

# **Enhancing Efficiency and Reducing Waste in Blister Packaging at Laurus Labs**

**-A DMAIC Approach**



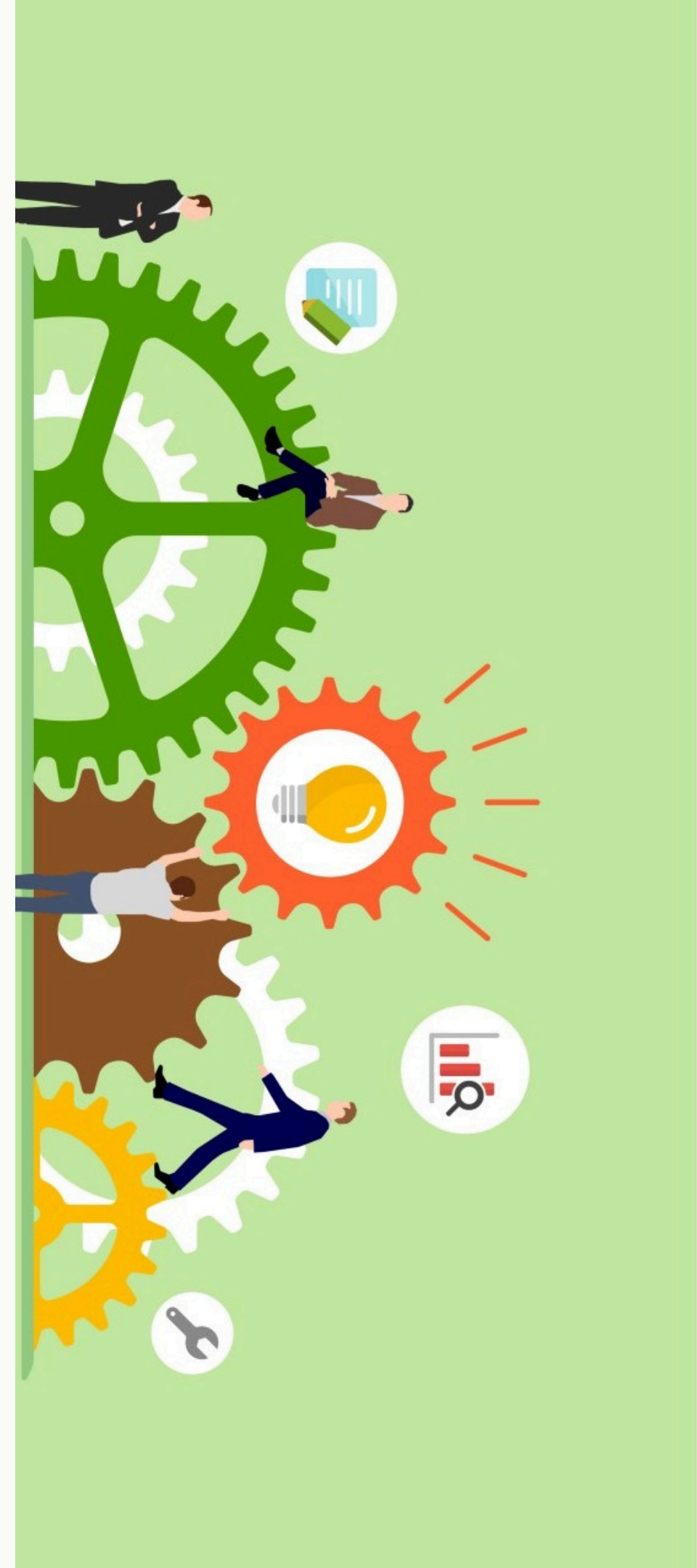
# Role of Operations and Excellence Team

## **1. Order Division and Execution:**

- The Operations and Excellence team is responsible for dividing large orders into manageable batches.
- These batches are executed over multiple days to optimize resource utilization and ensure consistent production flow.
- Coordinating with different departments to ensure seamless integration of activities.

## **2. Elimination of Non-Value Added Activities:**

- Identifying and removing non-value-added activities to streamline the manufacturing process.
- Implementing LEAN principles to reduce waste and enhance efficiency.
- Continuously monitoring and improving processes to maintain high standards of operational excellence.



