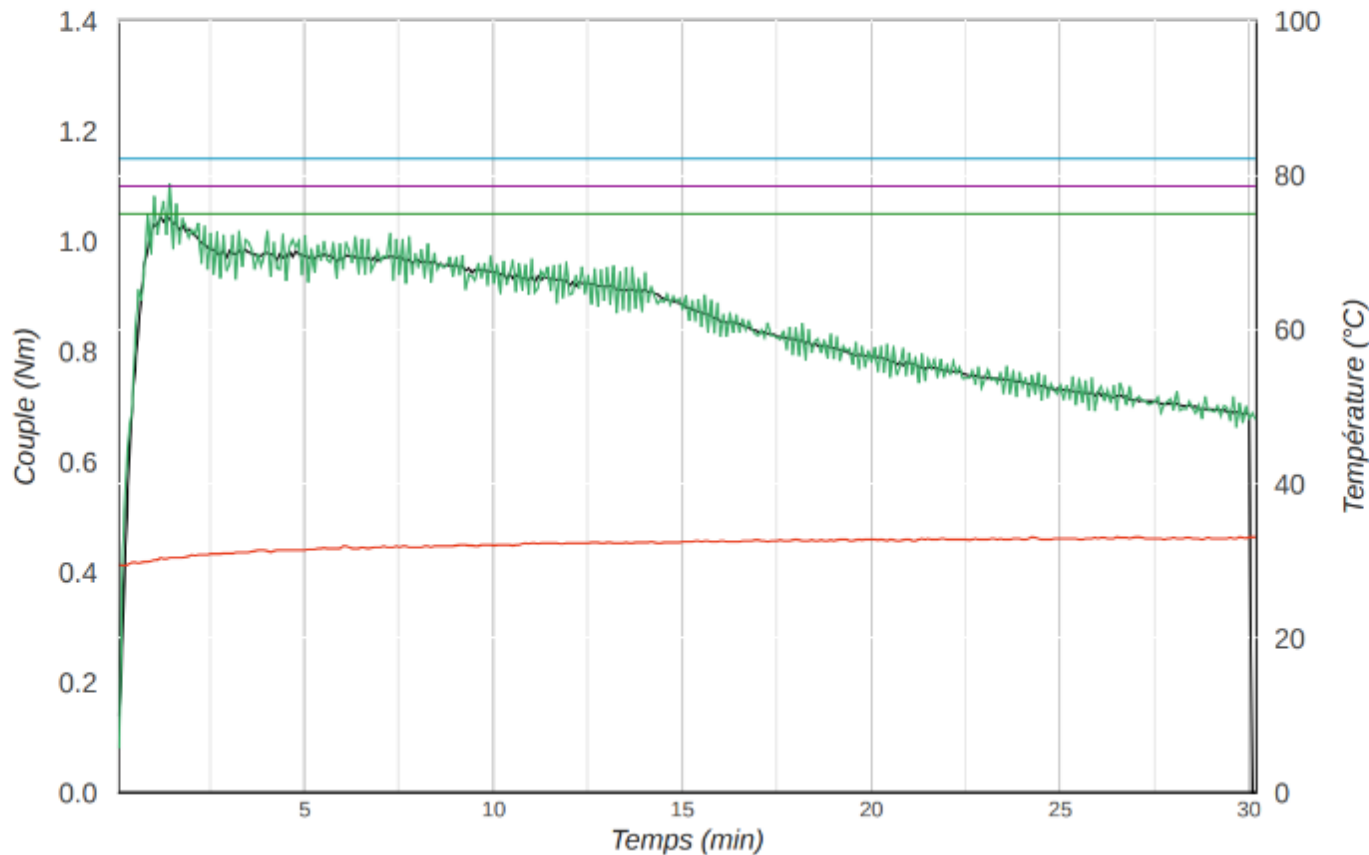
2023/24 Proj.		Beginning Stocks	Production	Imports	Domestic Feed	Domestic Total 2/	Exports	Ending Stocks
World 3/	Jun	266.66	800.19	209.54	154.79	796.14	212.62	270.71
	Jul	269.31	796.67	207.96	157.13	799.45	211.62	266.53
World Less China	Jun	127.08	660.19	197.54	120.79	645.14	211.72	131.03
	Jul	130.28	656.67	195.96	121.13	646.45	210.72	129.40
United States	Jun	16.28	45.32	3.67	1.91	30.26	19.73	15.28
	Jul	15.79	47.33	3.54	2.45	30.81	19.73	16.12

