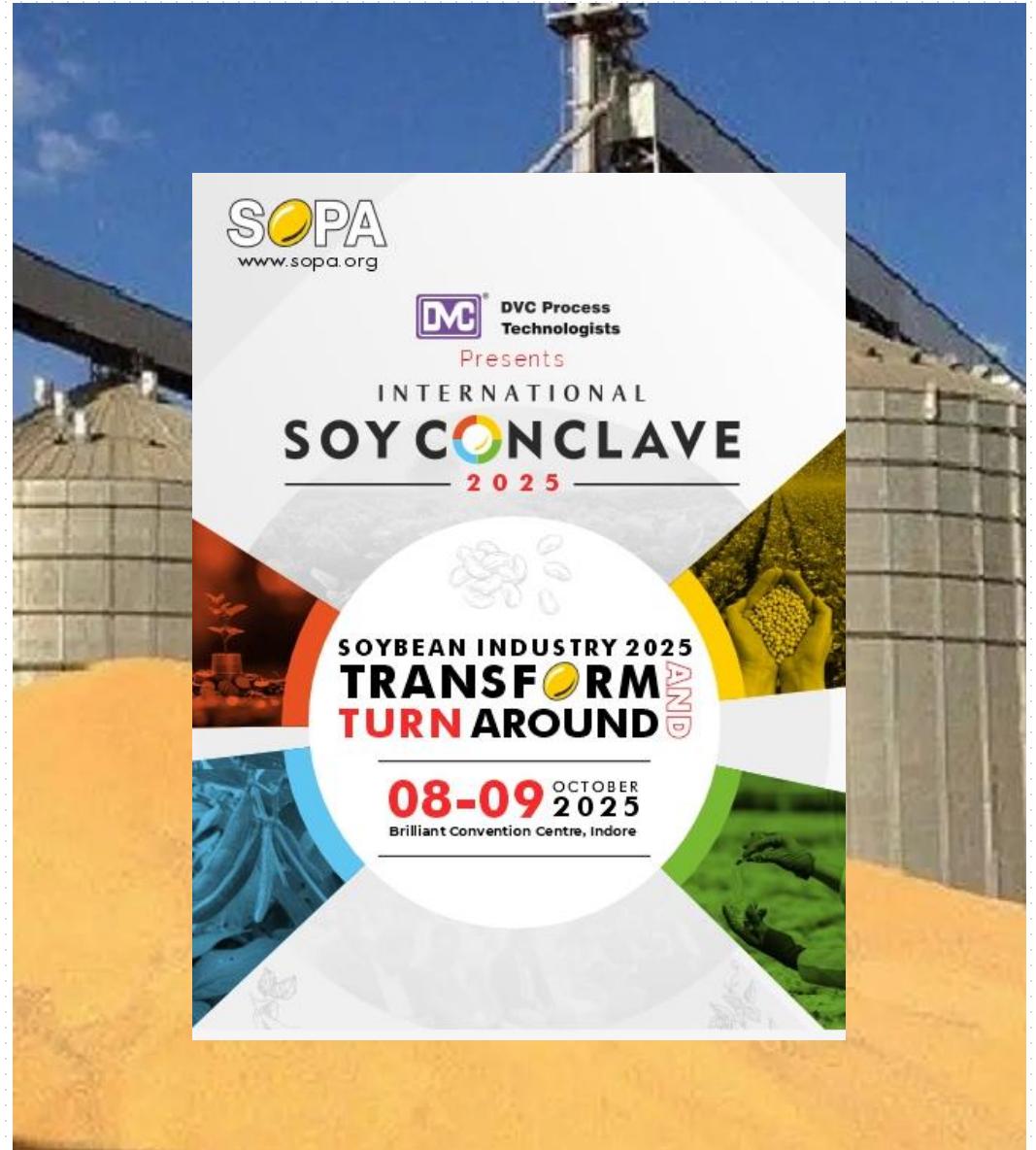


SOY CONCLAVE 2025

Continuous Improvement
in Soybean Grain Handling & Crushing
Plants

Gonzalo J. Luvani
Founder & Senior Consultant – LYSPAS & CO
Continuous Improvement Solutions
ARGENTINA



Continuous Improvement in Soybean Grain Handling & Crushing Plants



LeanBridge™ • WasteZero™ • FlowStable™ • Kaizen Action™ • StratBridge™

“Efficiency is the only raw material that never runs out”

Crushing capacity has grown faster than soybean supply.

How can we make the most of every ton of grain?

That is the journey I want to share with you today—practices from Argentina that may inspire new opportunities in India.”



Continuous Improvement in Soybean Grain Handling & Crushing Plants



LeanBridge™ • WasteZero™ • FlowStable™ • Kaizen Action™ • StratBridge™

Gonzalo J. Luvani,

Industrial Engineer., MBA, MSc in Continuous Improvement

ROSARIO, ARGENTINA

Founder & Senior Consultant – LYSPAS & CO Continuous Improvement Solutions

Industrial Engineer with over 30 years of experience in the agri-food and oilseeds industry.

MBA and Master's in Continuous Improvement specialized in implementing operational excellence systems.

Former Global Operations and Continuous Improvement Leader at Cargill, with experience across Argentina, Brazil, USA, China, Mexico, UK, and Egypt.



“Passionate about helping soybean processors improve operational performance using practical, low-cost, high-impact continuous improvement tools, adapted for local realities.”

**SCAN QR CODE TO FOLLOW
THE PRESENTATION**



Continuous Improvement in Soybean Grain Handling & Crushing Plants



ROSARIO, MY HOMELAND



Continuous Improvement in Soybean Grain Handling & Crushing Plants

India is about 1.2 times *bigger* than Argentina.

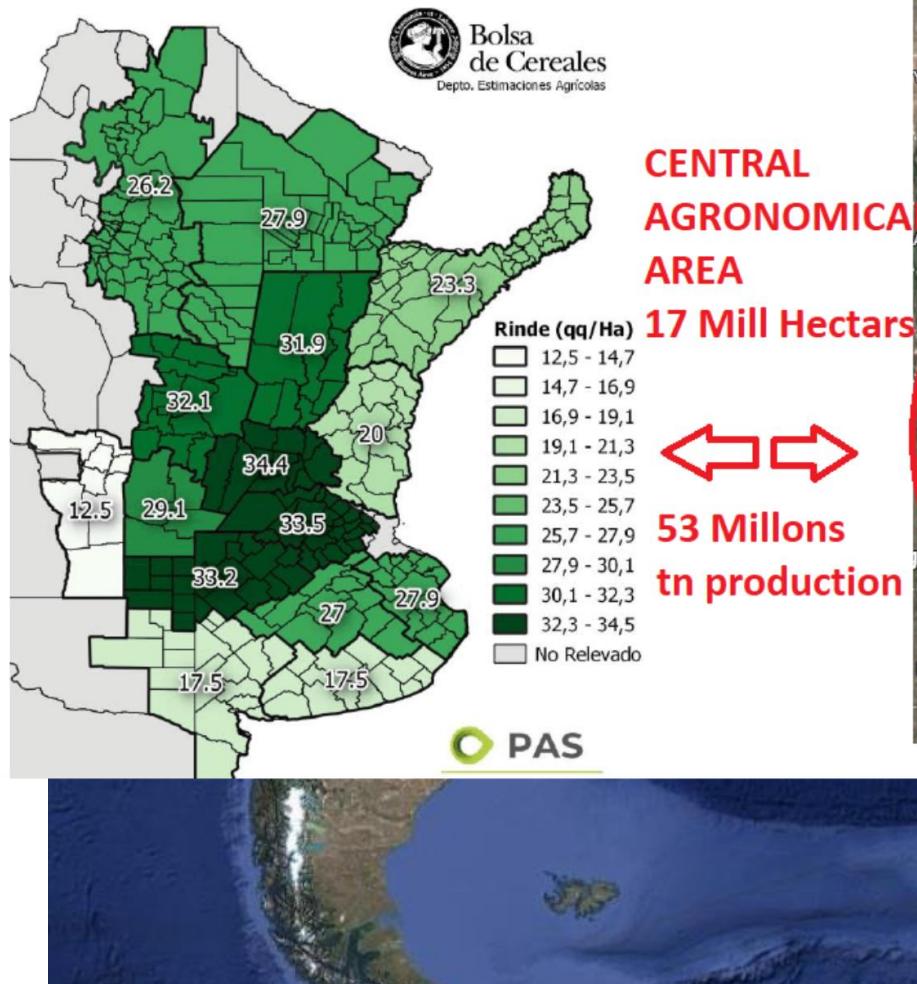
Argentina is approximately 2,780,400 sq km, while India is approximately 3,287,263 sq km, making India 18% larger than Argentina. Meanwhile, the population of Argentina is ~46.2 million people (1.3 billion *more* people live in India). We have positioned the outline of Argentina near the middle of India.



Continuous Improvement in Soybean Grain Handling & Crushing Plants

Rendimientos Soja

* Rendimiento promedio nacional: 29,4 qq/Ha



INDIA GROWING AREA

Map 1A: India's Top Soybean and Rapeseed Producing States



Source: Soybean Processors Association of India (SOPA) and ICAR-Indian Institute of Rapeseed Mustard Research



