



Corporation UK Division



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# Middle East and Africa District 18<sup>th</sup> Annual Conference

MUSCAT - OMAN



# ADDRESSING THE CHALLENGES OF THE MILLING INDUSTRY

**SERVING  
THE MILLING INDUSTRY**  
Since 1896

Creating the Future  
**SATAKE**

**110<sup>th</sup>**  
ANNIVERSARY

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# WHAT ARE THE CHALLENGES

- **Milling Process Simplification**
- **Increase plant efficiency**
- **Minimise investment cost for new plants**
- **Improve Product Quality**
- **Whiter and cleaner flour**
- **Increase flour extraction**
- **Reduction of Harmful Elements**
- **Lower Wheat Costs**
- **Enhance Nutritional Value of flour**

***Challenges are addressed by***



***SATAKE  
PeriTec  
SYSTEM***

# PeriTec TECHNICAL EVOLUTION

Year	Equipment	Type	Stages
85	KB/IRM	Horizontal	4 – Abrasion/Friction
91	VBW	Vertical	3 – Abrasion
94	VBW	Vertical	2 – Abrasion
96	VCW	Vertical	1 - Combination



# PeriTec



## APPLICATIONS:

- Bread flour
- Biscuit flour
- Starch flour
- Durum semolina

# PeriTec

## APPLICATIONS:

- **New Milling Plant**
- **Existing Plant modernisation**
- **Increasing plant capacity**



# **VCW Debranner**

## **- the Key Machine of PeriTec -**

The “PeriTec” process sequentially strips the bran layers from wheat kernel

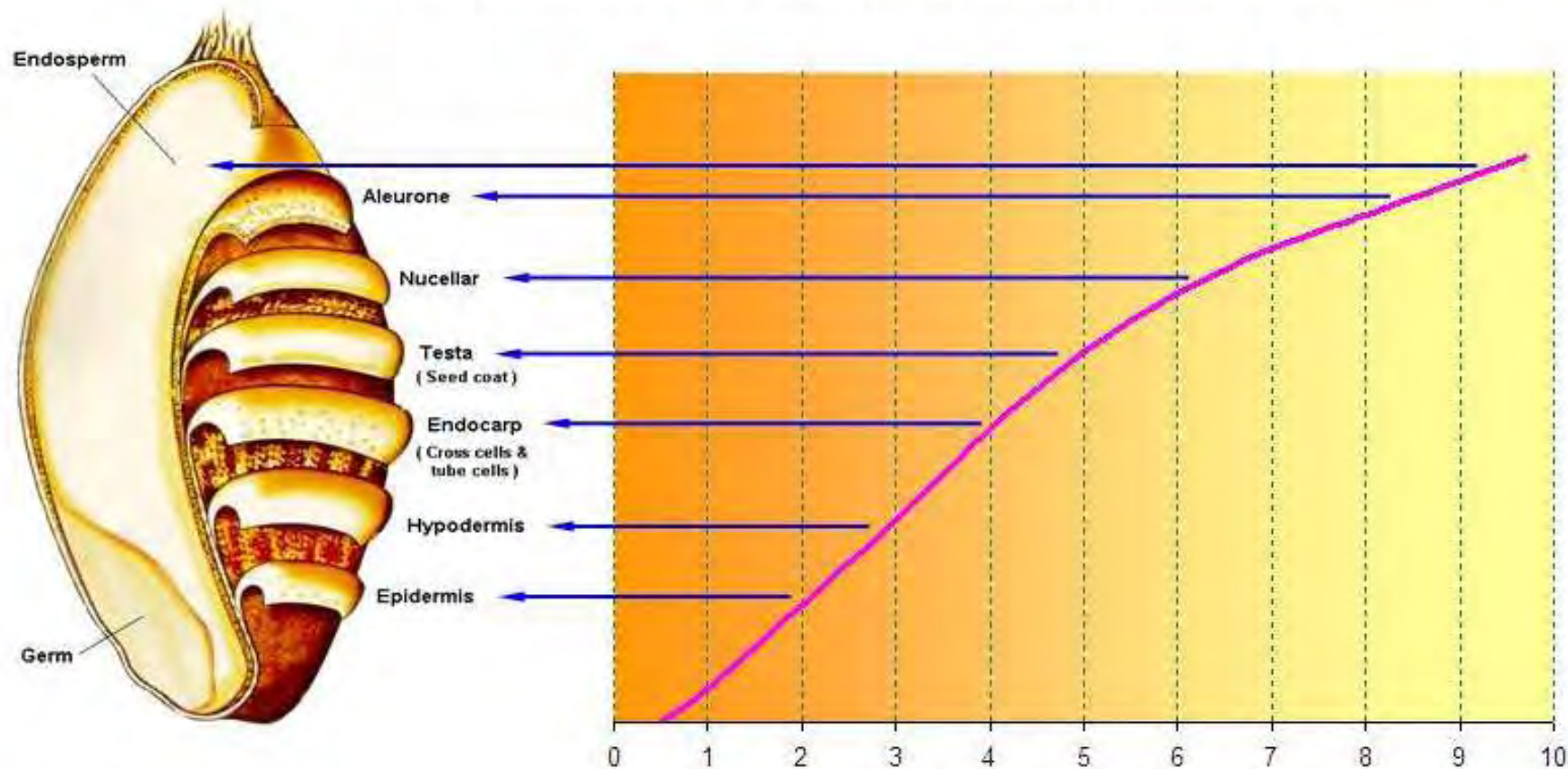
- Allows controlled rate of bran removal
- From 1.0% ~ 8% and even higher if desired.

Minimizes abrasion into the aleurone layer and endosperm



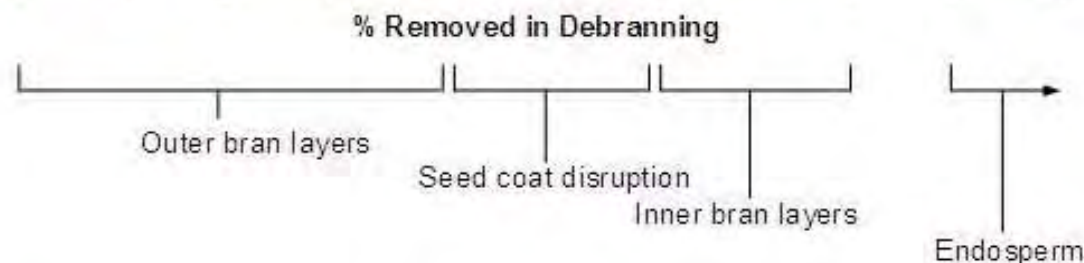


## Depth of Bran Layer Removal in Relation to % Debranning Rate



### Debranning Zones

- Up to 4%: Removes bacteria, pesticides & micro-toxins adhering to outer layers.
- 4~6%: Breaking through the "tough" Seed Coat layer.
- 6.0~7.5%: Removes the final "coloured" bran layers that can effect the colour of the milled flour.
- 7.5~8.5%: Aleurone removal zone.
- >9%: Endosperm loss begins.