- USA consumes 30mm MT of wheat annually (3.8% of global production)
- The globe exports 212mm MT annually (7 times the US industry's volume moving trans-ocean)

Can you make bread from this?

Data Simulator

Development time (min) :	1.6	Cmax (Nm) :	1.047
Stability (Mn) :	1.5		
Weakening (UF) :	60	Weakening (Nm) :	0.132



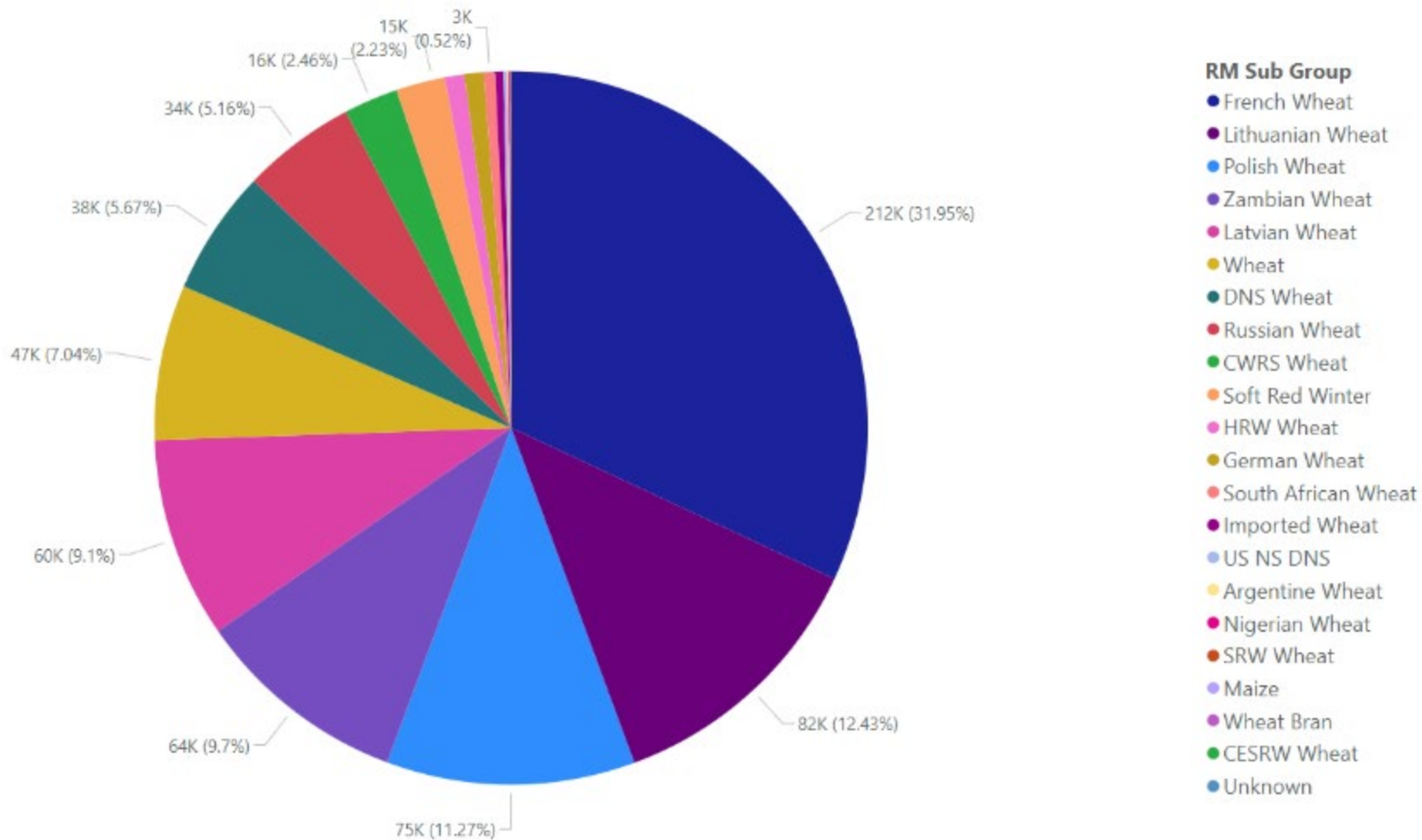
Can you make bread from this?