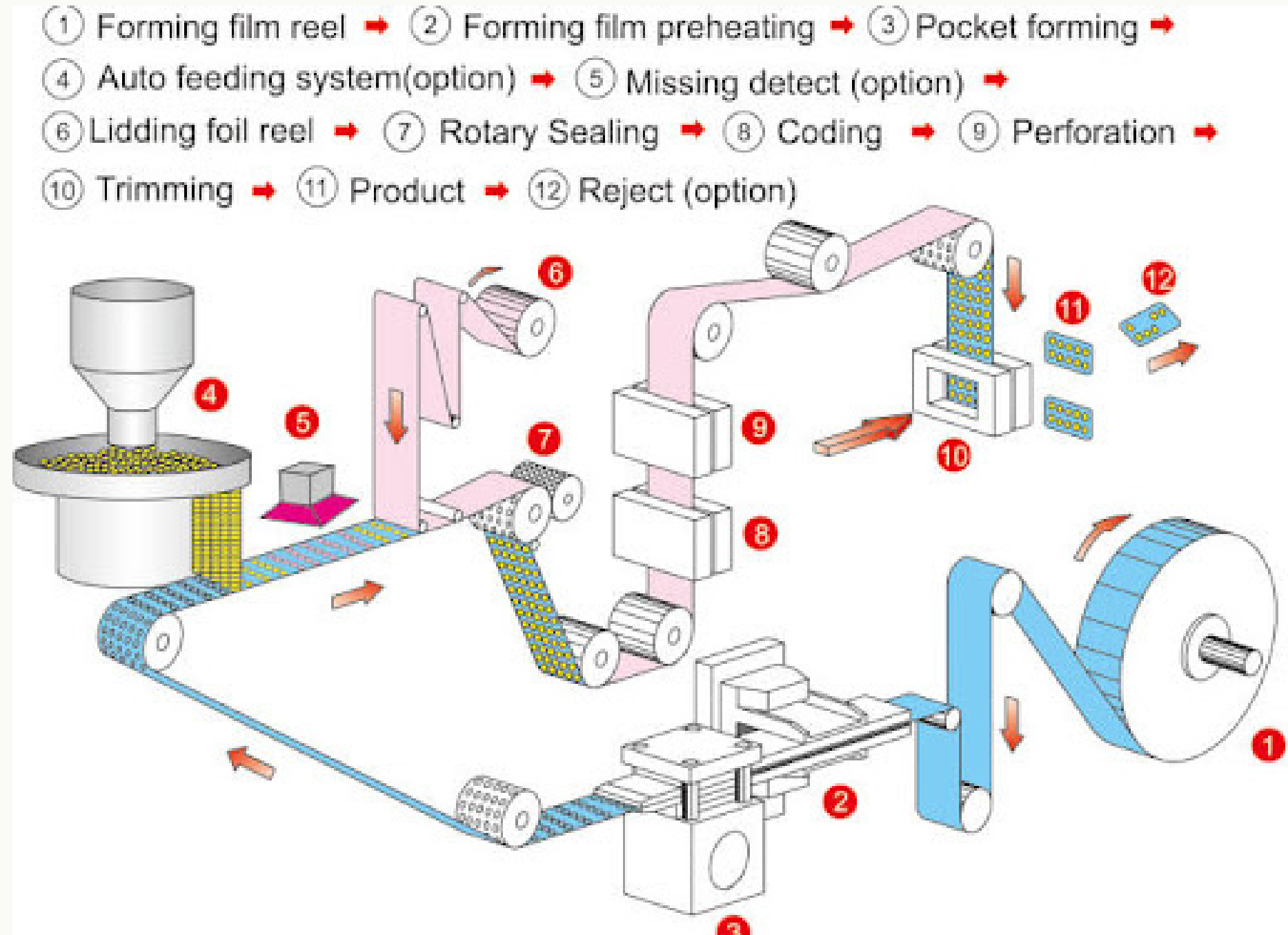
# INTRODUCTION

## **Purpose of the Study:**

To increase efficiency and reduce waste during blister packaging processes at Laurus Labs.

## **Objectives:**

- Identify key waste issues.
- Propose effective solutions.
- Ensure sustainable improvements through continuous monitoring.