BCR



CRUSHING CAPACITY - SOYBEAN ARGENTINA

Capacidad
Crushing
(t/día) 2025

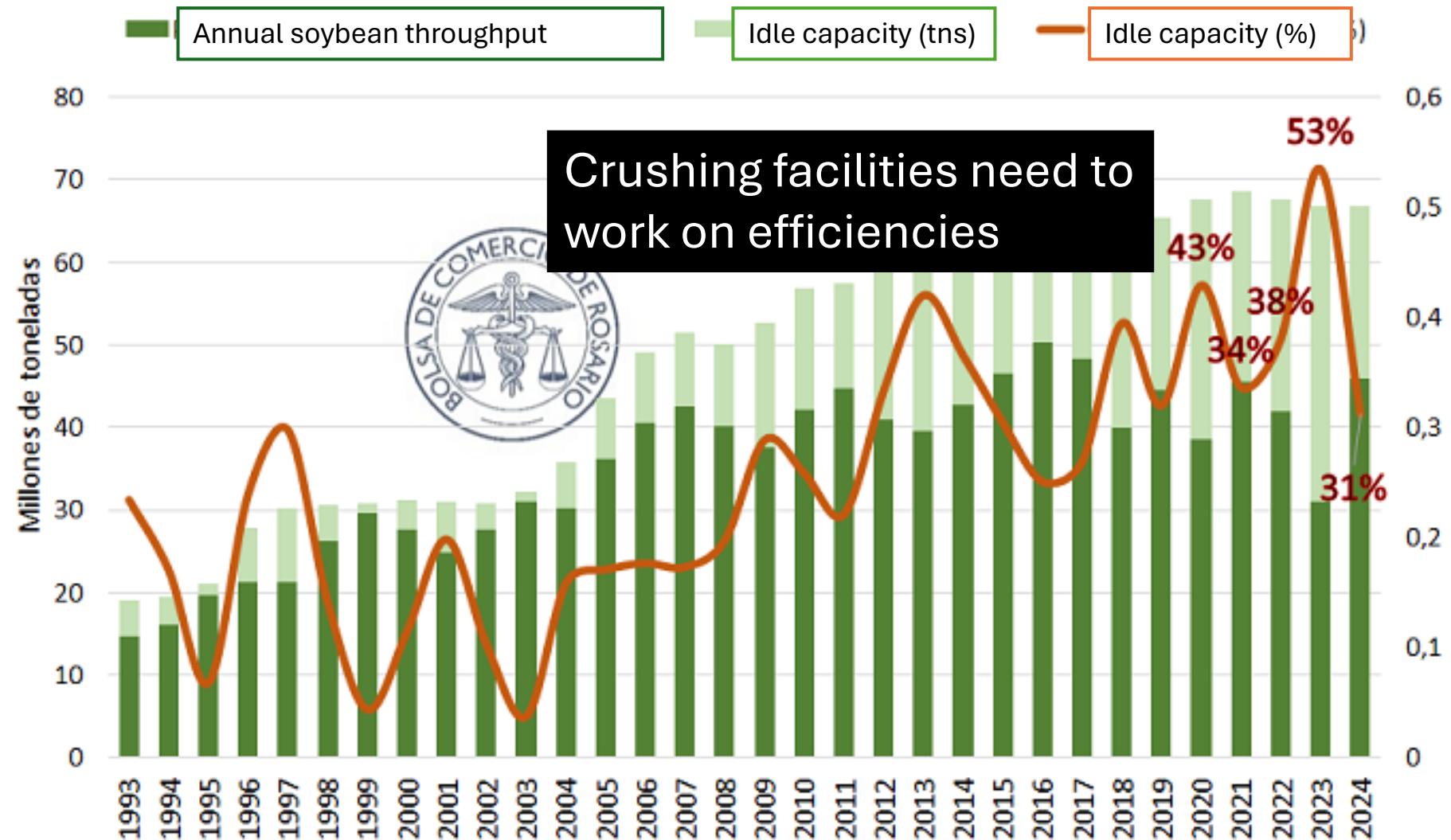
Provincia	Tipo de planta	Empresa	Ciudad	Capacidad de Crushing (t/día) 2024	Capacidad de Crushing (t/día) 2025
Buenos Aires	Extracción por solvente	Viluco	Frías	3.000	3.000
Santiago del Estero	Extracción por solvente	Molinos Agro	San Lorenzo	20.000	20.000
Santa Fe	Extracción por solvente	Molinos Rio de la Plata	Rosario	1.200	1.200
LDC			Gral. Lagos	12.000	12.000
LDC			Timbúes	8.000	8.000
COFCO			Timbúes	8.000	8.000
Terminal 6			Pto. San Martín	20.000	20.000
Oleaginosas San Lorenzo			Pto. San Lorenzo	10.000	10.000
Vicentín			Pto. San Lorenzo	6.500	6.500
Cargill			Quebracho	6.000	6.000
Cargill			Villa Gob. Galvez	13.000	13.000
Bunge			Pto. San Martín	8.000	8.000
Bunge			San Jerónimo Sud	1.350	1.350
Aceitera Chabás			Chabás	4.000	4.000
Buyatti			Pto. San Martín	3.000	3.000
AFA			Los Cardos	450	450
Tanoni Hnos			Bombal	500	500
Ricedal Alimentos			Chabás	300	300
Renova			Timbúes	33.000	33.000
Sol				4.000	
Sol				5.500	
Sol				1.456	
Sol				200	
Sol				100	
Sol				157	
Sol				12.418	
Sol				97.940	

ROSARIO
CLUSTER

Capacidad teórica de
Capacidad teórica de

58 CRUSHING PLANTS
212,000 tn DAY
70 Millions tn YEAR

EVOLUTION CRUSHING THEOREICAL CAPACITY VERSUS SOYBEANS PRODUCTION



OILSEEDS PRODUCTION AND CRUSHING AT INDIA

Table 6: Oilseed, Soybean, Production, Supply and Distribution

Oilseed, Soybean Market Year Begins	2023/2024		2024/2025		2025/2026	
	Oct 2023		Oct 2024		Oct 2025	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
India						
Area Planted (1000 HA)	13300	13300	13600	13600	0	13200
Area Harvested (1000 HA)	13200	13150	13500	13500	0	13040
Crush (1000 MT)	11300	11600	11000	10542	0	10125

Table 5: Oilseed, Rapeseed, Production, Supply and Distribution

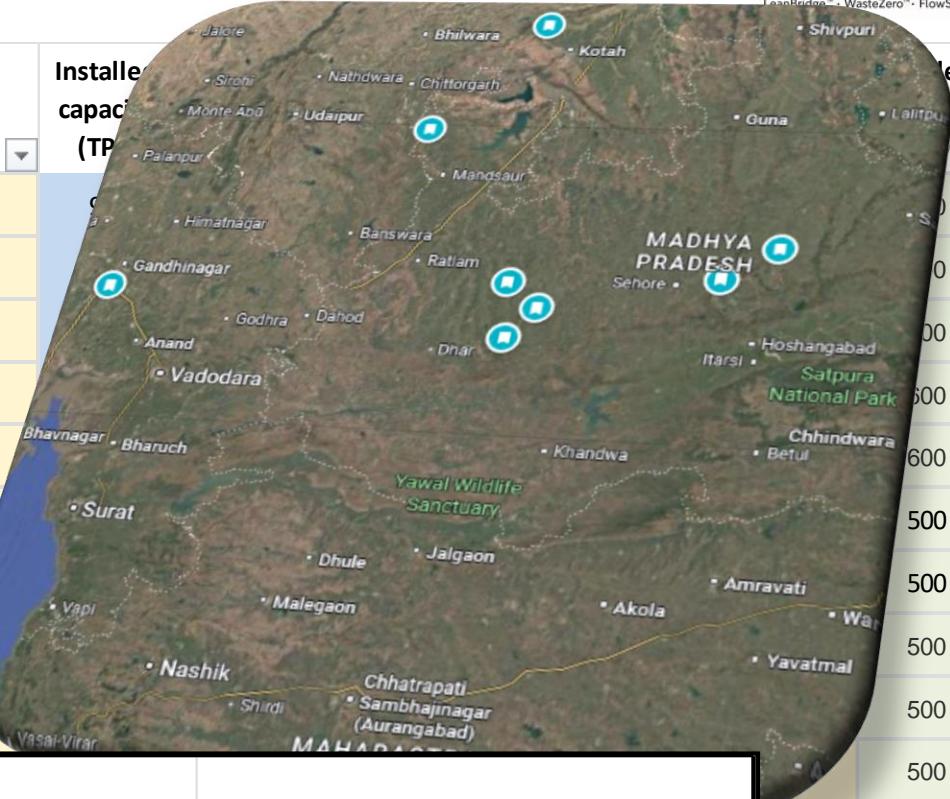
Oilseed, Rapeseed Market Year Begins	2023/2024		2024/2025		2025/2026	
	Oct 2023		Oct 2024		Oct 2025	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
India						
Area Planted (1000 HA)	9250	9250	9300	8950	0	9300
Area Harvested (1000 HA)	9250	9250	8900	8900	0	9250
Crush (1000 MT)	10450	10450	10400	10500	0	10970



Crushing capacity at INDIA

Crushing facilities need to work on efficiencies

Empres	Installed capacity (TPD)	Equivalent capacity (days)	% ASSET UTILIZATION	Number of plants	Category
K.S. Oils Ltd.	1800	High	Green Energy Pvt. Ltd.	1	Small
Laxmi Solvex (A unit of Laxmi Ventures (I) Ltd.)	1500	High	ADM Agro Industries India Pvt. Ltd.	1	Small
Gokul Refoils & Solvent Ltd.	1500	High	Bhaskar Biofuels Pvt. Ltd.	1	Small
Gujar Agro Farms Pvt. Ltd.	1400	Medium	Krishna Oil Extractions Ltd.	1	Small
AVI Agri Business Pvt. Ltd.	1375	Medium	Sam Industries Ltd.	1	Small
Vippy Industries Ltd.	1200	Medium	Tinna Oils & Chemicals Ltd.	1	Small
Kriti Nutrients Ltd.	1200	Medium	Maharashtra Oil Extractions Pvt.	1	Small
M.P. State Coop.Oilseed Growers Federation Ltd.	1200	Medium	Sneha Foods and Feeds Ltd.	1	Small
Prestige Agro-Tech Ltd.	1200	Medium	Bansal Extraction & Exports Pvt.	1	Small



MULTISEED PLANTS in INDIA

	Installed capacity (TPD)	Equivalent capacity (days)	% ASSET UTILIZATION	Number of plants	td.
Soybean	69000	146	42%	140	500
Rapeseed	58650	186	53%	90	500
Cotton	48300	168	48%	46	500



ARGENTINA & INDIA



LACK OF OILSEED PRODUCTION COMPARED WITH INSTALLED CAPACITY

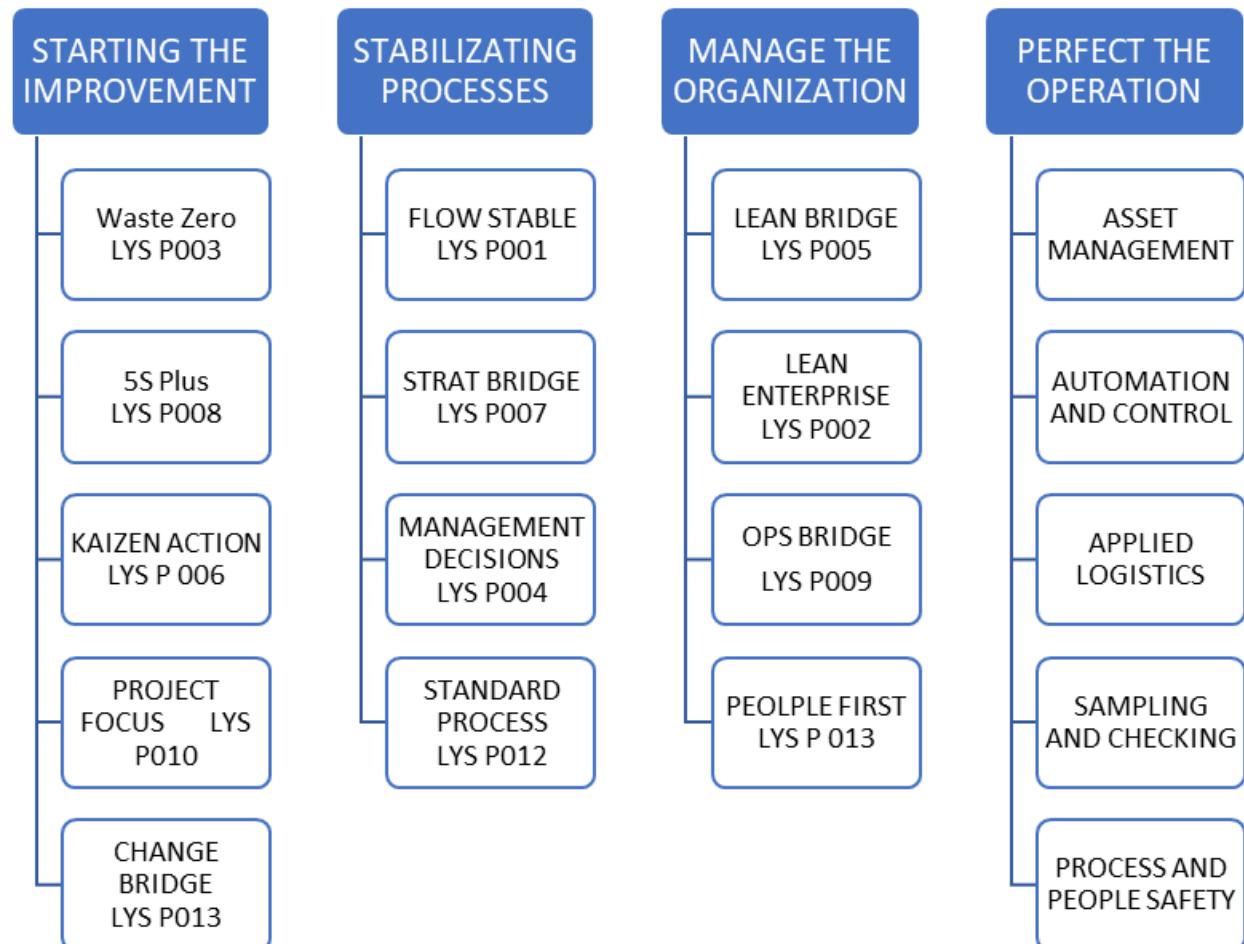


We all need to work on Efficiencies because is the only raw material that never runs out



CONTINUOUS IMPROVEMENT TOOLKIT

***“There’s no Plug and Play solution.
Everything has to be adapted to the
necessities of the client”***



TECHNICAL AND BUSSINES CHALLENGES FOR ARGENTINA AND INDIA

Waste and OverCost:

- Storage conditions
- Overdrying
- Losses in meal quality (oil content, protein), Oil losses (yield and quality)
- Negative mass balance (Dry Base Shrink)

Process Variability

- Throughput Real-time monitoring
- Automation technology for better control
- SOPs (standard operational practices)
- Maintenance and reliability strategy, key actors to reduce unplanned stoppages.