- 11% French wheat (dry basis) is the same as 9.7% protein on a 12% mb
- French wheat commonly known as “soft” wheat. However, nothing breaks so softly as SRW.
- Europeans know “soft” wheat as bread wheat. “Hard” wheat is Durum (blé dur) in French
- NOTHING compares to SRW in terms of milling and rheology
- “Feed wheat”? In some countries, farmers grow “feed wheat” specifically for feeding, replacing corn. SOMETIMES, you can incorporate into human food (would be US #1 aside from official bread-baking properties)

Relative wheat hardness

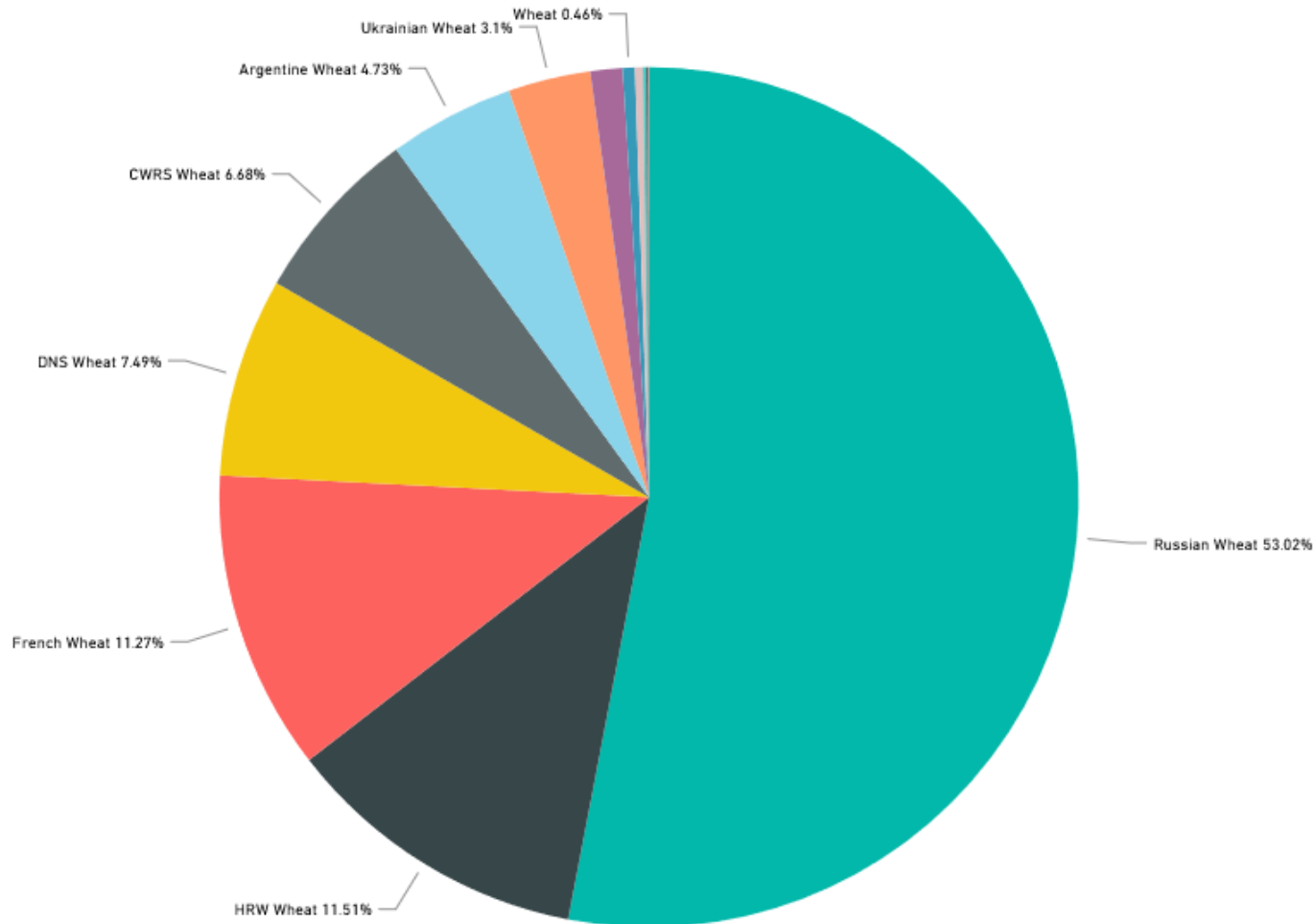
Variety	Break Flour Extraction		
Australian Std White	14.6	German 14	19.4
Australian Premium White	15.6	Kazakh	19.5
Zambian	15.7	German 12.0	19.8
Australian Hard	16.0	German 13.0	20.4
Uruguayan	16.4	Lithuanian	20.8
HWW	17.1	Australian Soft	21.0
CWHWS	17.9	Argentine 12.0	21.4
Australian Noodle	18.0	Brazilian	22.4
Latvian	18.2	Swedish	22.8
DNS	18.3	CWSWS	23.0
CWRS	18.3	Ukrainian	23.0
Argentine 12.5	18.7	Russian	23.6
Chinese	19.0	French	24.1
HRW	19.1	Czech	26.2
Argentine 14.0	19.1	Romanian	28.0
		SRW	29.2