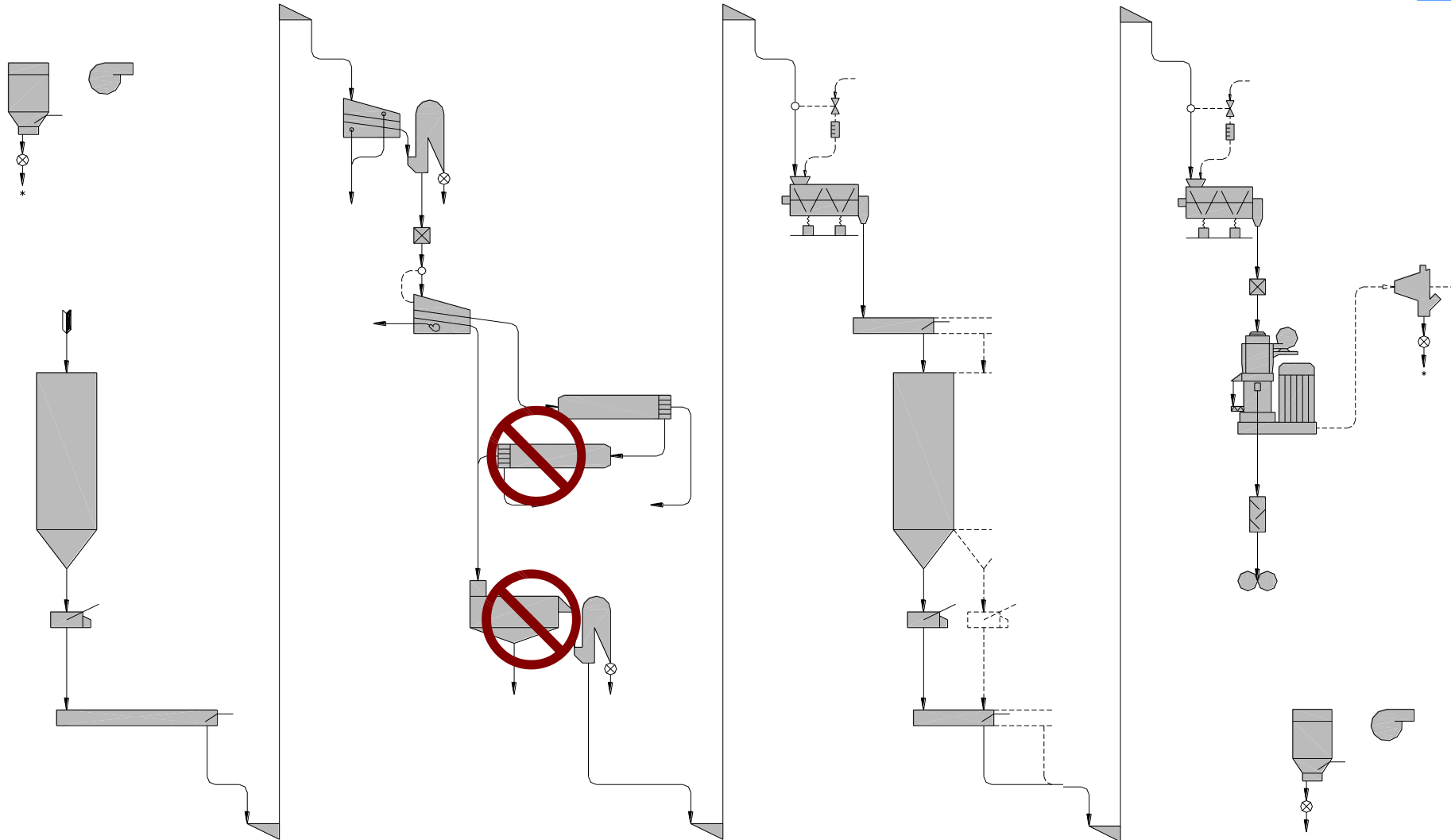


*Note: Percentages are "typical" and may vary slightly dependent on wheat type.*

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# BENEFITS OF PERITEC: SIMPLIFIED CLEANING



***HIGH CAPACITY***

# Colour Sorting Technology



# ALPHASCAN – 25 T/H WHEAT CLEANING

**LOW COST**

**HIGH CAPACITY (25 000 Kg/Wheat Per Hour)**

**OWN SOFTWARE SYSTEM**

**AUTOMATIC CALIBRATION**

**EASY CHUTE CHANGE**

**HIGH RESOLUTION**

**REMOVES DISCOLOURED CONTAMINATION:**

- ERGOT
- BLACK SEEDS
- BLACK TIP GRAIN
- DARK STONES
- LIGHT STONES



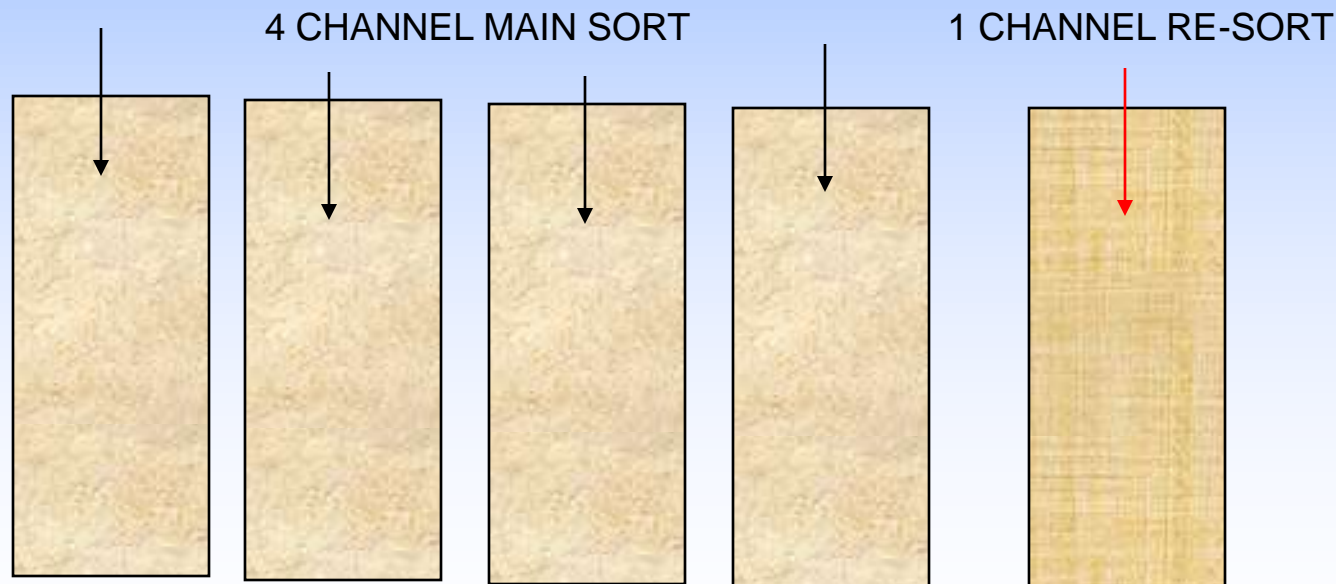


# Re-Sort Facility

5 Channel ALPHASCAN Sorter has optional re-sort facility

4 Channels are used for main sorting

Reject product is sorted again on 5<sup>th</sup> channel to recover much of the good grain that may have been rejected on the first sort.