# Measure Phase

## 1. Data Collection Methods:

- Machine logs: Recording downtimes and errors.
- Batch records: Tracking material usage and wastage.
- Operator insights: Gaining insights into operational challenges.
- Observations: Identifying inefficiencies in real-time.

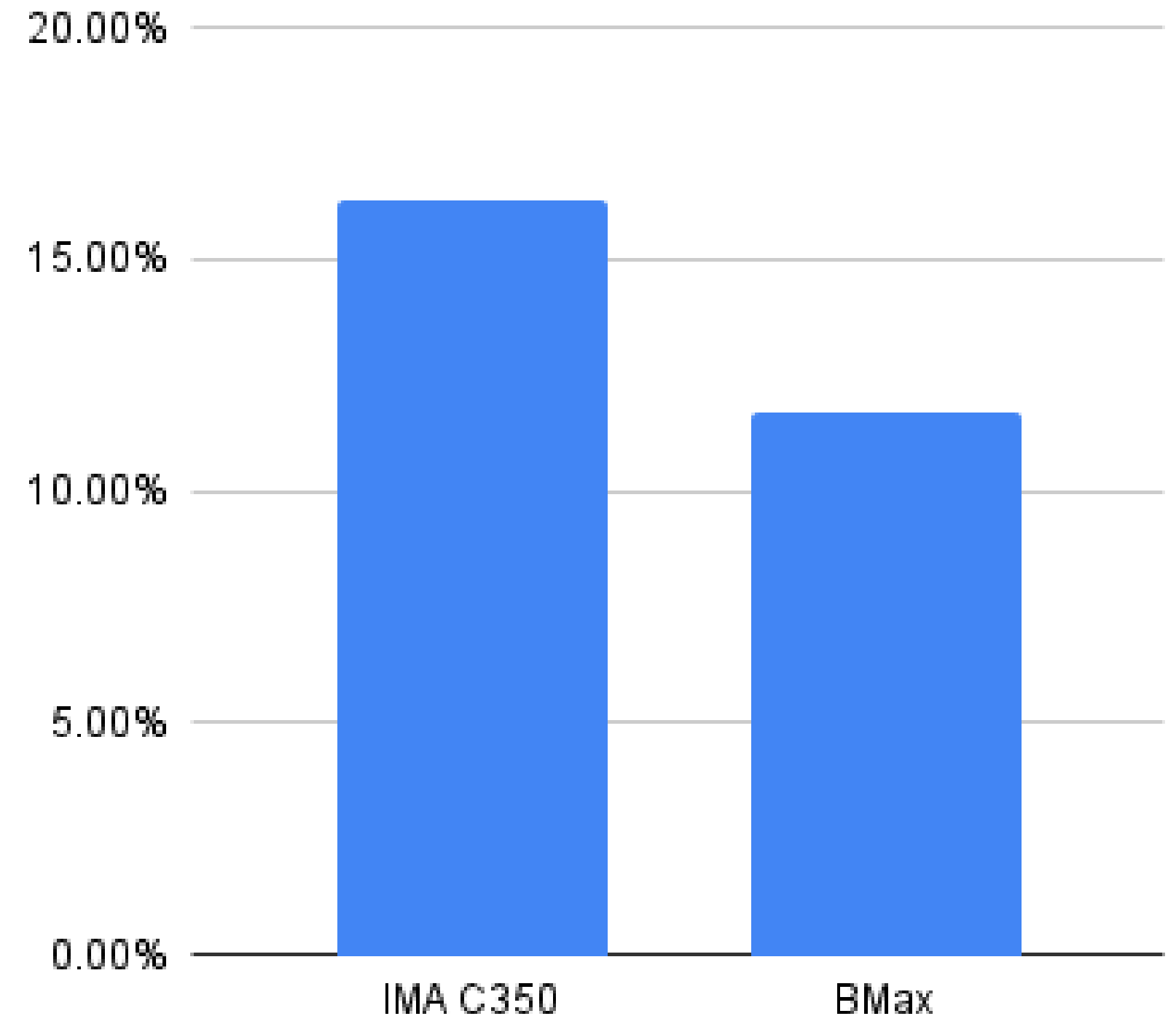
## 2. Key Metrics:

- Waste percentage
- Frequency of power failures
- Size of roll changeovers
- Training duration for operators

## 3. Baseline Performance:

- Waste rates: 16.32% (IMA C350), 11.71% (BMAX)
- Power failures: Average of 2 incidents per day.