2023 Wheat Origination



2021 Wheat Origination

Wheat selection



Bakers too are similar

“It’s the flour!”

Flour Formulas unique per product/grist

DWM BOARD

PRODUCT	ENZYME / IMPROVER	DOSING RATE (ppm)
KPB PREMIUM	Powerzyme Premium BF	270 ppm
	Enzyme Alpha (AIT)	300 ppm
	Technic APN 250 (AIT)	300 ppm
	SBF Flourzyme	300 ppm
KPB SIMPLIFINE 3 OTC	Powerzyme premium BF	200 ppm
	Enzyme Alpha (Ait)	200 ppm
	Technic APN 250 (Ait)	200 ppm
	SBF Flourzyme	200 ppm
	EN 10G	150 ppm
HOME BAKING FLOUR	Enzyme HBF-90	100 ppm
	Enzyme HBF-2	100 ppm

#	ACTIONS - WK 24 th To 30 th APR 2023.	WHO	WHEN
1	Print all SOPs - updated for both Labs.	JOY	20.04.23
2	Ensure all boards; 6K 3 AM boards are up-to-date.	JOY	28.04.23
3	Gemba walk to check GMP Status.	TEAM	DAILY
4	Ensure gangways are not blocked - clear all items.	TERRY	28.04.23
5	Organise all labs including the old lab.	TEAM	27.04.23
6	Update the gallery 3 ensure all policies are displayed.	URSILLA	28.04.23
7	Dispose all expired retained samples i.e APR.	TEAM	30.04.23
8	Monitor waste management 3 waste segregation.	DIANA	28.04.23
9	Provide acetone to clean date-code ink on floors 3 machine surfaces.	TERRY	28.04.23