# FRENCH DURUM

**INCOMING PRODUCT: 8000 kg/hr**



**ACCEPT AFTER RESORT: 99.09%**



**REJECT: 0.91%**



# ENGLISH SOFT WHEAT

**INCOMING PRODUCT: 12 000 kg/hr**



**ACCEPT (NO RESORT): 99.2%**



**REJECT: 0.80%**

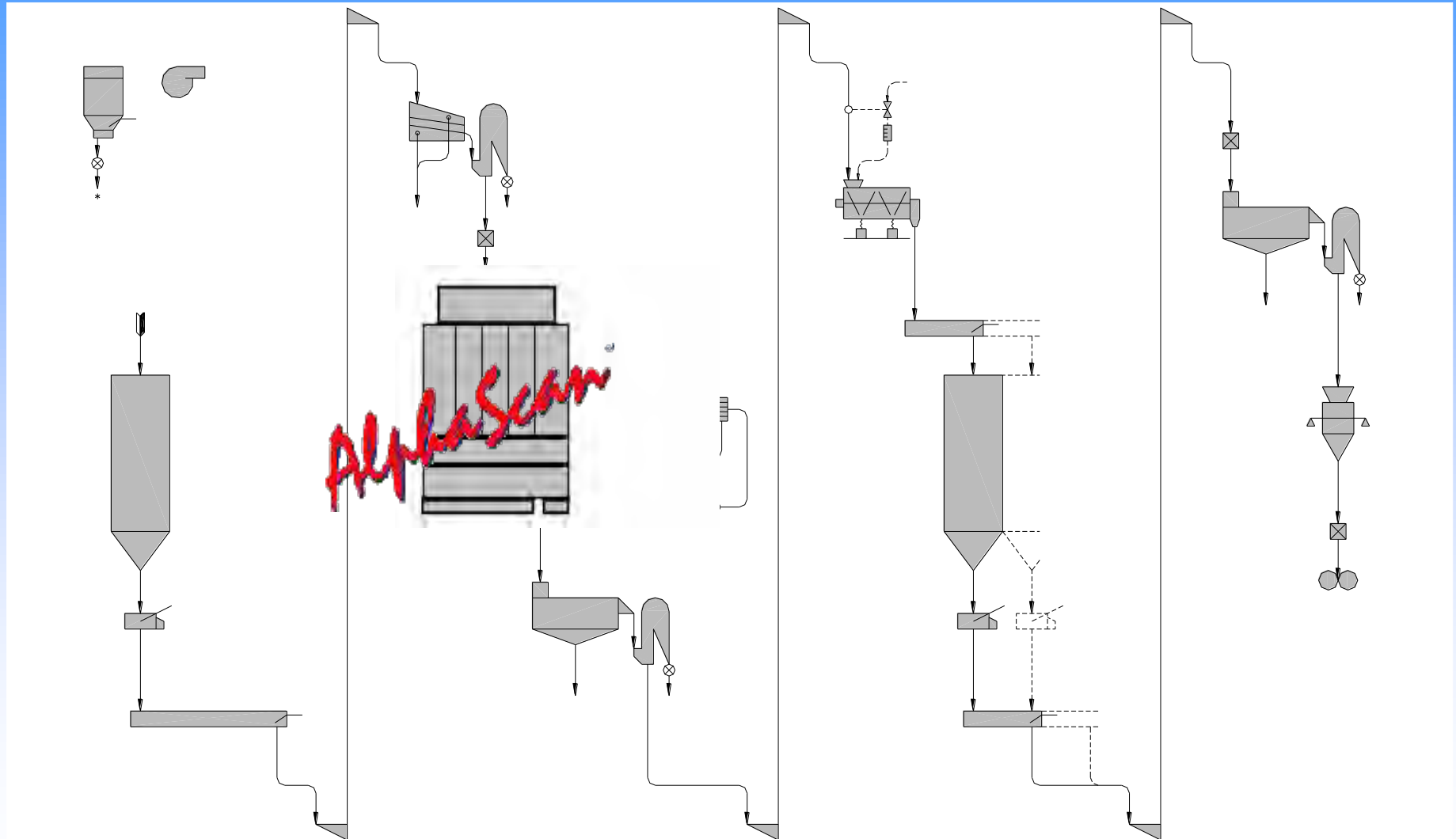


# COLOUR SORTING

- WHERE IN THE CLEANING PLANT FLOW IS THE COLOUR SORTER USED ?