LEAN

+

6 Sigma

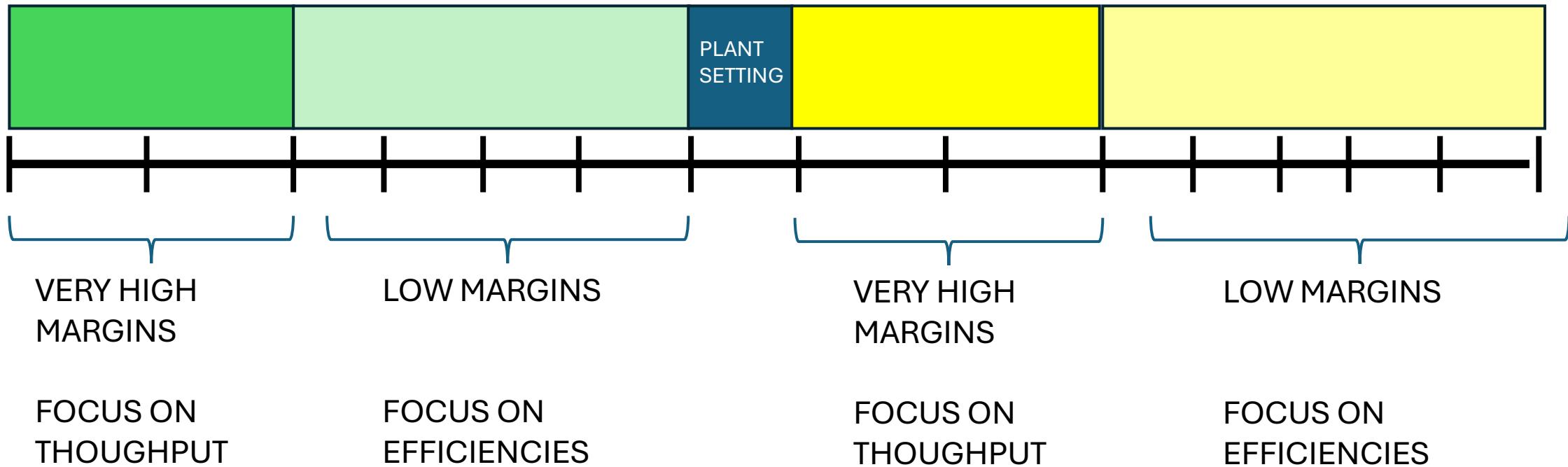


Process Variability:

- To be consistent and stable during crushing production season

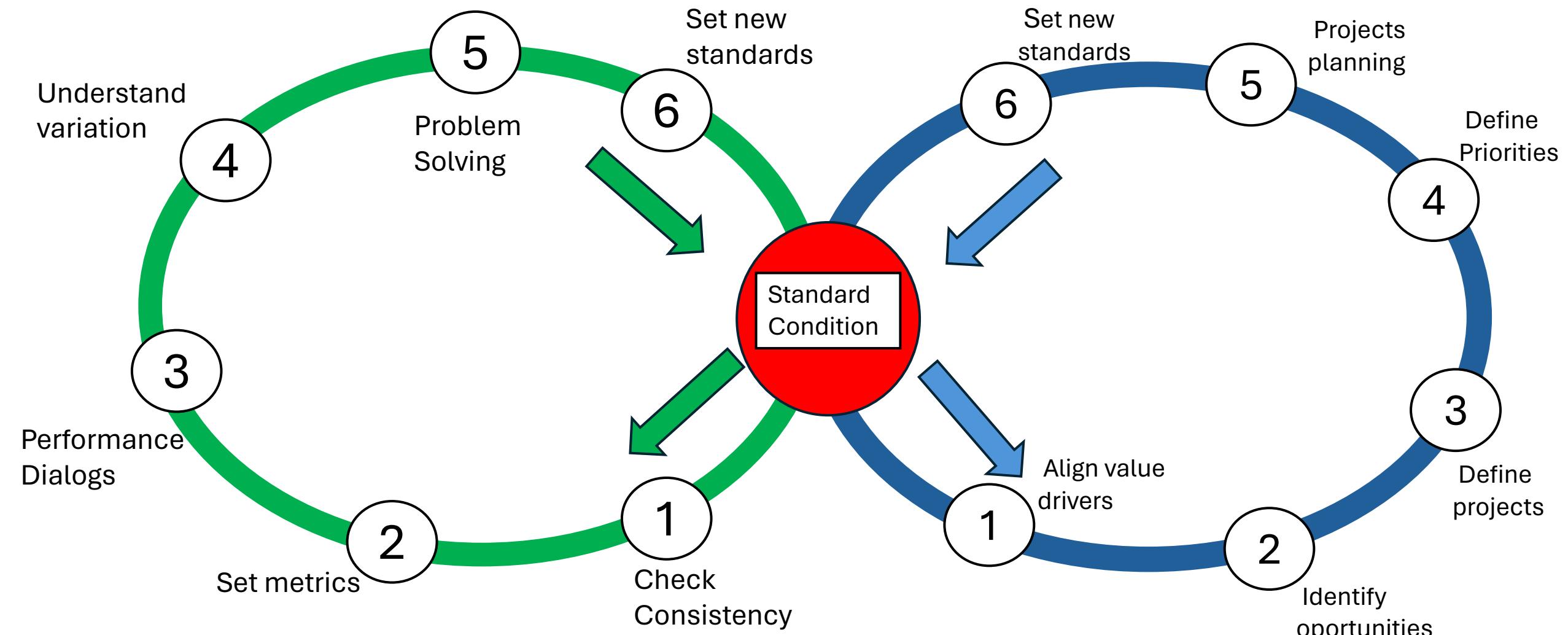
CRUSHING CALENDAR (Regardless country or régión)

SOY BEAN HARVEST PERIOD SOY BEAN OUT OF HARVEST PERIOD RAPE BEAN HARVEST PERIOD RAPE BEAN OUT OF HARVEST PERIOD



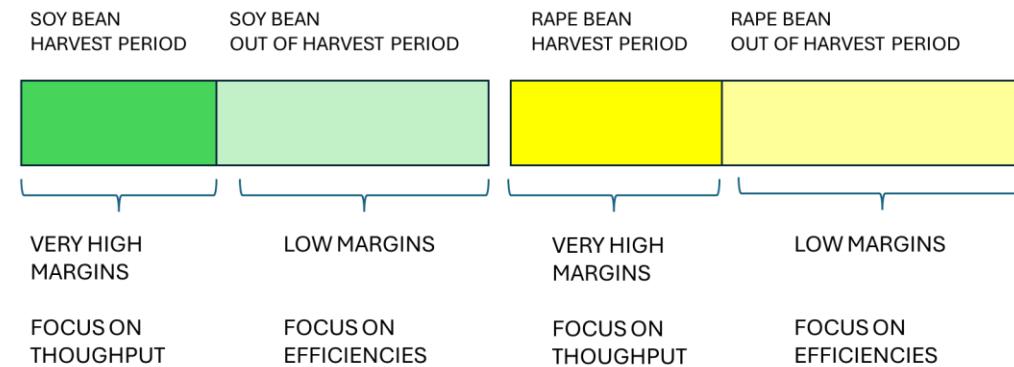
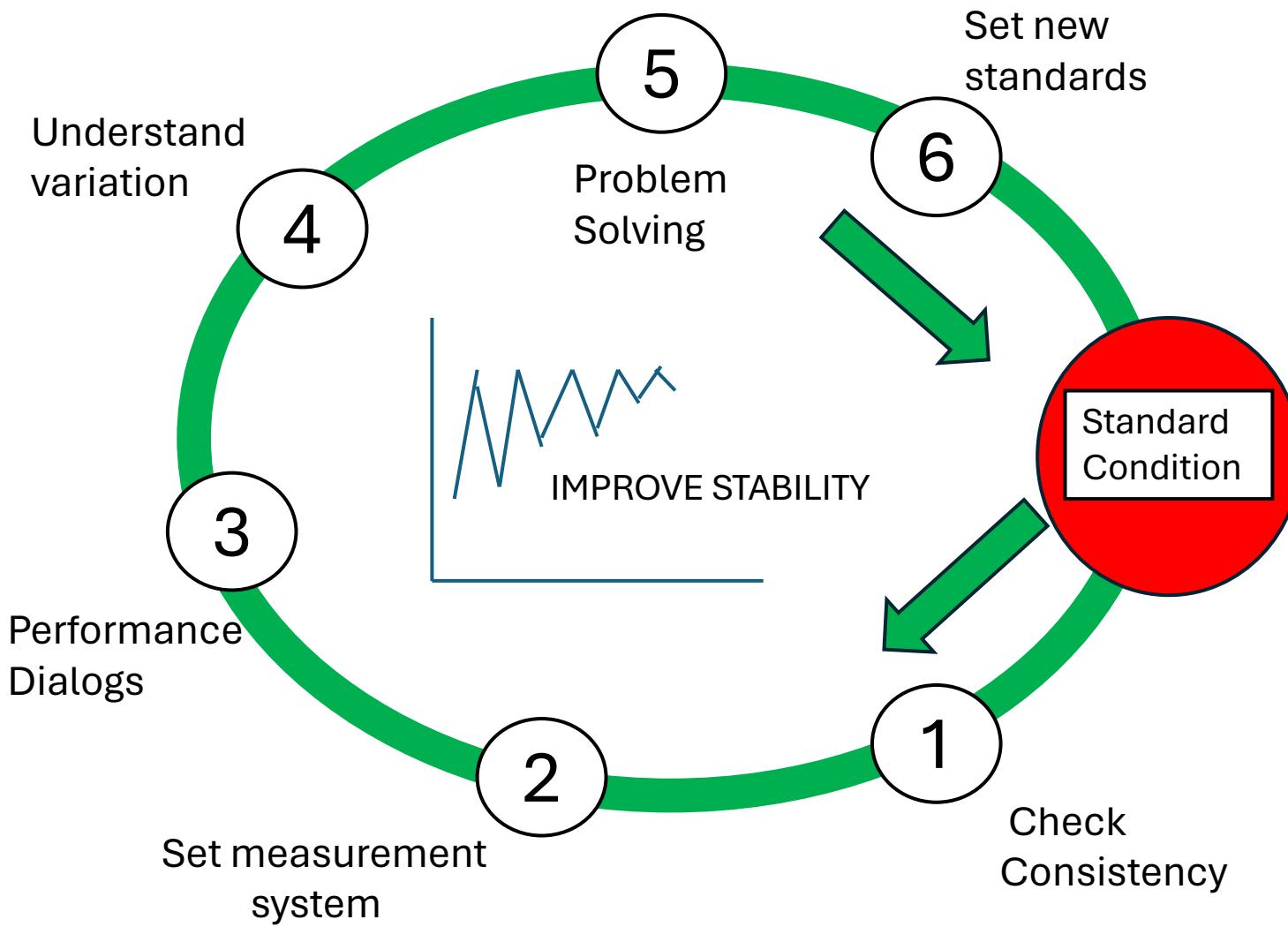
DAILY IMPROVEMENT CYCLE (Tactical)