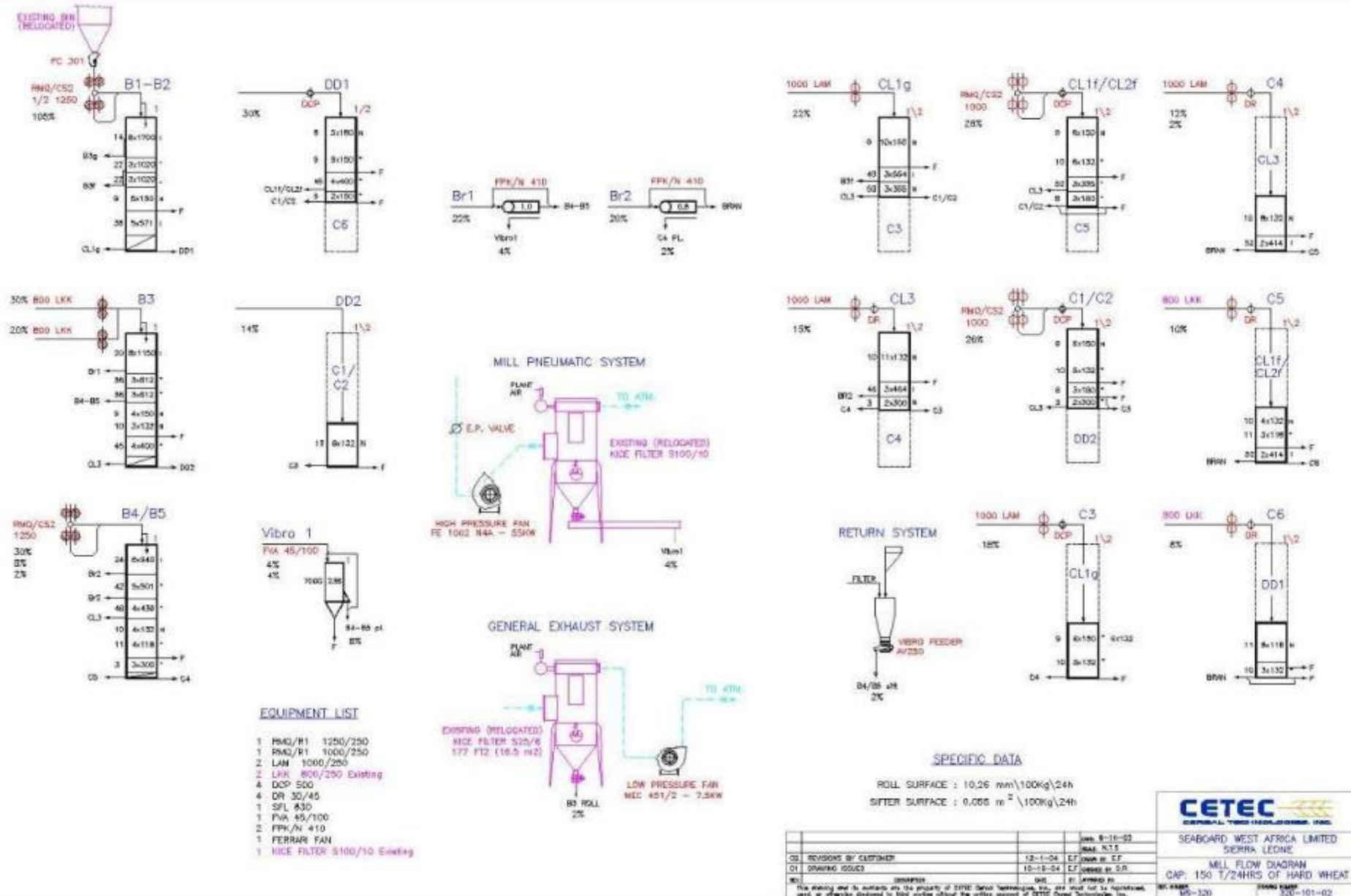
Flour specifications

- No “specification” given from sales (from client) to the mill to produce x protein with y farinograph stability and z ash.
- We can produce almost whatever we want BUT it has to work
- We typically try to blend two wheats for a given product – higher and lower protein – which reduces our risk and lessens the severity of grist changes
- State norms often govern flour quality, but ranges are extreme other than moisture (usually 14%). Norms on fortification are often ignored by most in the market as they can shave \$1-2/Ton off their production cost.
- Ash can easily go to 0.58% (14% moisture basis) or 0.68% on a dry basis
- As a miller, one wears a tech service hat too

Similarity – very attractive bread



Flow Diagram – what's different?