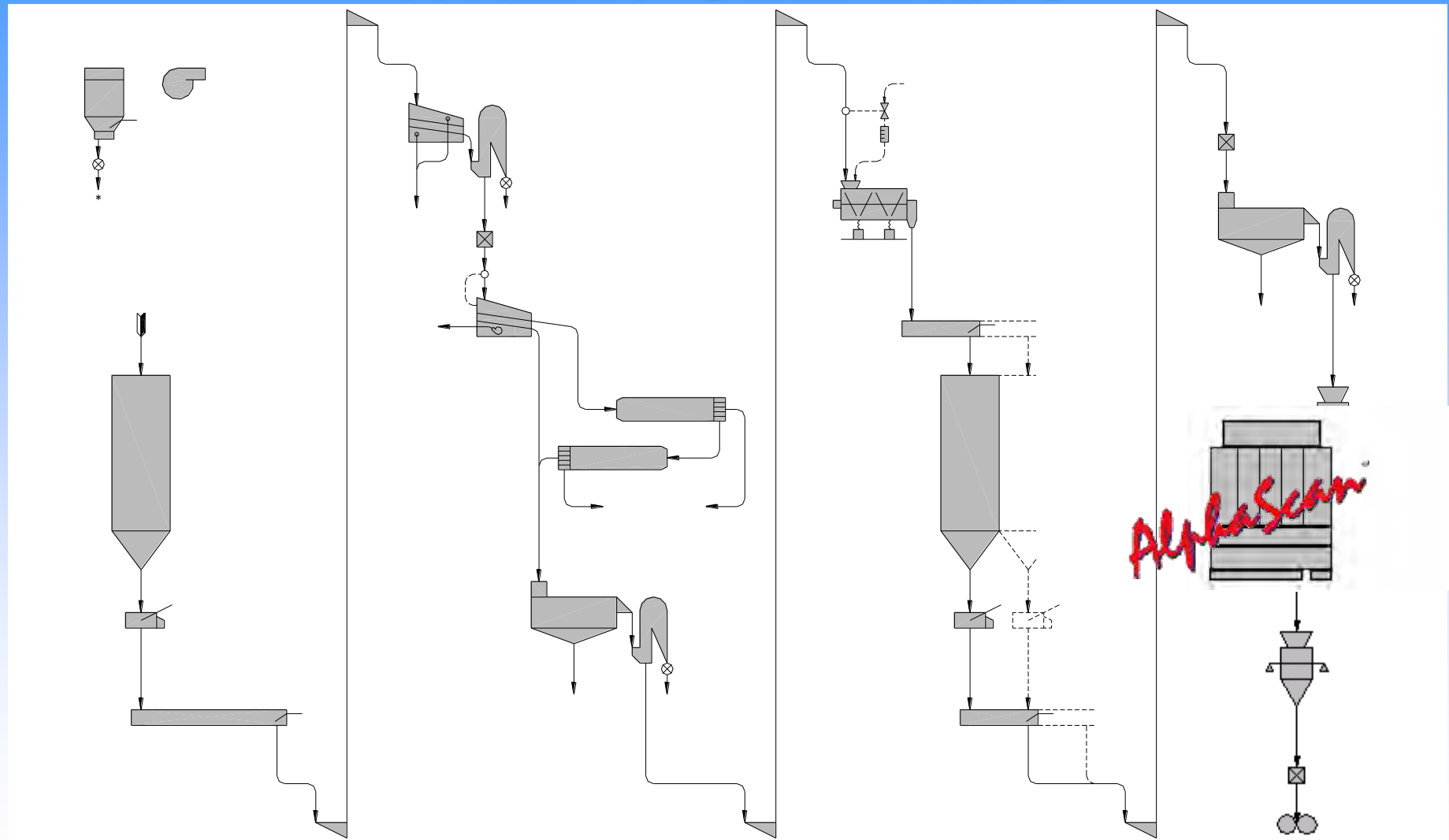


# COLOUR SORTING IN WHEAT CLEANING





# COLOUR SORTING IN WHEAT CLEANING



# INSTALLATIONS

## Grain Silos



## Mills

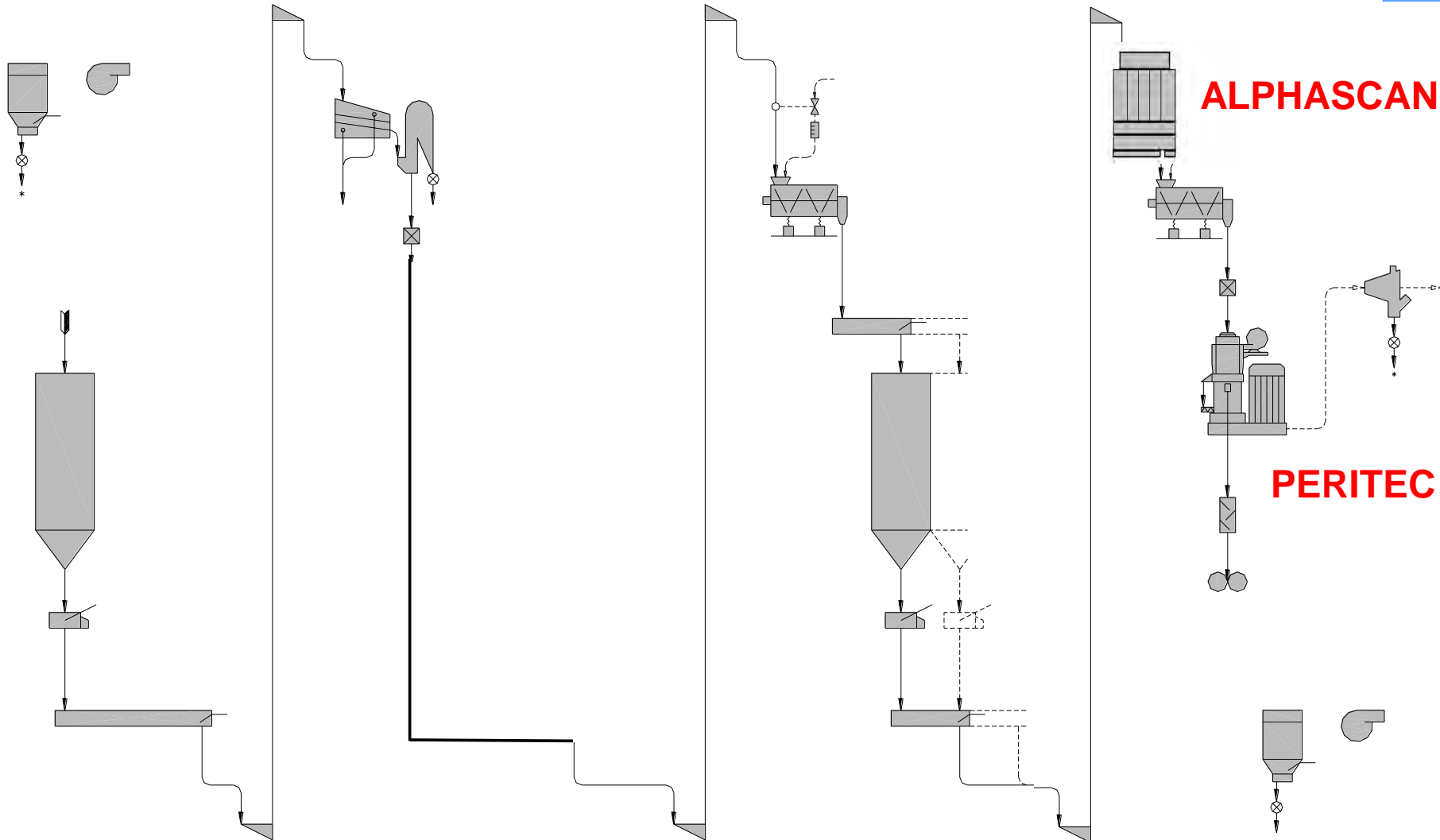




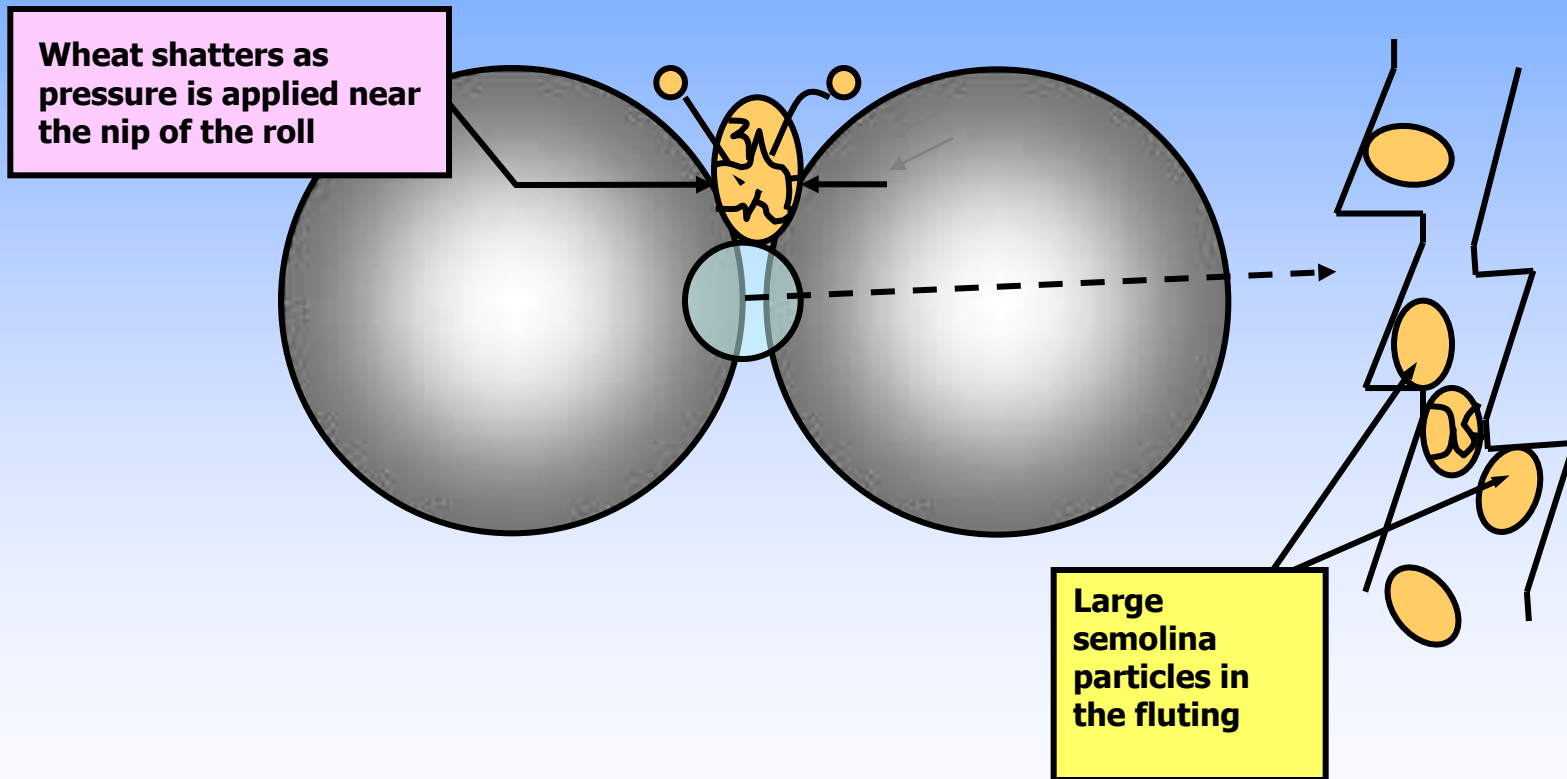
**Even Mobile Cleaning !**

**SATAKE**

# WHEAT CLEANING IS SIMPLIFIED WITH "PERITEC" DEBRANNING