PROJECT IMPROVEMENT CYCLE (Strategic)



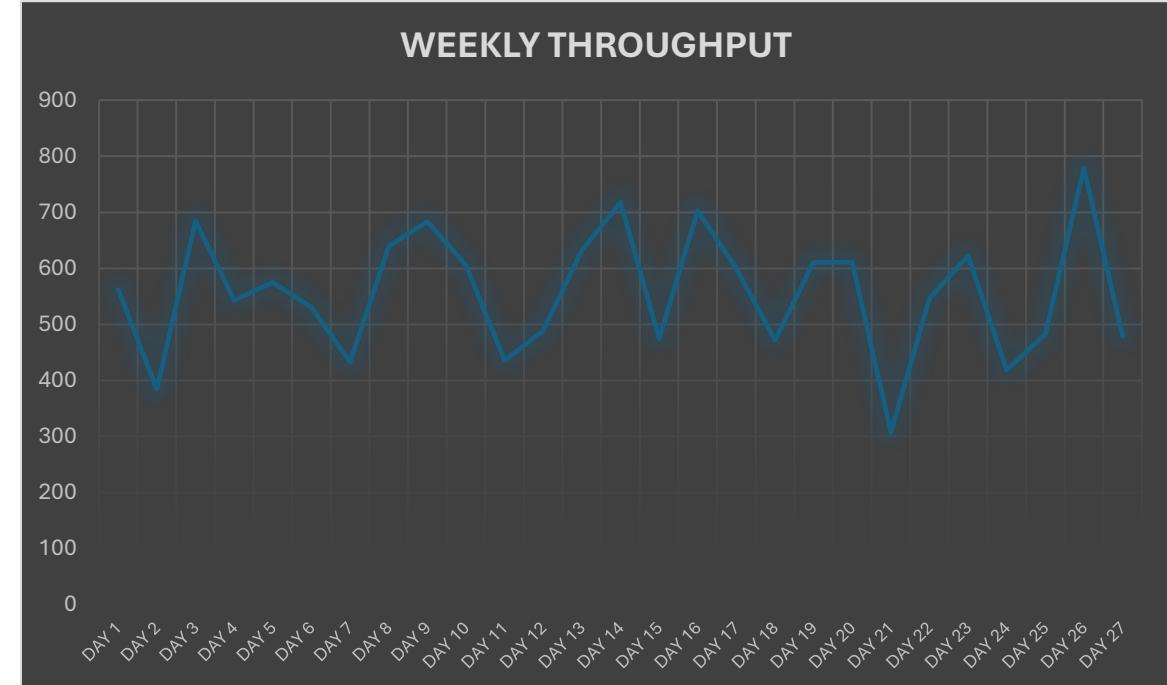
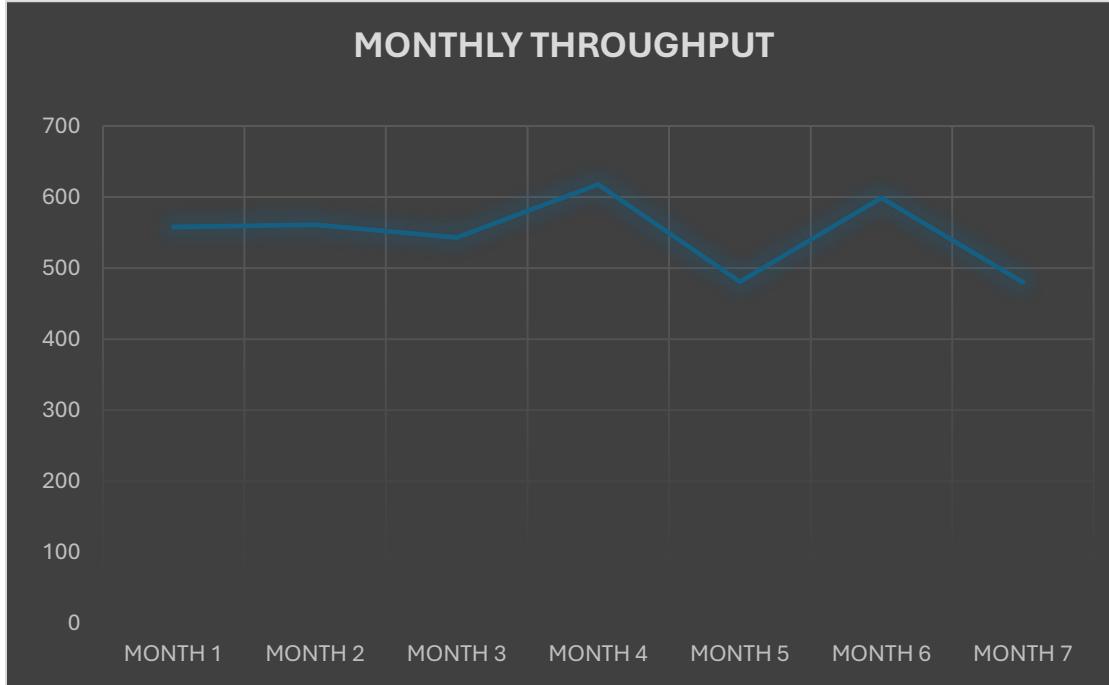
CONTINUOUS IMPROVEMENT INFINITY LOOP

DAILY IMPROVEMENT CYCLE (Tactical)