Rollermills on ground level



Compact height



Construction differences

- No “winter”
- No slip-form contractors
- Mills near ports often have soggy land surrounding (necessitating more civil works for heavy buildings)
- Other mills (Haiti) near water but on very solid rock. Unfortunately, the rock moves once a century.

Politically Impactful



Political/economic environment

- Food reserves are a critical need for so many countries globally
- Local manufacturing brings local jobs
- Import tariffs bring more cost to people (food becomes more expensive) but supply disruptions (aka riots and civil unrest) are less common
- Flour is a basic and important foodstuff – subsidies paid (theoretically) by governments in exchange for a cap on prices

Electricity – Argh!

Power

- Some affiliates produce some/all of their own electric power
- Interruptions frequent
- Public power (state companies) much cheaper BUT...



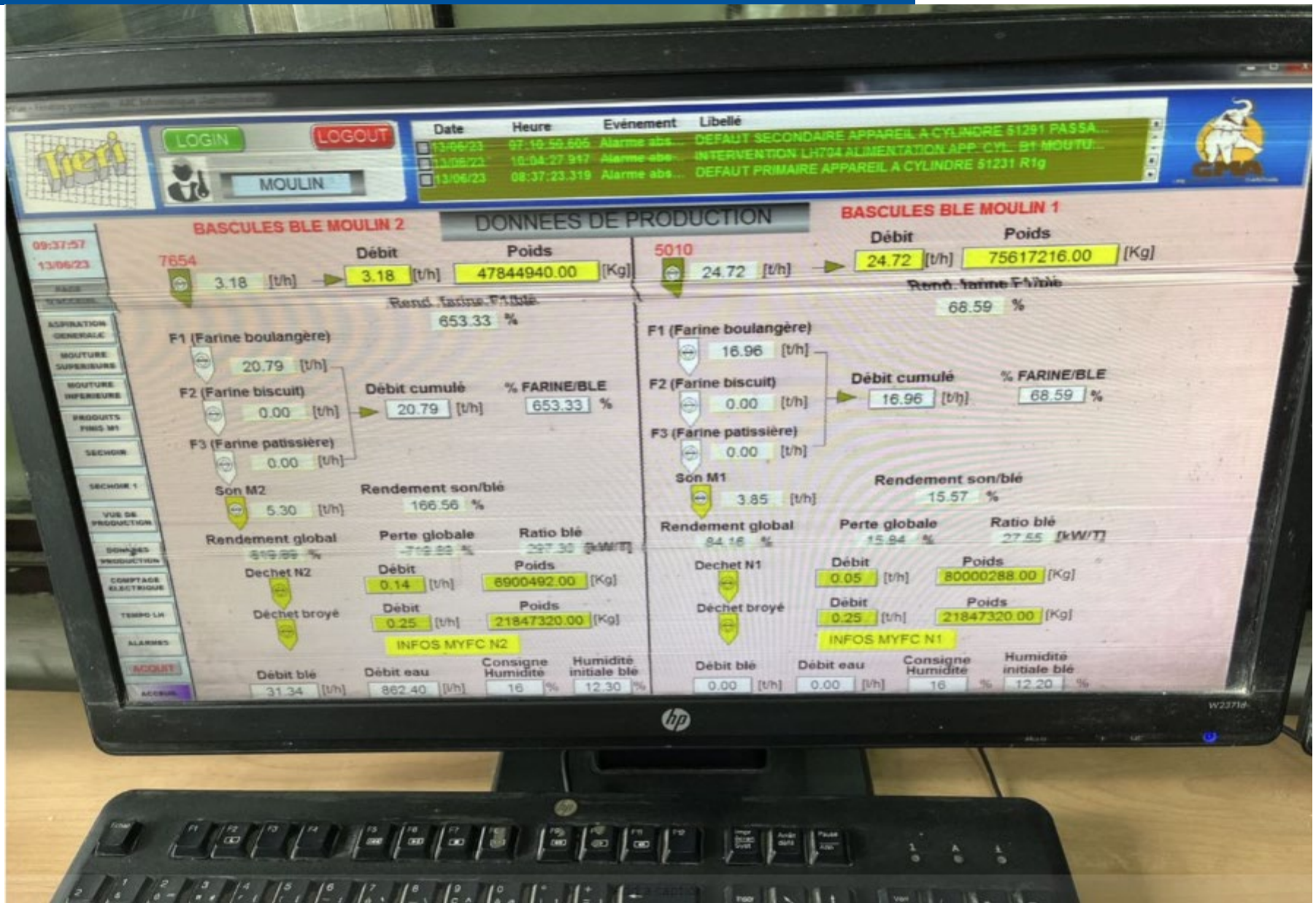
Propensity to run the mill “easier”