AND COLOUR SORTING

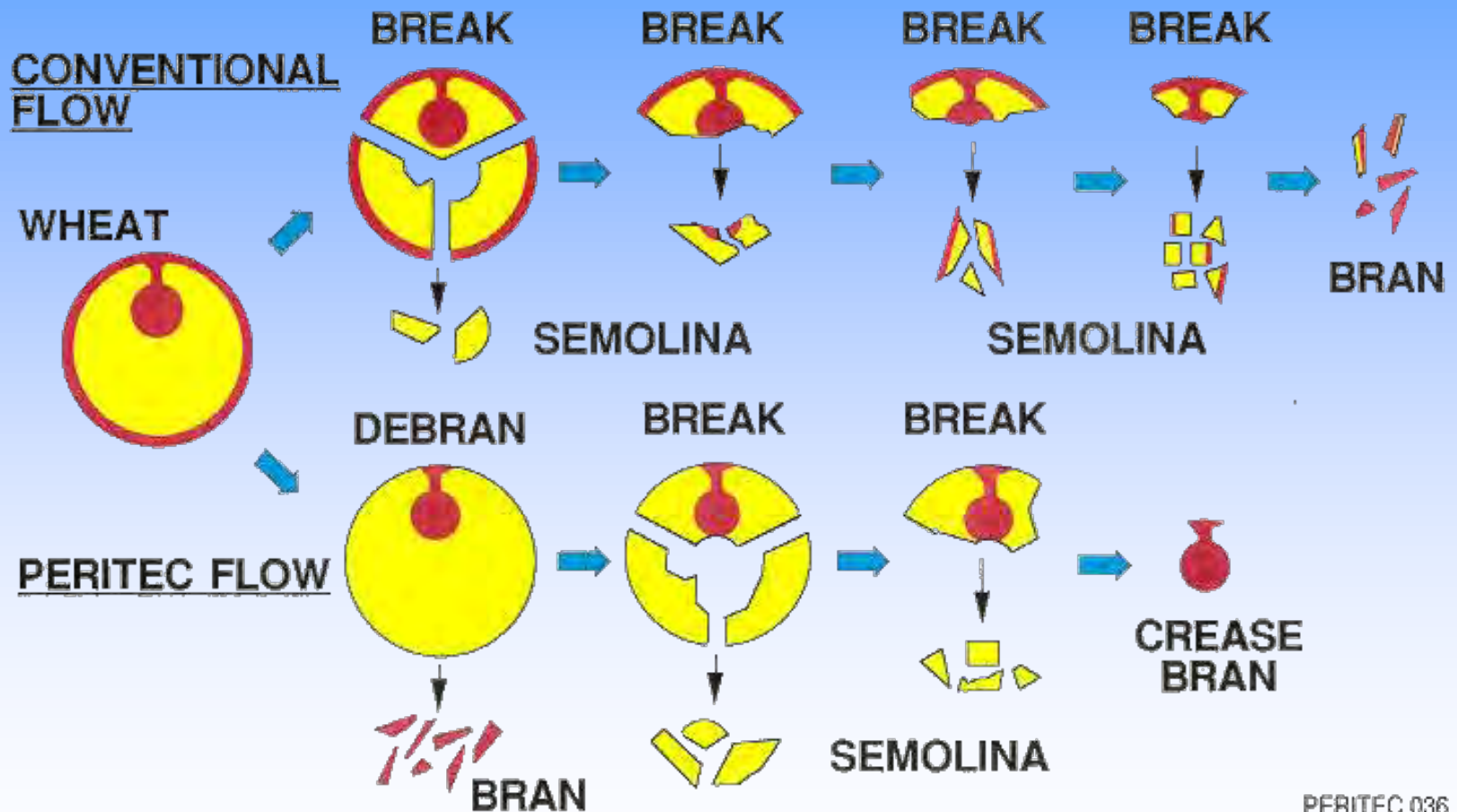


# Milling of "PeriTec" process



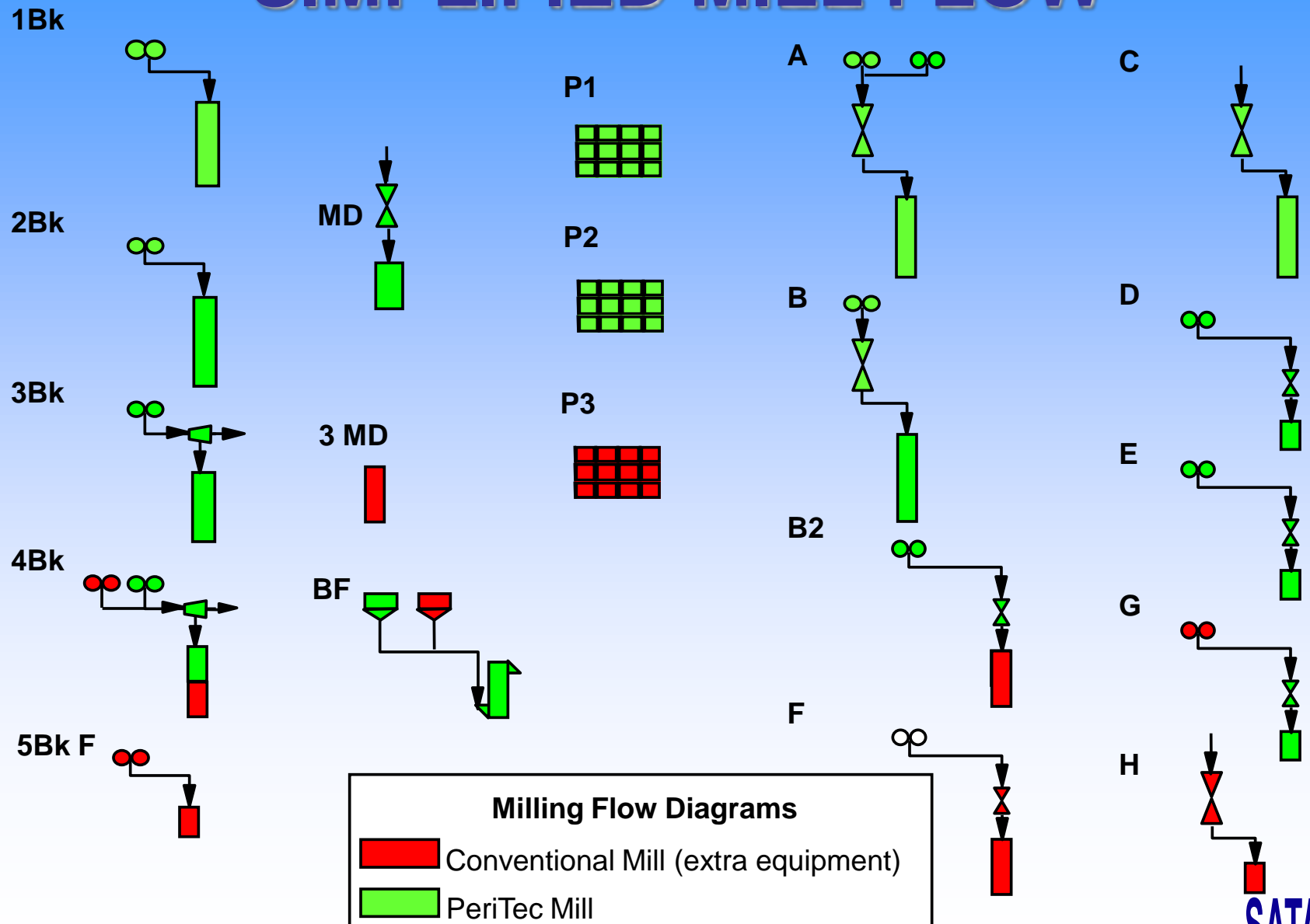


# Process Comparison Peritec and Conventional

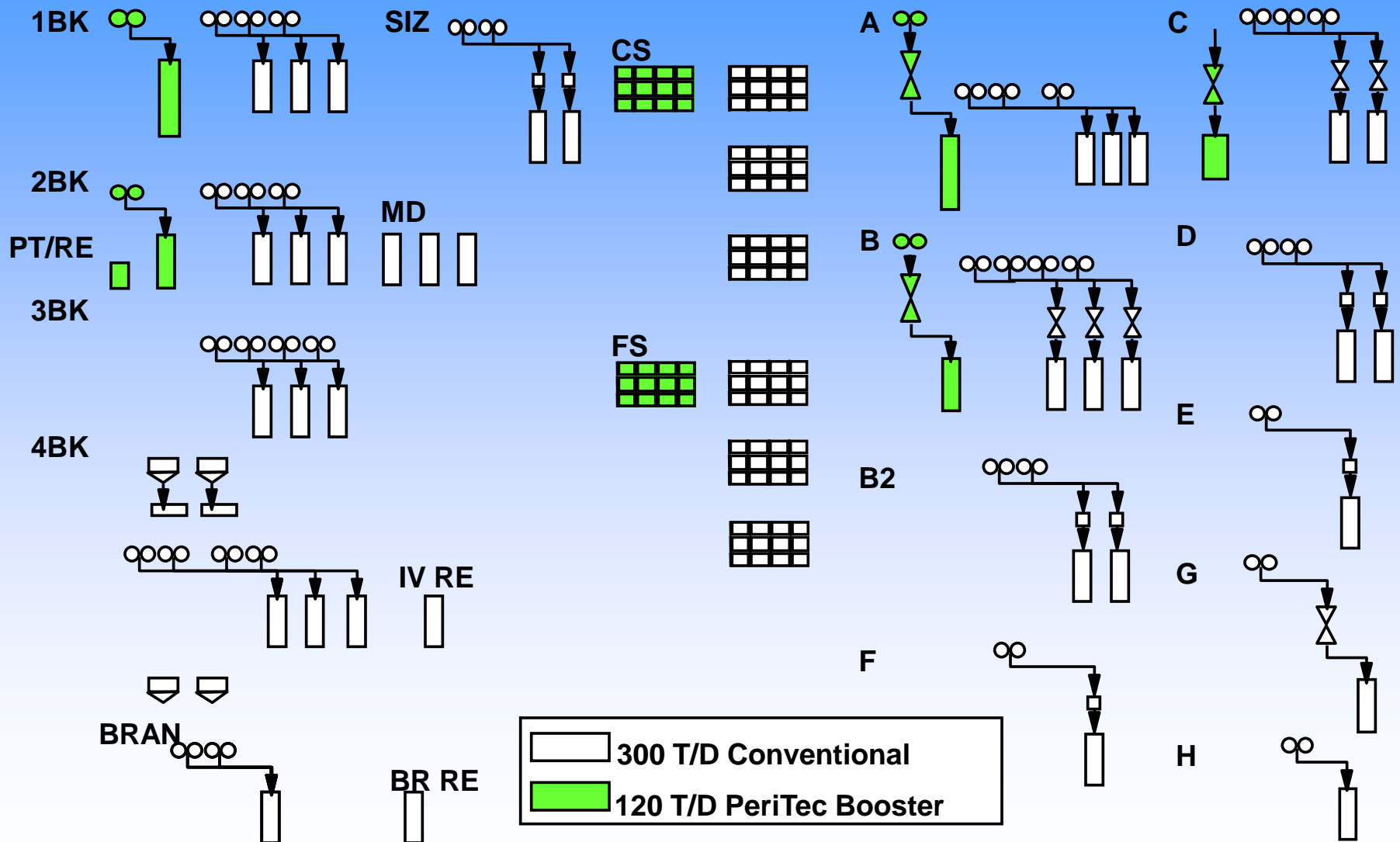


PERITEC 036

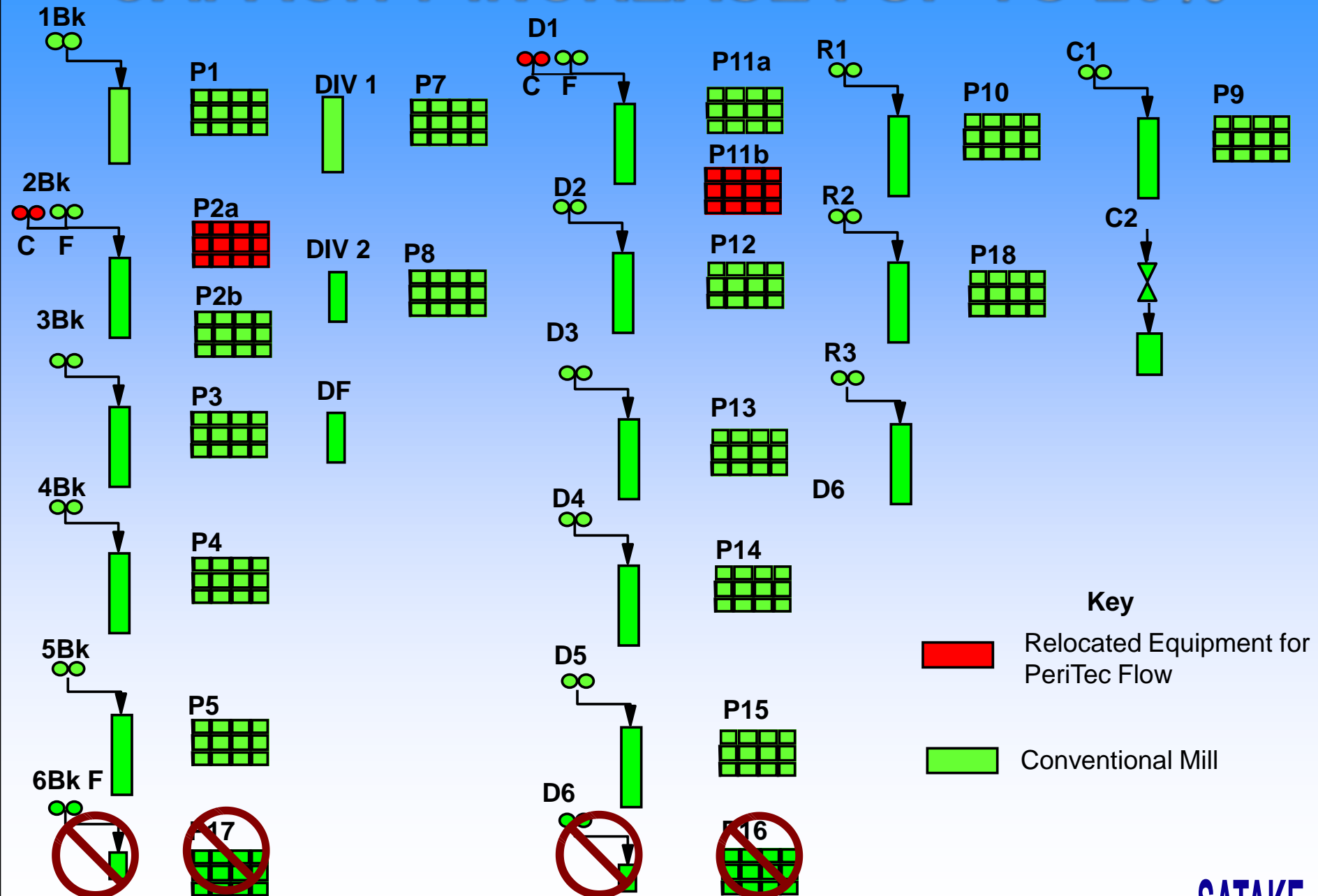
# BENEFITS OF PERITEC: SIMPLIFIED MILL FLOW



# Cost