Wastage in IMA C350 and BMax



# Analyze Phase

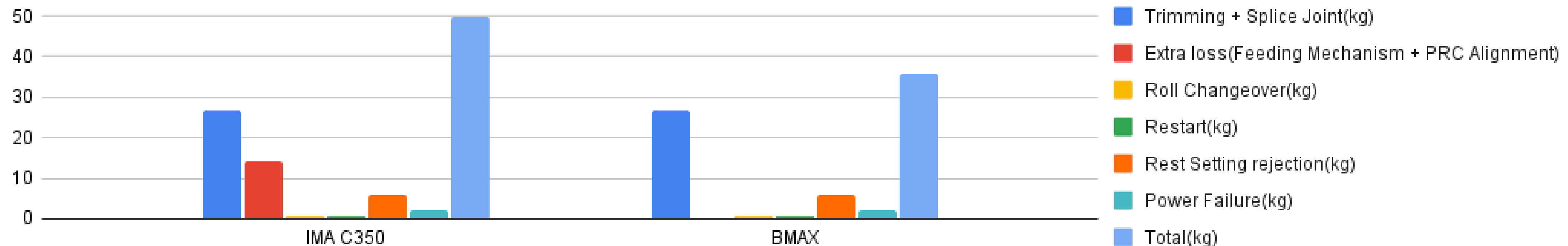
- **Waste Quantification:**

- Batch Size: 1,800,000 tablets.
- Total Packing Material Required: 305.1 kg.
- Wastage in IMA C350: 16.32%, translating to 49.79 kg per batch.
- Wastage in BMAX: 11.71%, translating to 35.73 kg per batch.
- **Fixed Waste (Trimming and Splice Joints):**
- Constant Waste Across Both Machines: 26.8 kg.

- **Remaining Waste Calculation:**

- IMA C350: Total Waste - Fixed Waste = 49.79 kg - 26.8 kg = 22.99 kg.
- BMAX: Total Waste - Fixed Waste = 35.73 kg - 26.8 kg = 8.93 kg.
- **Difference Due to Machine Issues:**
- Difference Between IMA C350 and BMAX: 22.99 kg - 8.93 kg = 14.06 kg.
- Attributable to Feeding Mechanism and PRC Alignment Issues in IMA C350: 14.06 kg.

Comparison in IMA C350 and BMAX



# Analyze Phase

## Root Cause Analysis:

**Feeding Mechanism & PRC Alignment:** Significant waste in IMA C350.

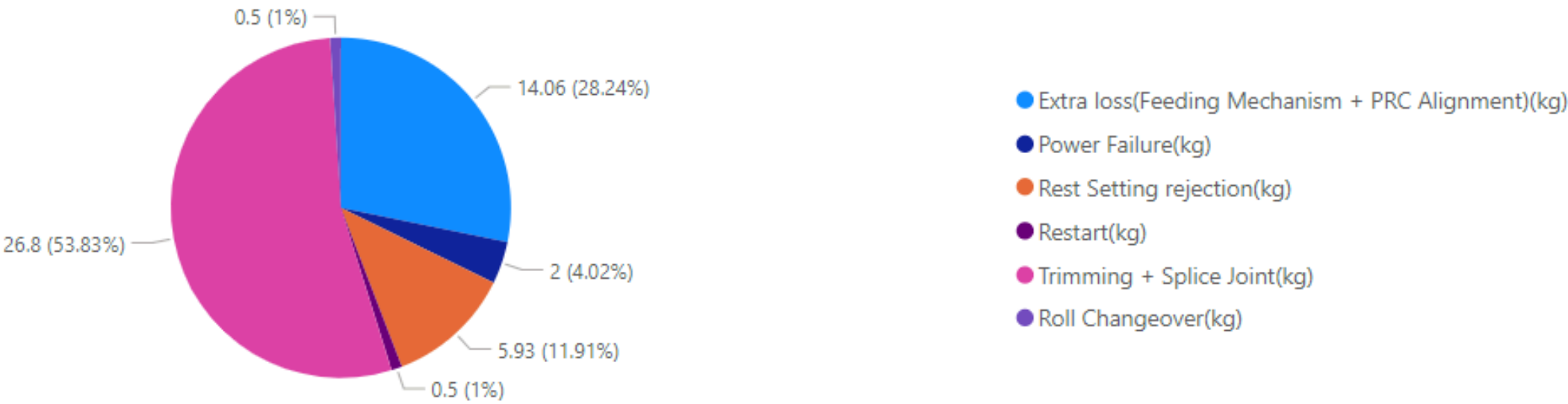
**Power Failures:** 2 kg of waste per batch.