“Creative” solutions



Automation now similar (mostly Siemens)



Break Release

Immediate
tendency for
overgrinding to
push extraction
(they think)

05.04.2023

B1 MMS1			B1 MMS2	
	LEFT	RIGHT	LEFT	RIGHT
THROUGHS	135	139	134	187.5
OT	85	119.2	83.2	112
TOTALS	223.4	308.2	217.2	299.5
% RELEASE	62.0	61.3	62	62.6

B2 MMS3			B2 MMS6	
	LEFT	RIGHT	LEFT	RIGHT
THROUGHS	210	180.2	179.9	200
OT	70.5	65	60.2	68
TOTALS	280.5	245.2	240.1	268
% RELEASE	74.9	73.3	74.9	75

B3 MMS4			B3 MMS5	
	LEFT	RIGHT	LEFT	RIGHT
THROUGHS	214.0	254.0	200.5	205.0
OT	42.0	52.0	41.5	45.0
TOTALS	256.0	306.0	242.0	250.0
% RELEASE	83.6	83.0	82.9	82.0

Wheat change
80% Russian
20% Kenyan

Locations in the middle of the city



Bran/red dog handling (bags)



...or bran pellets loaded on ship



Similarity – Competitive market



But different consumer products



Maize “Ugali” or “Tshima” or “Mealie Pop” or “fufu”



Locally grown commodities – in bags!