CONTINUOUS IMPROVEMENT INFINITY LOOP

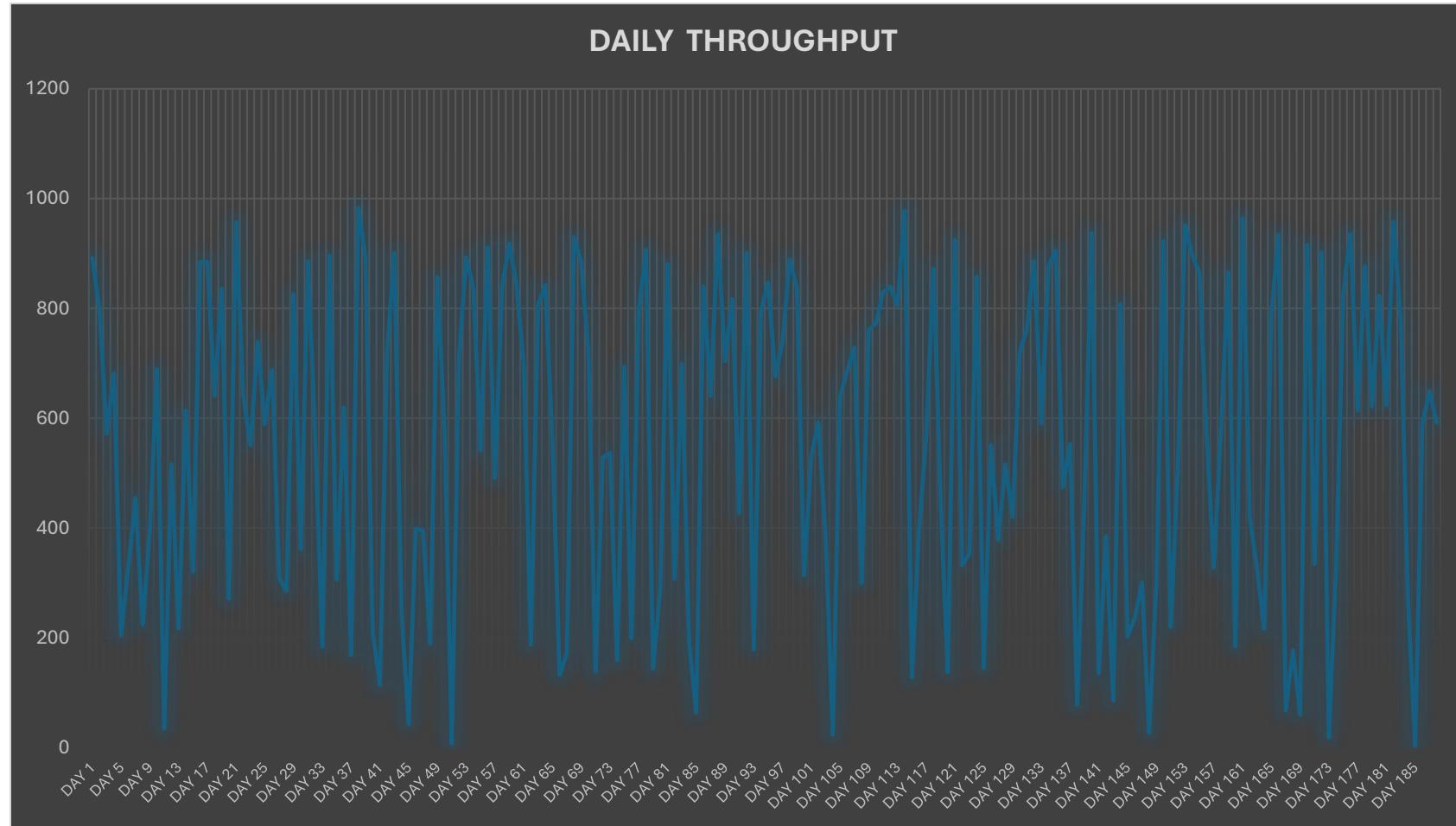
TO IMPROVE STABILITY IS THE GOAL



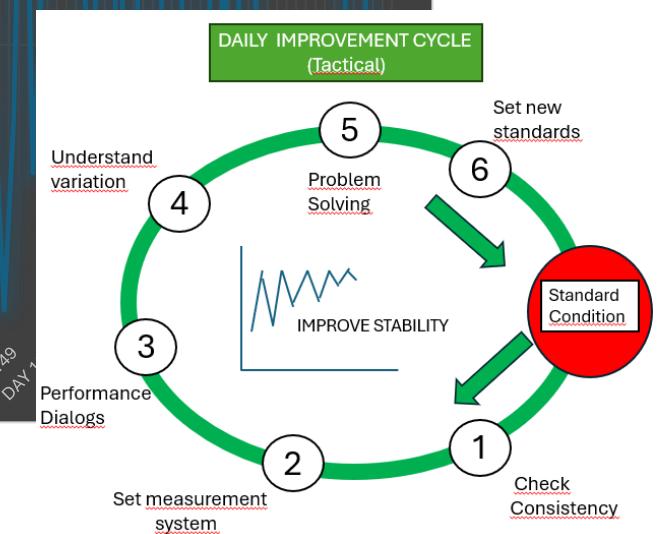
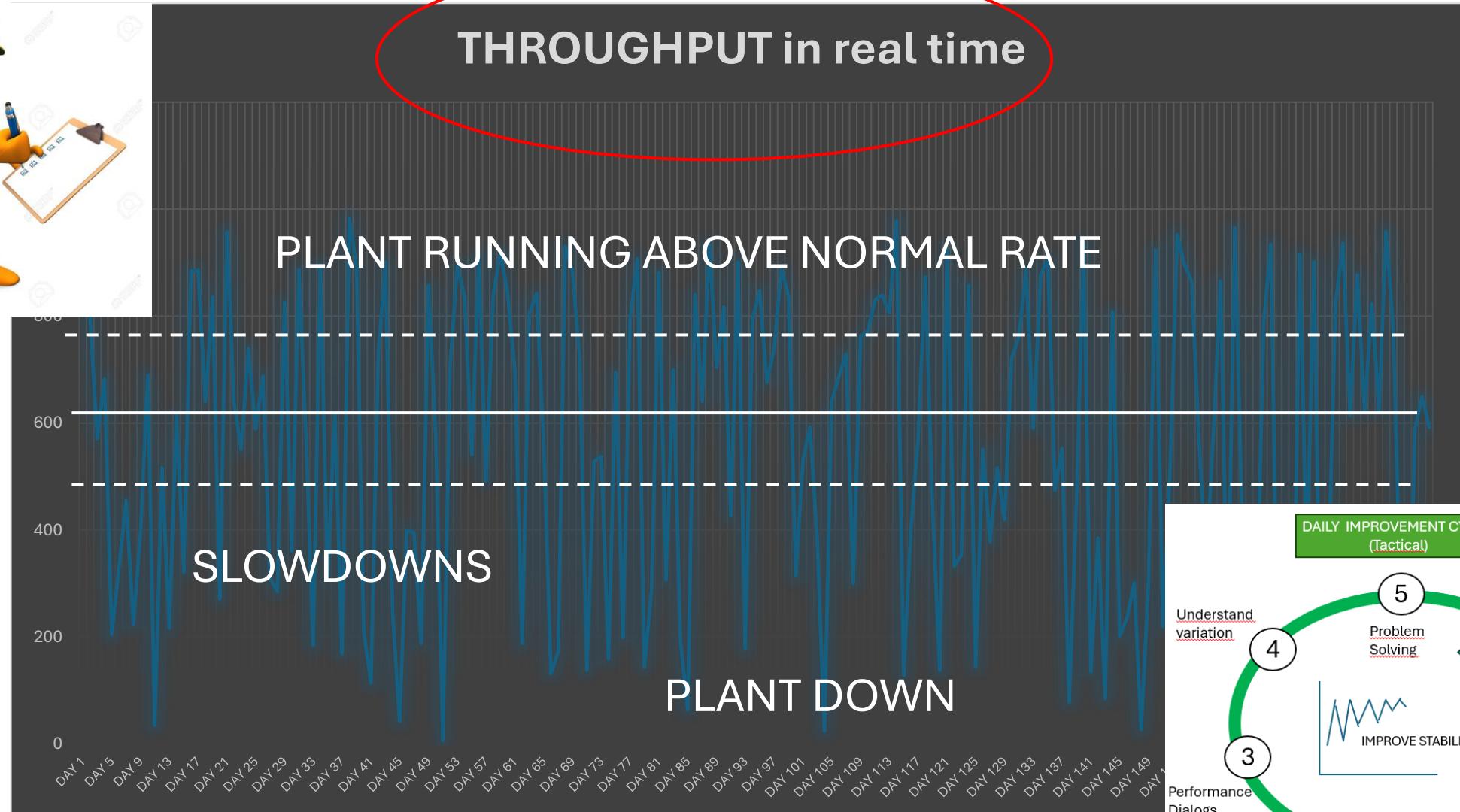
**PLANT MANAGER
VIEW**

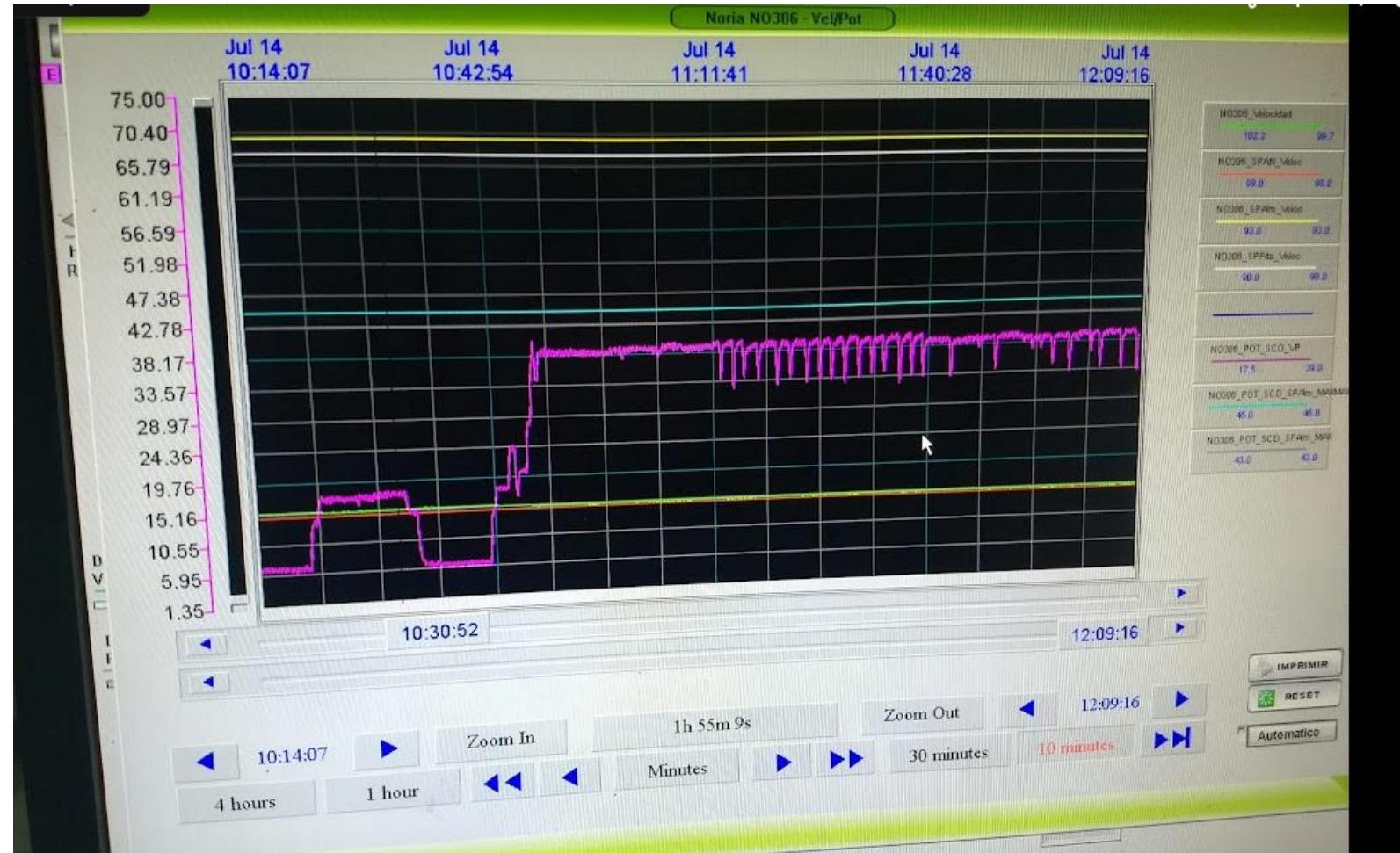
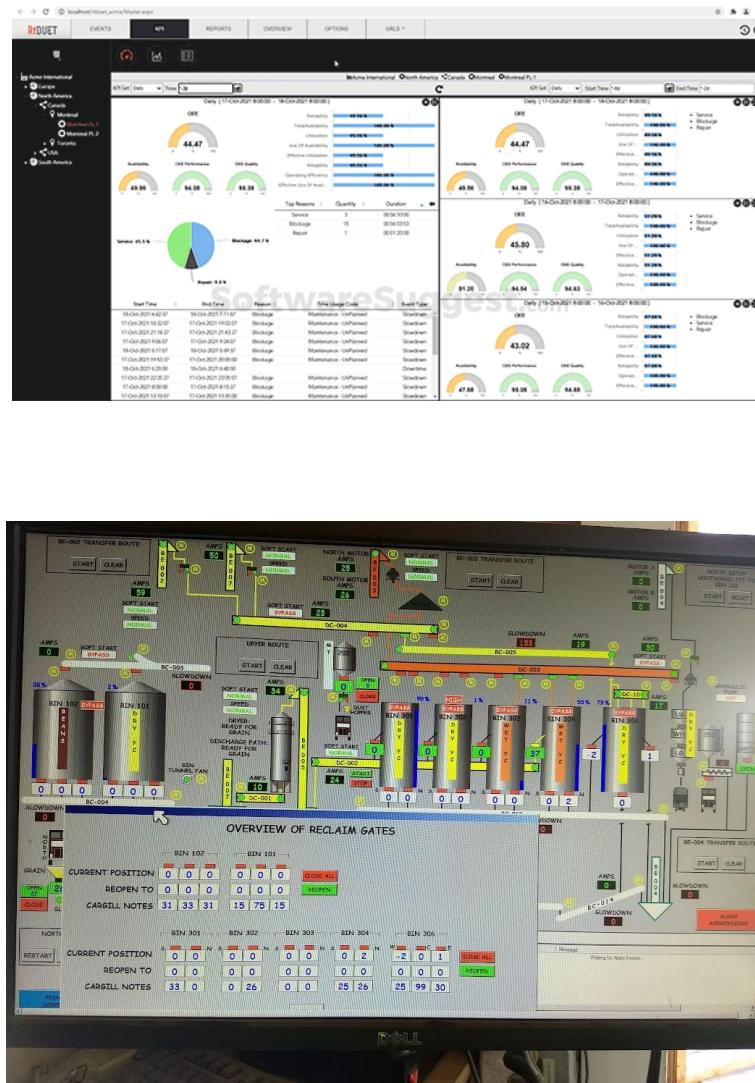
**PLANT SUPERVISOR
VIEW**