Effective Capacity Increase “PERITEC” BOOSTER MILL



# CAPACITY INCREASE : UP TO 20%



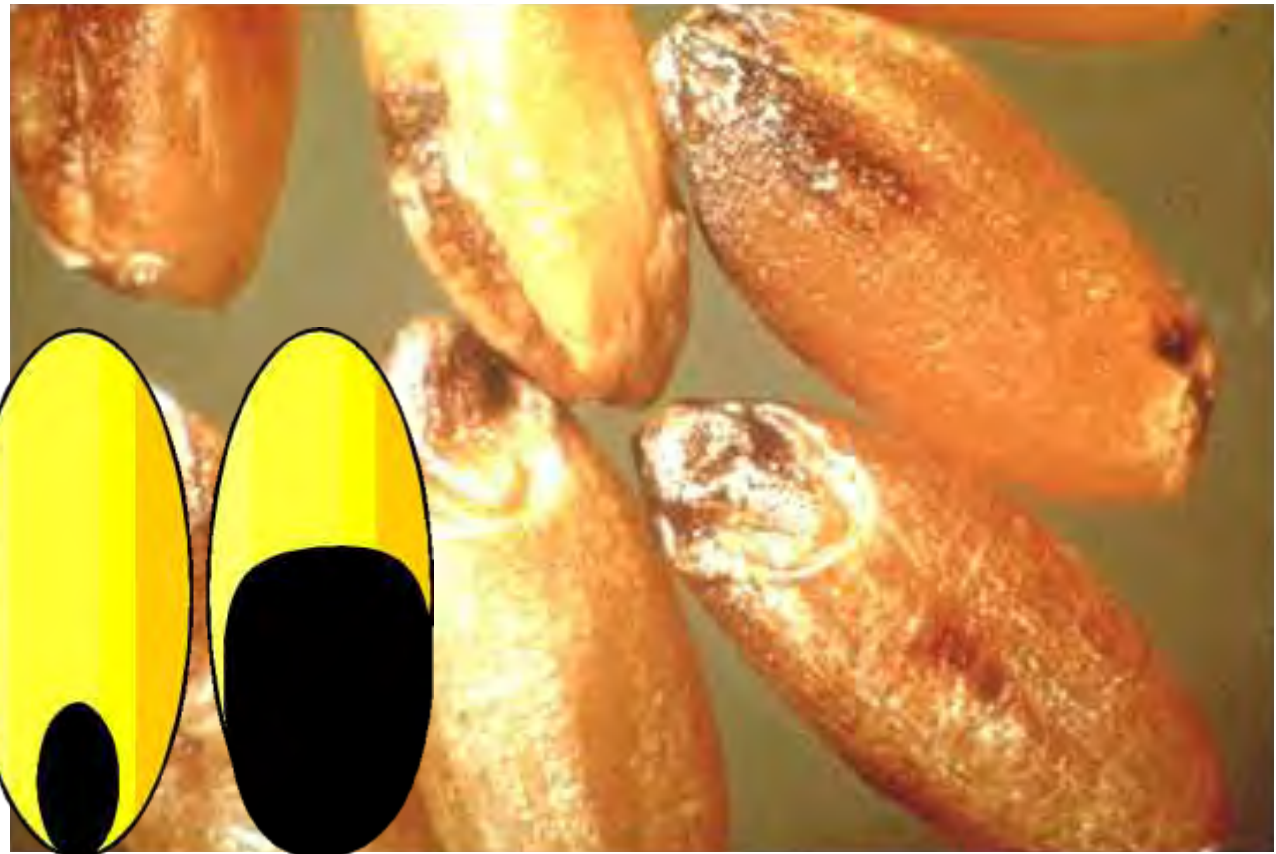
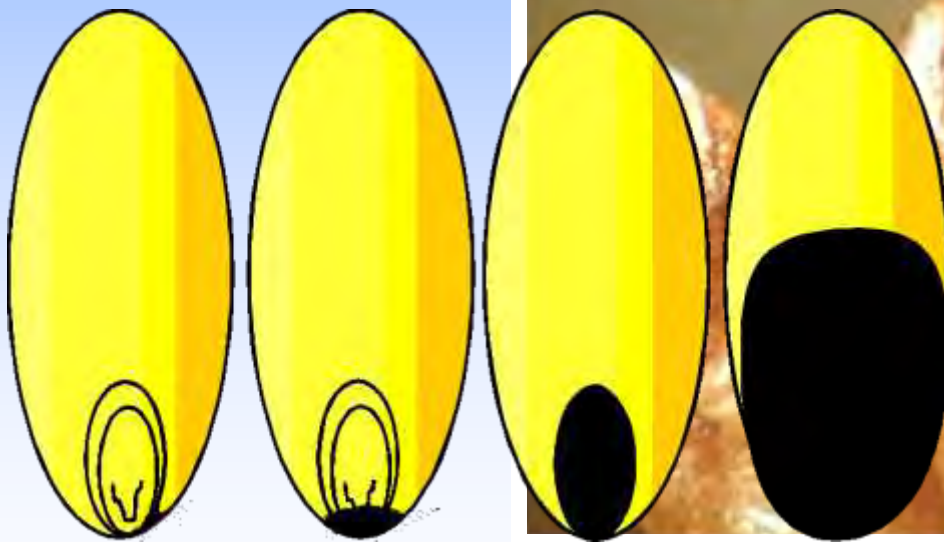
# PeriTec Performance : Semolina

	Conventional	PeriTec
<b>Semolina</b> Ash 0.69	62.0%	<u>67.0%</u>
<b>Flour 1</b> Ash 1.11	11.0%	10.2%
<b>Flour 2</b> Ash 1.45	4.0%	----