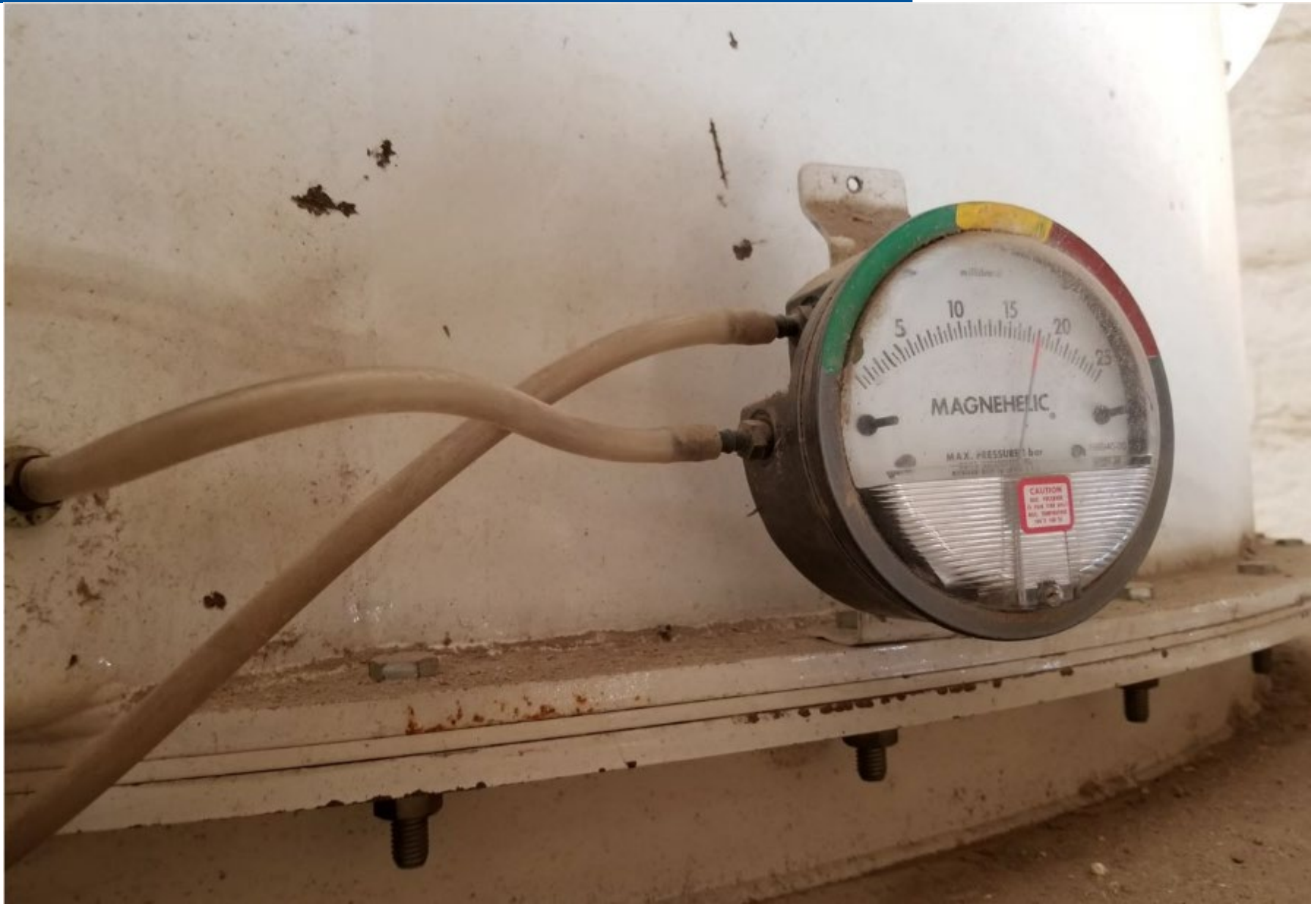
Modern packaging



A photograph of a warehouse interior. Tall metal shelving units, some yellow and some blue, are filled with stacks of cardboard boxes. The boxes are labeled with product names and weights. A red fire extinguisher is visible in the foreground. The floor is light-colored and polished. The ceiling has exposed pipes and lights.



Visual Management



Don't drink the water



Roll corrugating (fluting) in house



Evolving Industries (aqua feeds)





Epoxy over wood? I'll let you know.



One daily square meal (from cheap fuel)



Other unique qualities with companies abroad

- Expatriate senior staff – Managing Director, Financial, Operations, endless need to keep retraining “the bosses”
- Propensity to use endless “casual” day labor
- Very high (or low) power costs
- Lead time for spares – months unless by air freight
- Regulatory environment
- Newer mills – oldest line in the group built in 1954, many since 2000
- JIT (Almost Too Late) planning for grain still requires 4 months’ advance work, or you will either grind out or choke on excess inventory

Yet as people, we're the same

- Our skills as millers infinitely transferrable
- Opportunities tend to be more pronounced – people working much more on an “island”
- Extraction – still the most important aspect (probably more important) for manufacturing success. Results of discipline and repeating the mundane are magnified
- One never loses the thrill of putting a massive machine under your submission and making it run better.

THANK YOU!