**PLANT OPERATORS
REALITY**

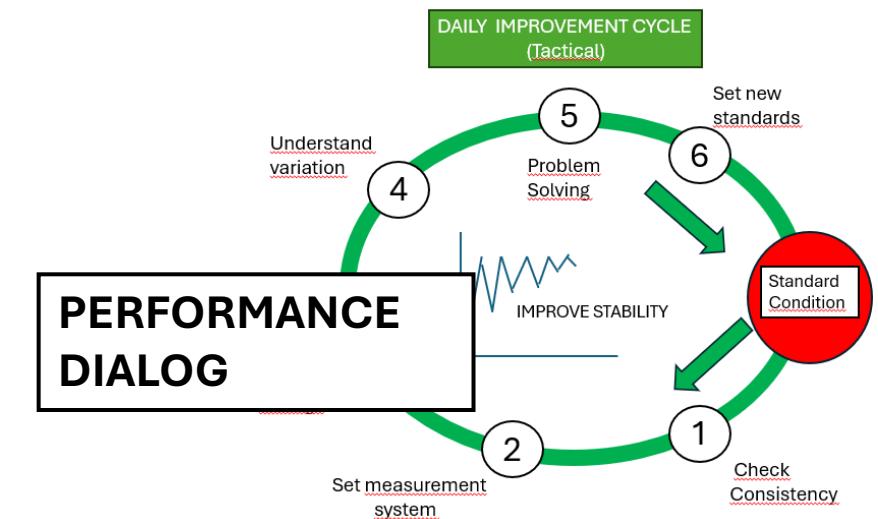


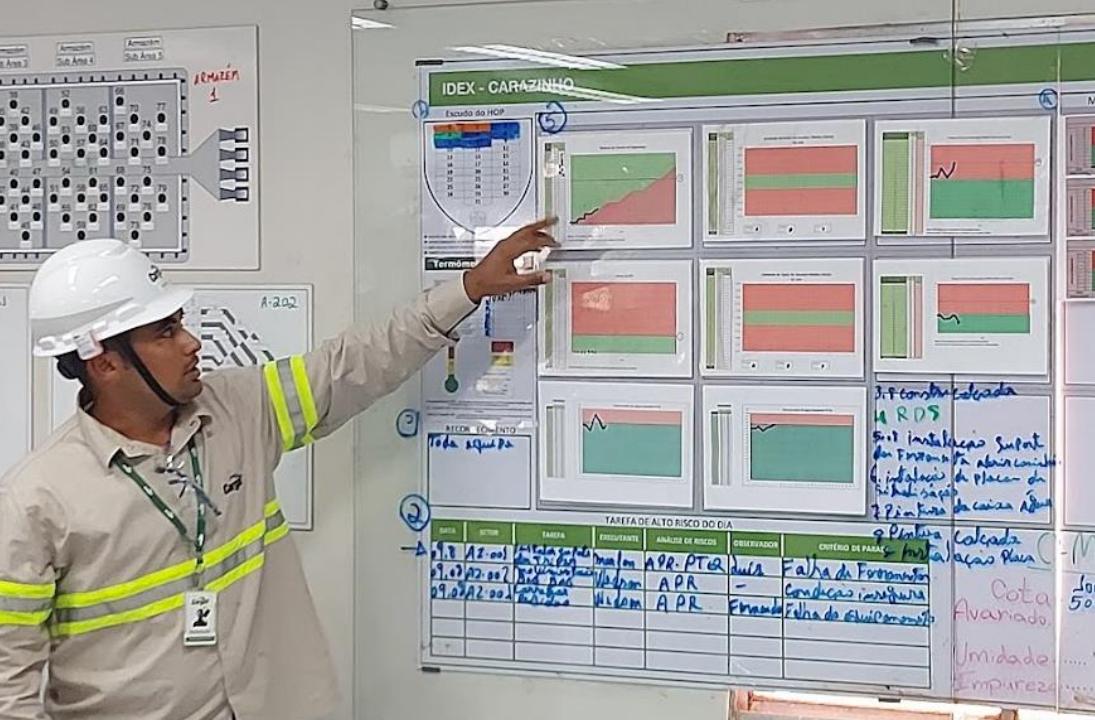


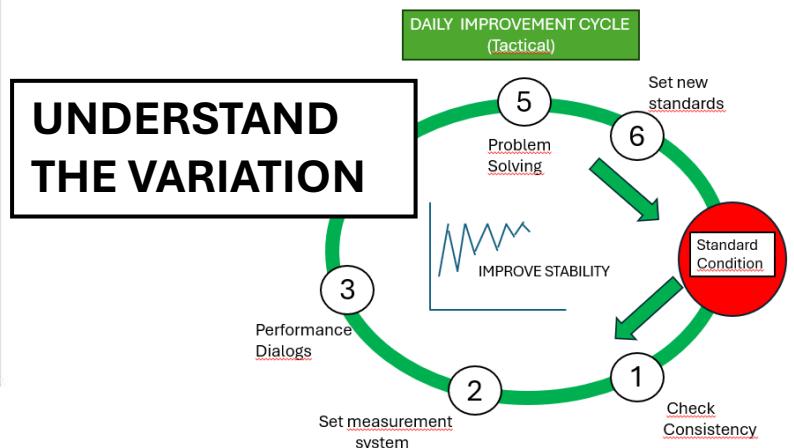
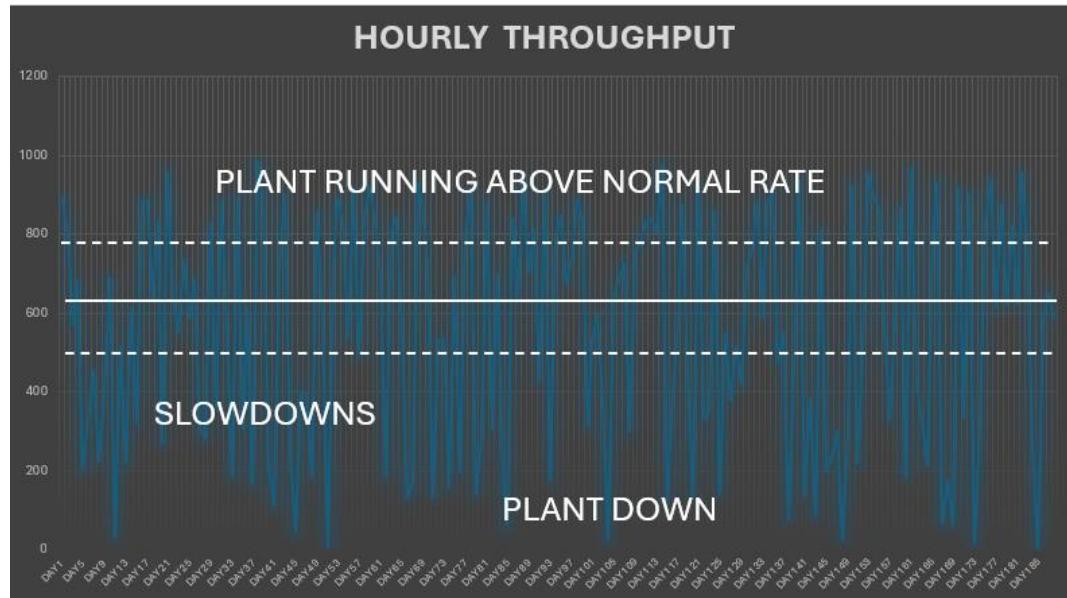
**REDARLESS THE TECHNOLOGY , THE PLANT
NEED TO READ THE MAIN VARIABLES IN REAL
TIME (OR CLOSE TO REAL)**

DAILY CONTACT

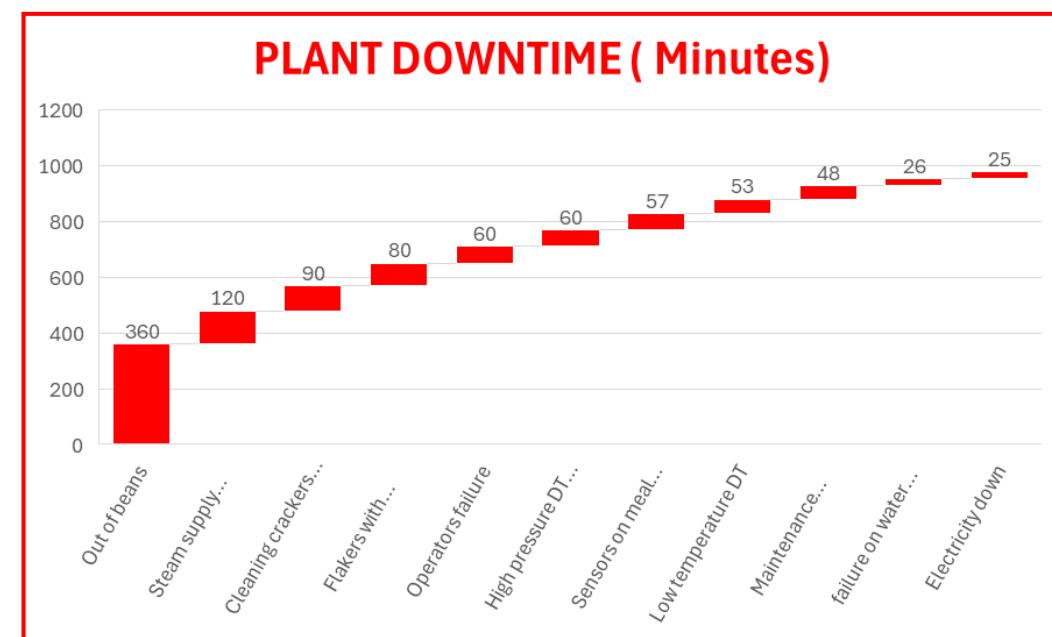
lead by Operators



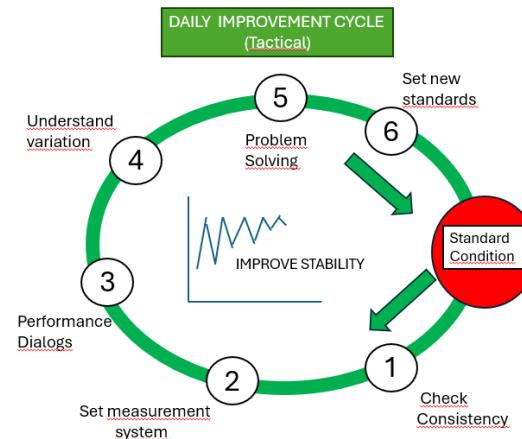
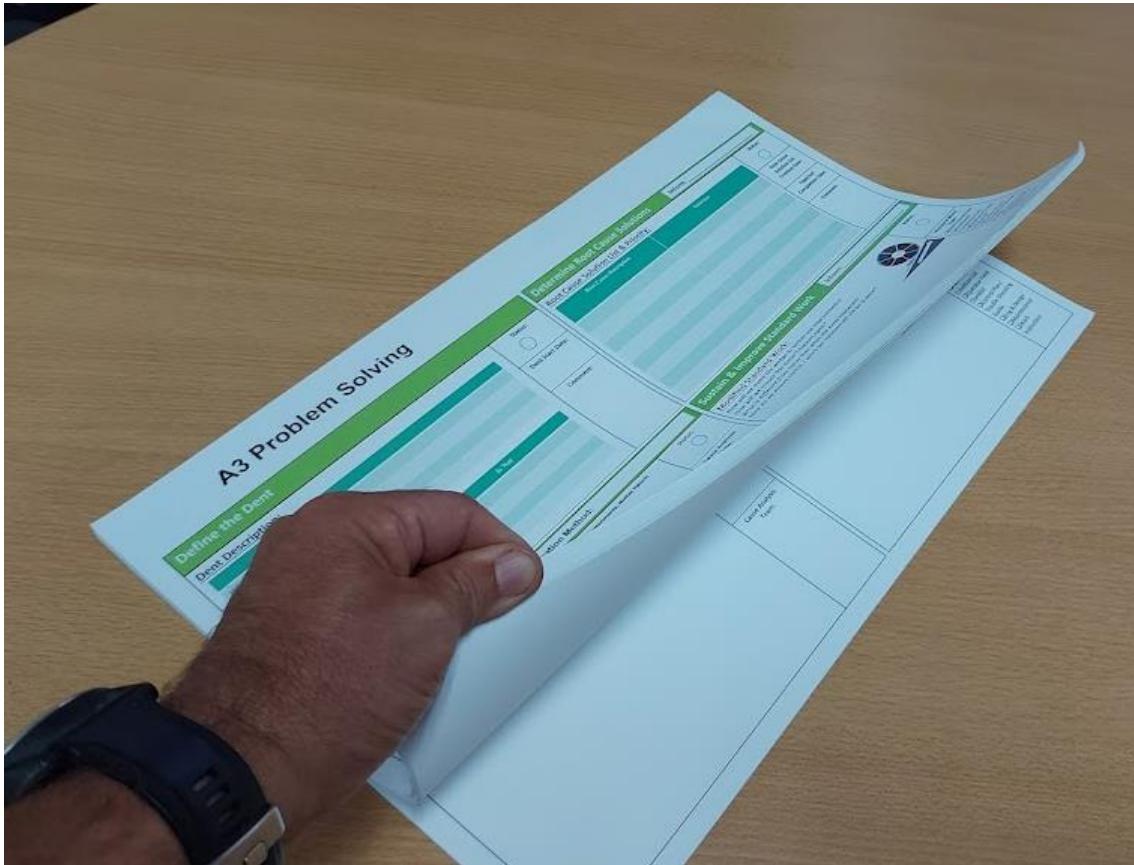