Canadian Semolina Mill 1995



# REMOVAL OF BLACK TIP



Grains of score 0, 1, 2 and 3

# PeriTec

## APPLICATIONS:

- Durum Semolina



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## Comparison with Straight Flour (1CW)

Debranned Yield (%)	Extraction (%)	Bran% (%)	Colour	
			CGV	L*
<b>100.0</b> Whole Grain	<b>78.7</b>	<b>0.73</b>	<b>-0.61</b>	<b>93.4</b>
<b>93.0</b>	<b>78.9</b>	<b>0.49</b>	<b>-1.04</b>	<b>93.6</b>

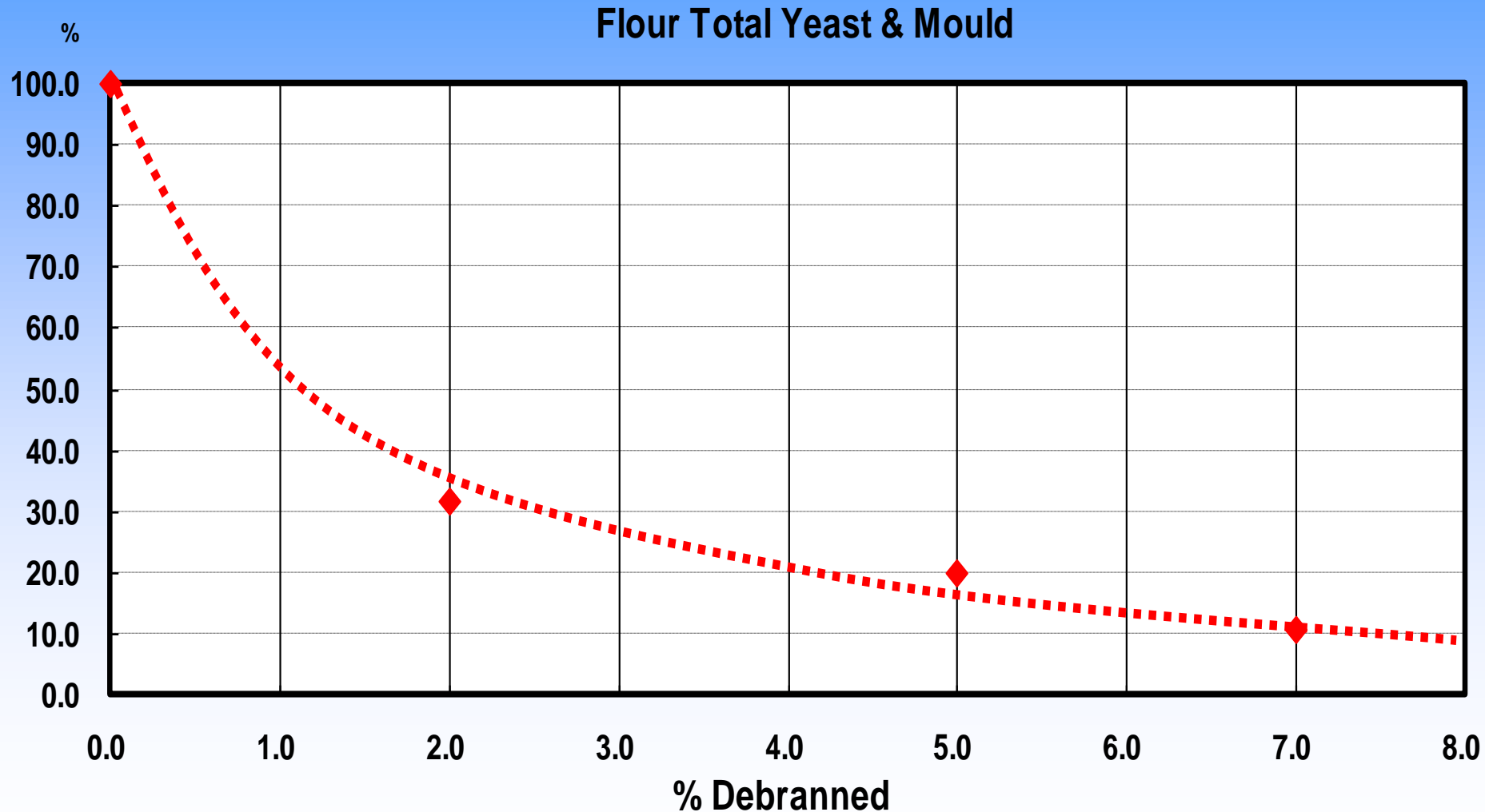
# **BENEFITS OF PERITEC**

## **REDUCTION OF HARMFUL ELEMENTS:**

- **Fungal Diseases**
- **Insect Fragments**
- **Micro-Organisms**
- **Pesticide and Fumigant Residues**
- **Vomotoxins**
- **Heavy Metals**