	Minutes
Out of beans	360
Steam supply problems	120
Cleaning crackers magnets	90
Flakers with problems on rolls	80
Operators failure	60
High pressure DT dome	60
Sensors on meal conveyor	57
Low temperature DT	53
Maintenance schedule downtime	48
failure on water pumps	26
Electricity down	25

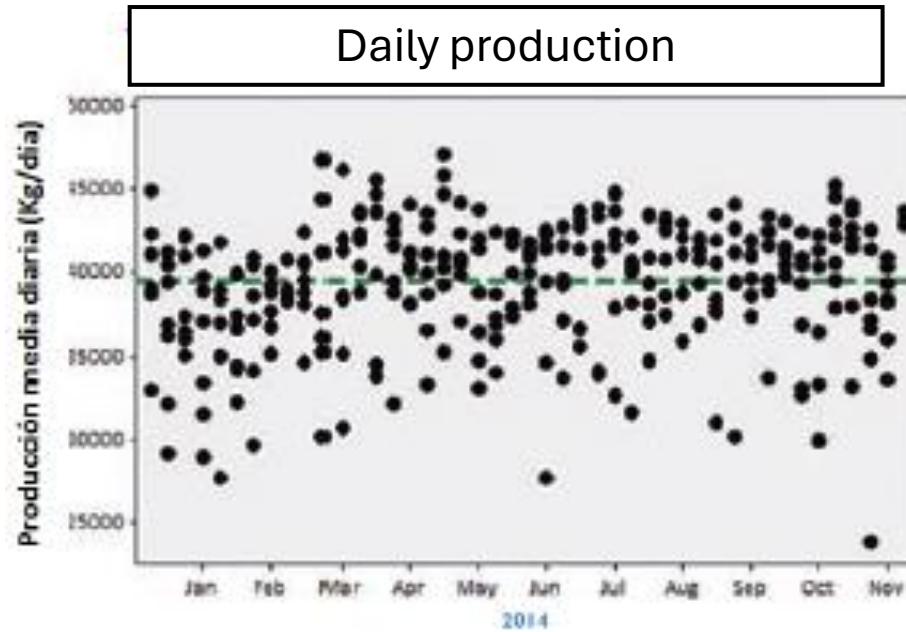


WEEKLY TROUBLESHOOTING SESSIONS

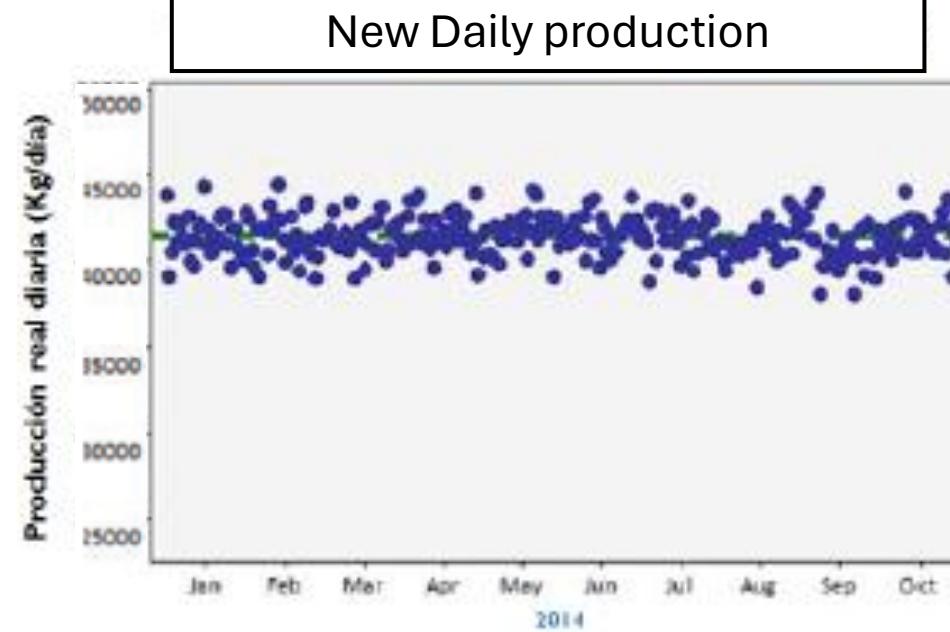


✓ No CAPEX Required

Benefits



BEFORE



AFTER

✓ STABILITY = more VOLUME in same period of time



15%

COST REDUCTION



25%

PRODUCTIVITY IMPROVEMENT

✓ STABILITY = COST REDUCTION & PEOPLE ENGAGEMENT

PART II . WASTE REDUCTION



Defects

Efforts caused by rework,
scrap and incorrect information



Overproduction

Production that is more than
needed or before it is needed



Waiting

Wasted time waiting for
the next step in a process



Non-Utilized Talent

Underutilizing people's talents,
skills & knowledge.



Transportation

Unnecessary movements
of products & materials.



Inventory

Excess products and materials
not being processed.



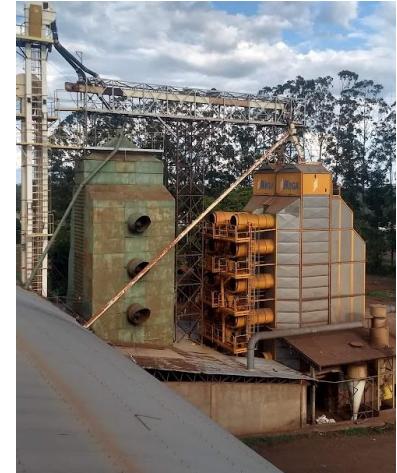
Motion

Unnecessary movements
by people (ex.walking).

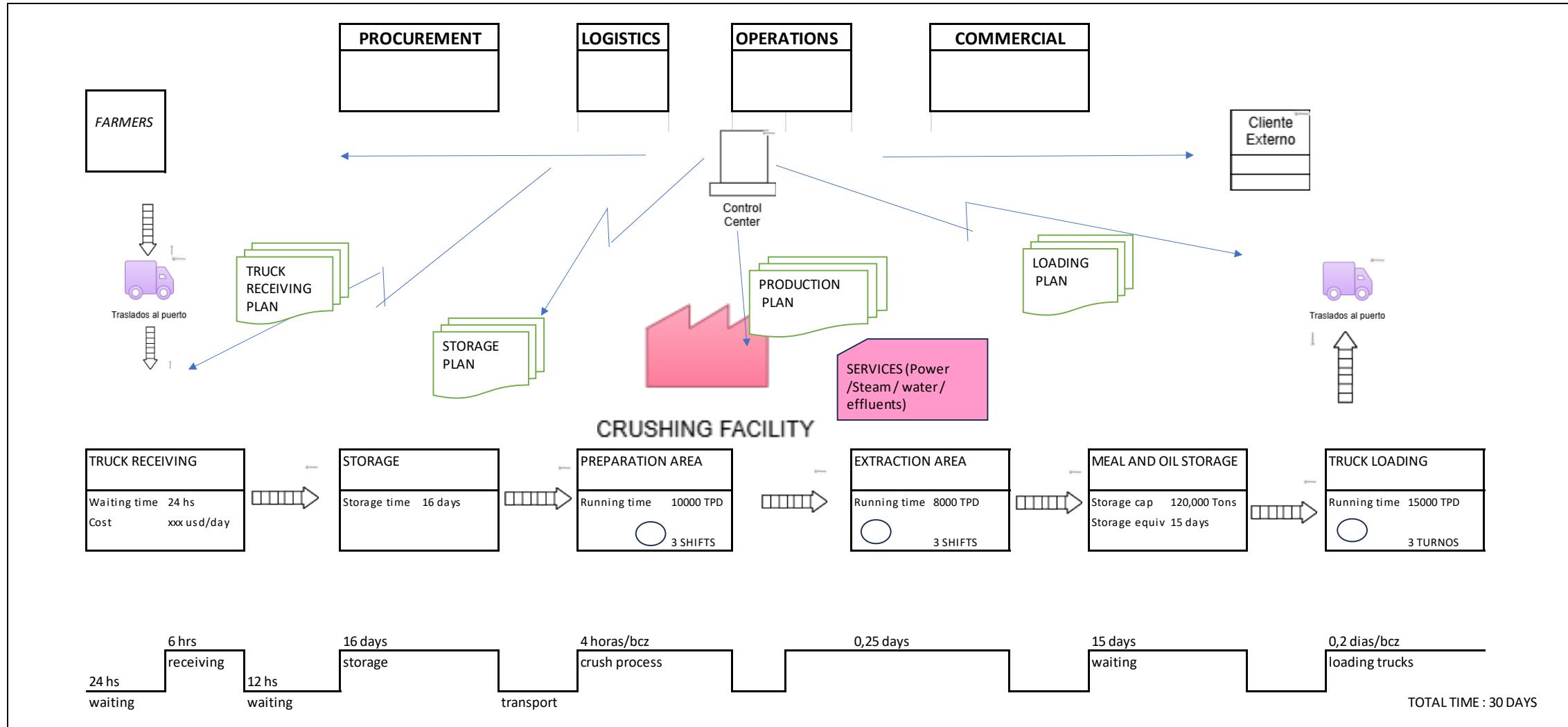


Extra-Processing

More work or higher quality
than is required, by the
customer.

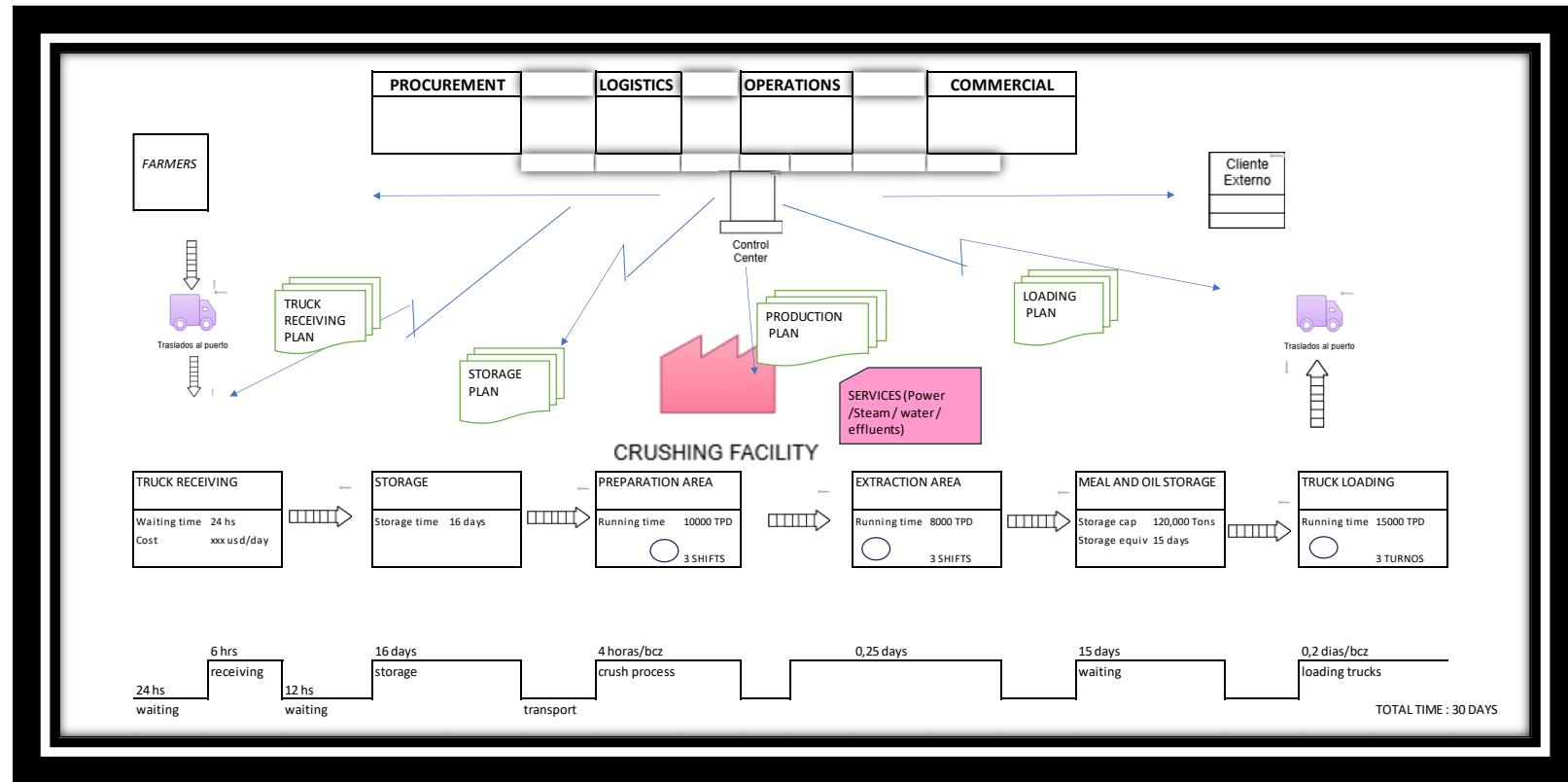


CRUSHING BUSINESS - VALUE STREAM MAP

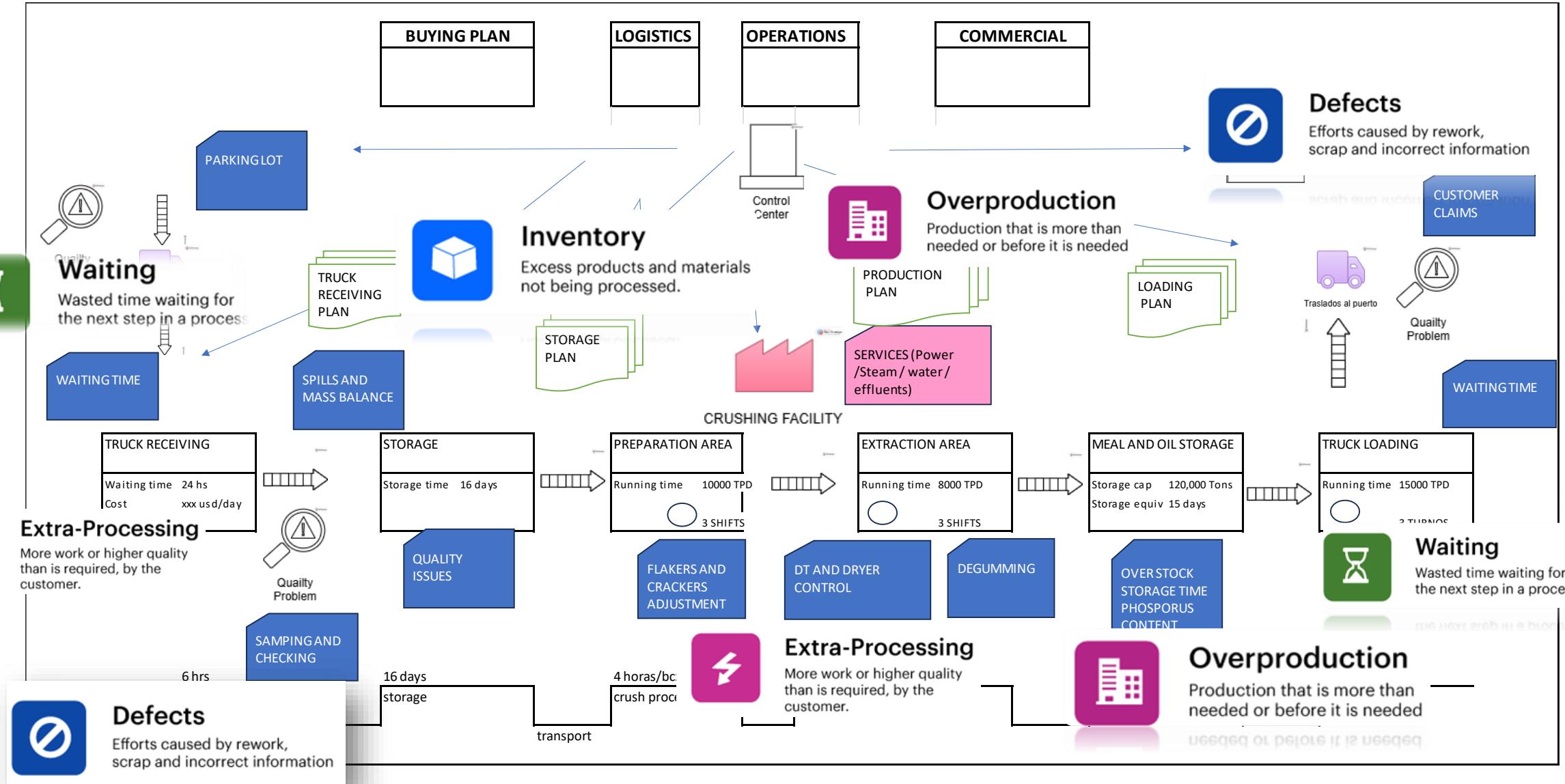


VALUE STREAM MAP - GEMBA WALK

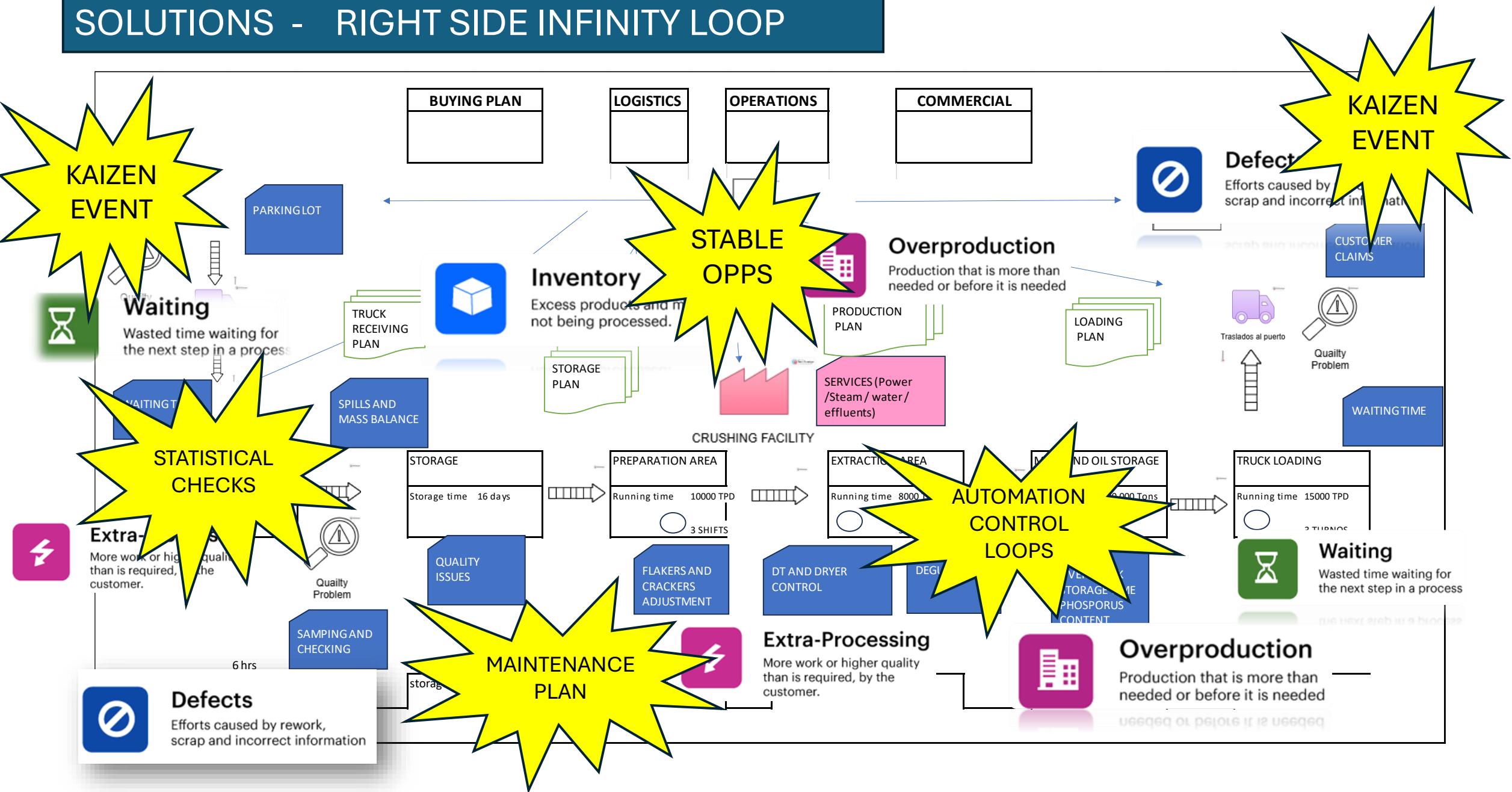
A *Gemba Walk* is a structured visit to the workplace, where leaders go to the “real place” of value creation to observe processes, engage with employees, and identify opportunities for improvement.



VALUE STREAM MAP - GEMBA WALK



SOLUTIONS - RIGHT SIDE INFINITY LOOP



	Defects Efforts caused by rework, scrap and incorrect information		Overproduction Production that is more than needed or before it is needed		Transportation Unnecessary movements of products & materials.		Inventory Excess products and materials not being processed.
	Waiting Wasted time waiting for the next step in a process		Non-Utilized Talent Underutilizing people's talents, skills & knowledge.		Motion Unnecessary movements by people (ex.walking).		Extra-Processing More work or higher quality than is required, by the customer.

Description	Waste found	Business Area	Variable analyzed	Cost reduction	Additional income	Next steps
Soybean moisture above spec	Overprocessing	Drying at source	Moisture and impurities	X		Control plan for drying and loading
Waiting for UNLOAD TRUCKS	waiting time	Plant receiving area	waiting time	X		Comprehensive planning
Sampling and checking	Production problem	Receiving and Admin	Quality checks	X	X	Statistical practices
warehousing	Over stock	Storage	Working capital Storage time	X	X	Inventory management Process Safety Procedures
Crackers rolls	Not cracking according too much hulls poor thickness control	Preparation	Beans sizing	X	X	Kaizen event with Maintenance team
Dehulling system			Aspiration pressure	X	X	Kaizen event with Maintenance team
Flakers			flaker thickness	x	x	Operations team training
Throughput			Not covering commercial plan		X	Stable operations
Meal drying system	overdryng	Extraction	Meal moisture	X	X	Stable operations

TECHNICAL AND BUSSINES CHALLENGES FOR ARGENTINA AND INDIA

Raw Material Issues:

CRITICAL FOR COMMERCIAL OPPORTUNITIES, BEANS CONSERVATION AND PLANT YIELDS

Downtime:

CRITICAL TO ENSURE RELIABLE SUPPLY TO CUSTOMERS

Process Variability:

CRITICAL FOR STABLE OPERATIONS AND SLIMSTREAM EFFECTS

Waste and OverCost:

CRITICAL FOR PLANT ADJUSTMENTS AND “JUST DO IT” PROJECTS

LYSPAS & CO.

We help companies grow through transformation and continuous improvement.

"From hands-on to big-picture, we create practical, lasting solutions for any business, in any industry."

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Q&A Session