# Removal of Harmful Elements Reduction In Mould Damaged Wheat

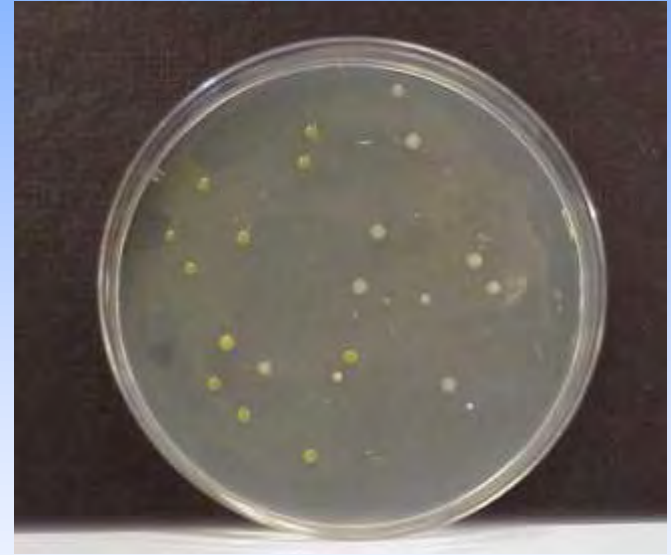


# BACTERIA - COLONY FORMING UNITS

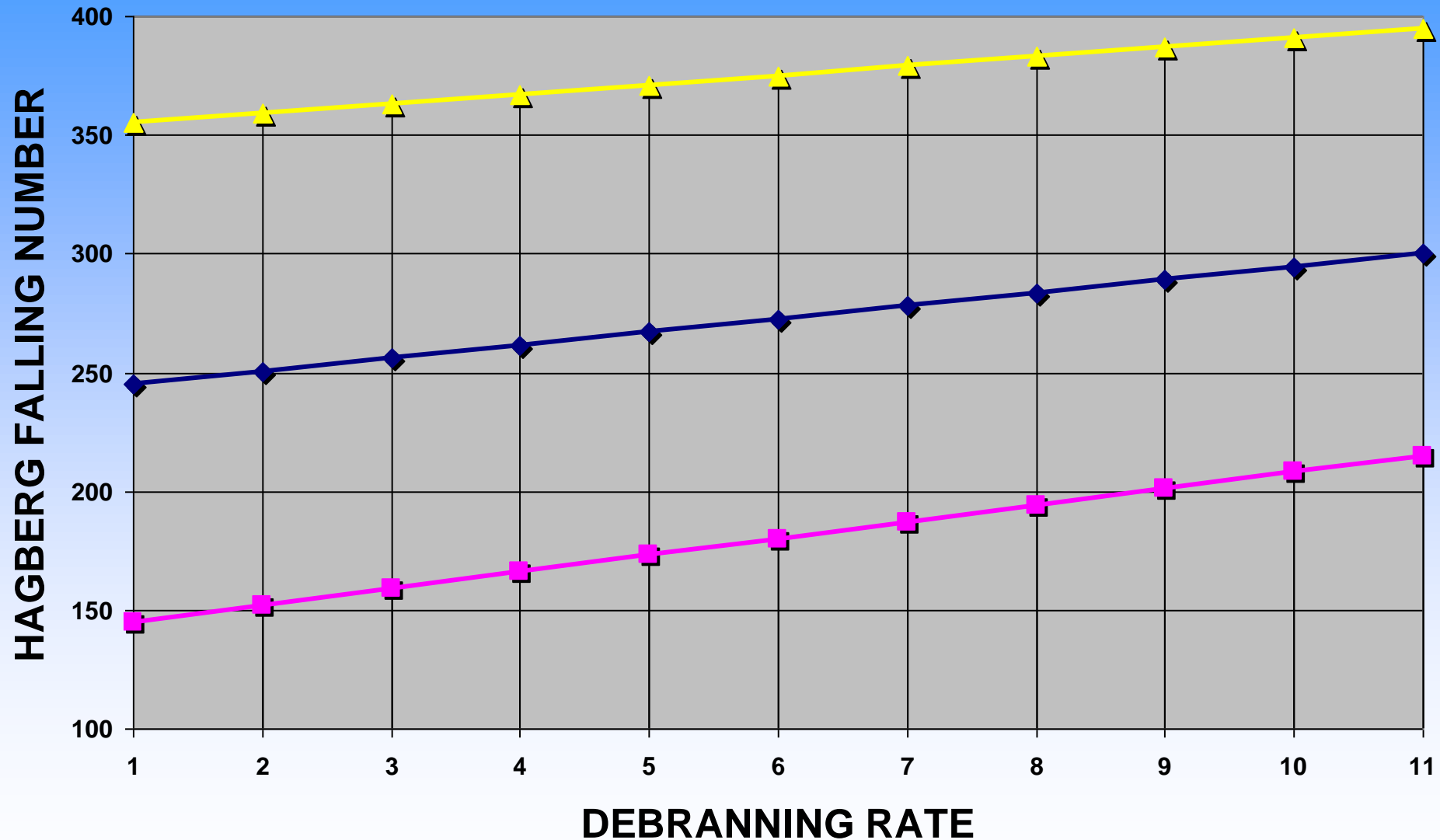
Conventional



PeriTec



# PeriTec: Increased Hagberg Falling Number



# **BENEFITS OF PERITEC FOR SEMOLINA MILLS**

- **Wheat – Lower wheat costs**
- **Specks – Reduced black and brown specks**
- **Colour – Brighter semolina**
- **Granulation – Increased % of coarse semolina**
- **Ash – Reduced semolina ash**
- **Capacity – Increased plant capacity**
- **Yield – Higher yields**

# PeriTec

## BENEFITS:



- Improved Product Quality
- Removal of Harmful Elements
- Higher Yields
- Increased Capacity
- Granulation Enhancements
- Lower Wheat Costs
- Enhanced Nutritional Value
- Value Added Co-Products
- Longer Roll Life
- Flow Simplification



# PERITEC REFERENCES



# PERITEC REFERENCES



**Casillo**



**SATAKE**



# SOUTH AFRICA



**120 Tonnes Per Day  
Compact Mill**

**SATAKE**



# ALGERIA



**220 Tonnes Per Day  
Durum Mill  
PeriTec**



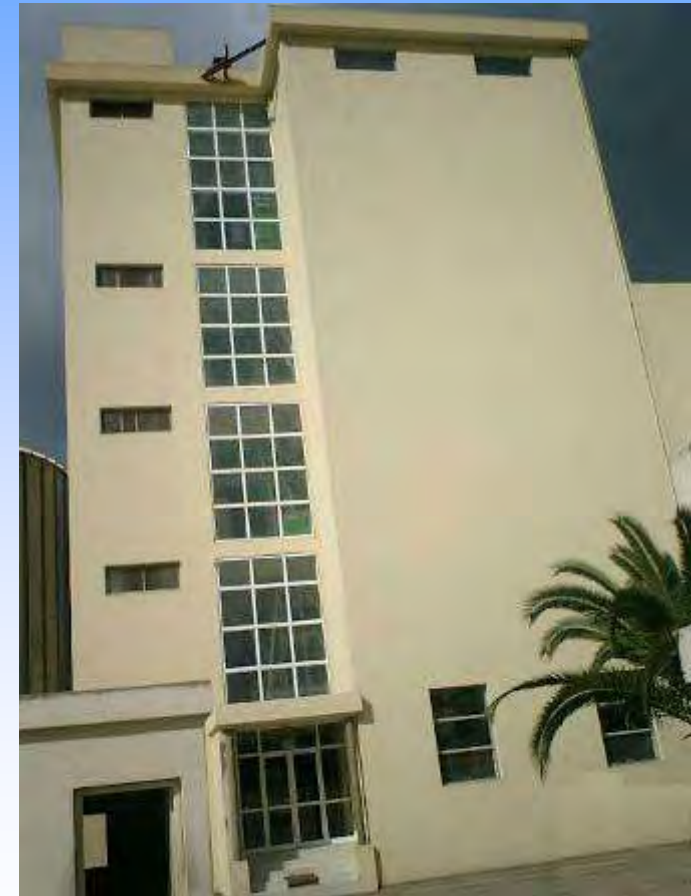


# MOROCCO



**130 Tonnes Per Day Durum Mill  
PeriTec Conversion**

**240 Tonnes Per Day Durum Mill  
PeriTec Conversion**







# TURKEY

**2 x VCW 5A**



**240 Tonnes Per Day Mill  
with PeriTec**

**SATAKE**





# CHINA 500 TPD MILL

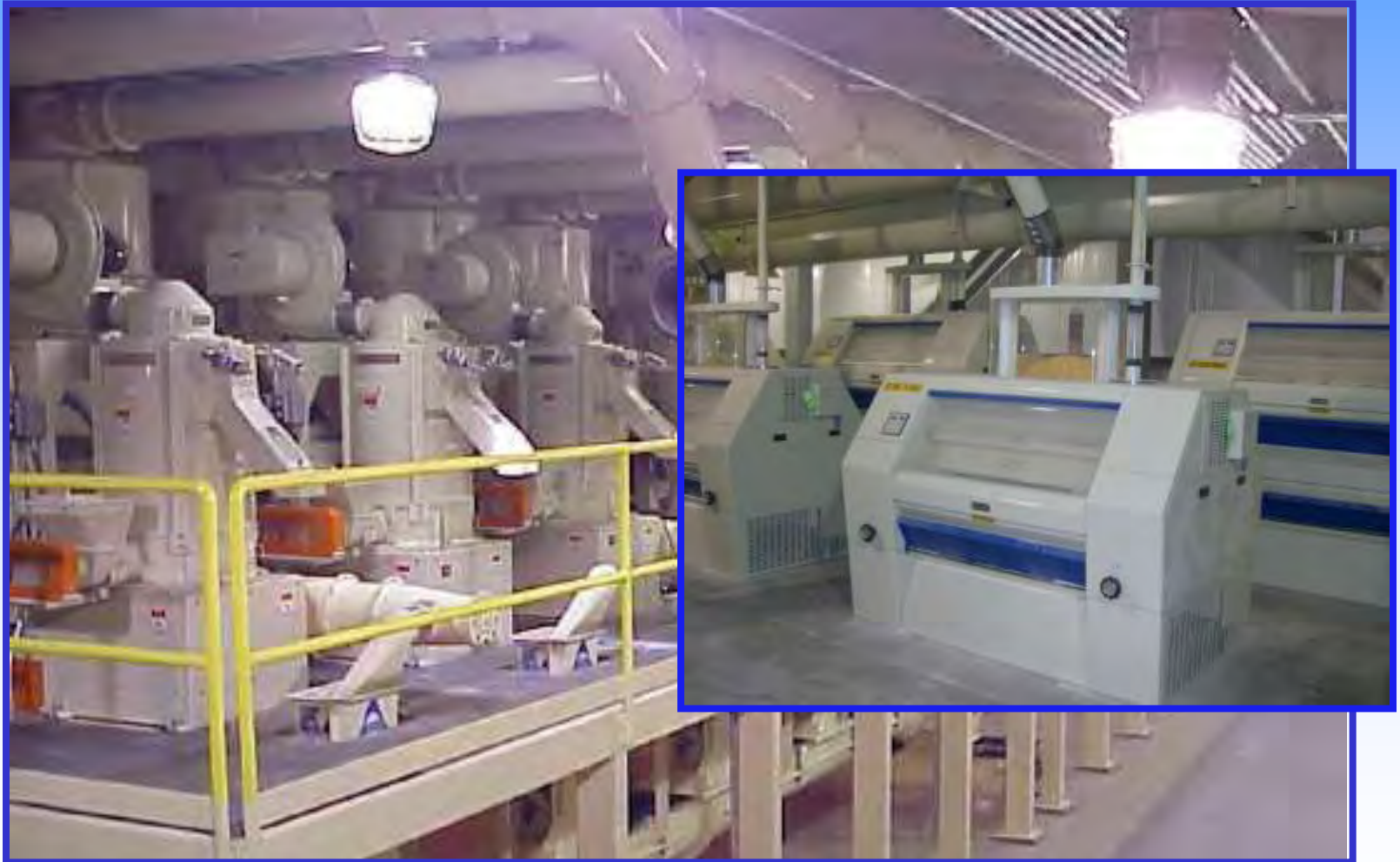


# MAIZE MILLING PLANT





# MAIZE ETHANOL PLANT



# MAIZE ETHANOL PLANT



***SATAKE PeriTec***

***Thank you***

***[www.satake.co.uk](http://www.satake.co.uk)***