**Roll Changeover:** 0.5 kg of waste per batch.

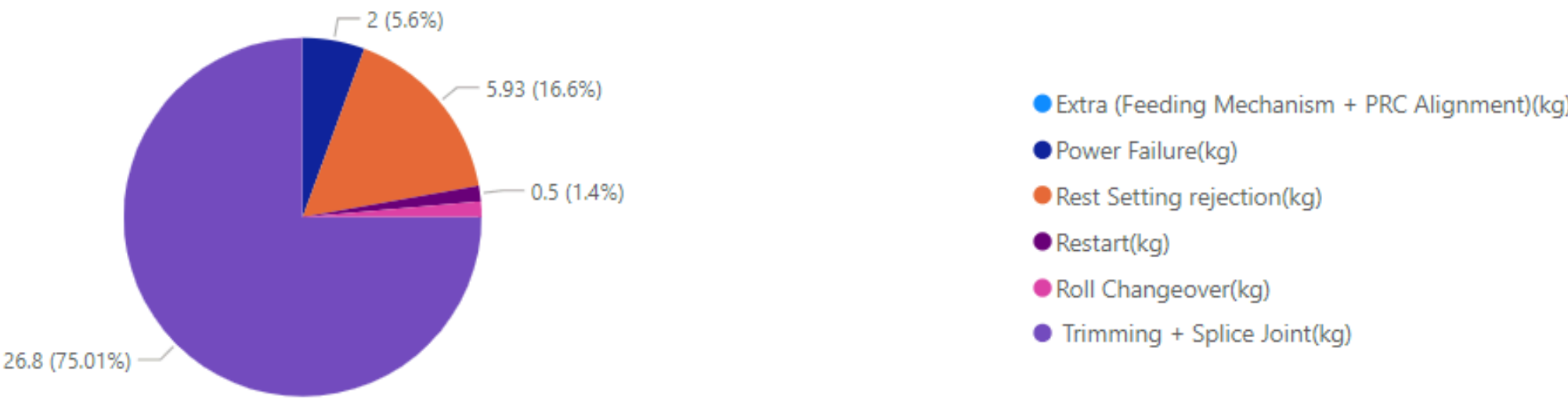
**Restart Waste:** 0.5 kg of waste per batch.

**Incorrect Settings:** 5.93 kg of waste per batch.

Causes(IMA C350)



Causes( BMAX)





# Improve Phase

## Machine Enhancements:

### 1. Channel Feeding Mechanism and Pressure Sealing Roller Improvement:

- Current Extra Waste: 14.06 kg
- **Implementation:**
  - Replace drum feeding mechanism with channel feeding mechanism in IMA C350.
  - Aim: Reduce feeding mechanism and PRC alignment issues.

### 2. Pressure Sealing Roller Improvement:

- **Implementation:**
  - Increase the lifetime and efficiency of pressure sealing rollers.
  - Aim: Reduce waste due to PRC alignment issues.

## Training:

### 1. Extended Training Period:

- Current Waste: 5.93 kg
- Improved Waste: 3 kg
- **Implementation:**
  - Extend operator training from 1-2 months to 6 months.
  - Aim: Enhance operator skills to minimize errors and improve efficiency.

# Improve Phase

## Operational Improvements

### UPS System:

### Power Failure Mitigation:

Current Waste: 2 kg

Improved Waste: 0 kg

Implementation:

Install an Uninterruptible Power Supply (UPS) system.

Aim: Ensure continuous operation during power outages.

### Roll Changeover:

Longer Roll Lengths:

Current Waste: 0.5 kg

Improved Waste: 0.33 kg

Implementation:

Increase roll length from 12 kg to 18 kg.

Aim: Reduce waste from roll changeovers.

### Shift Coordination:

Improved Shift Management:

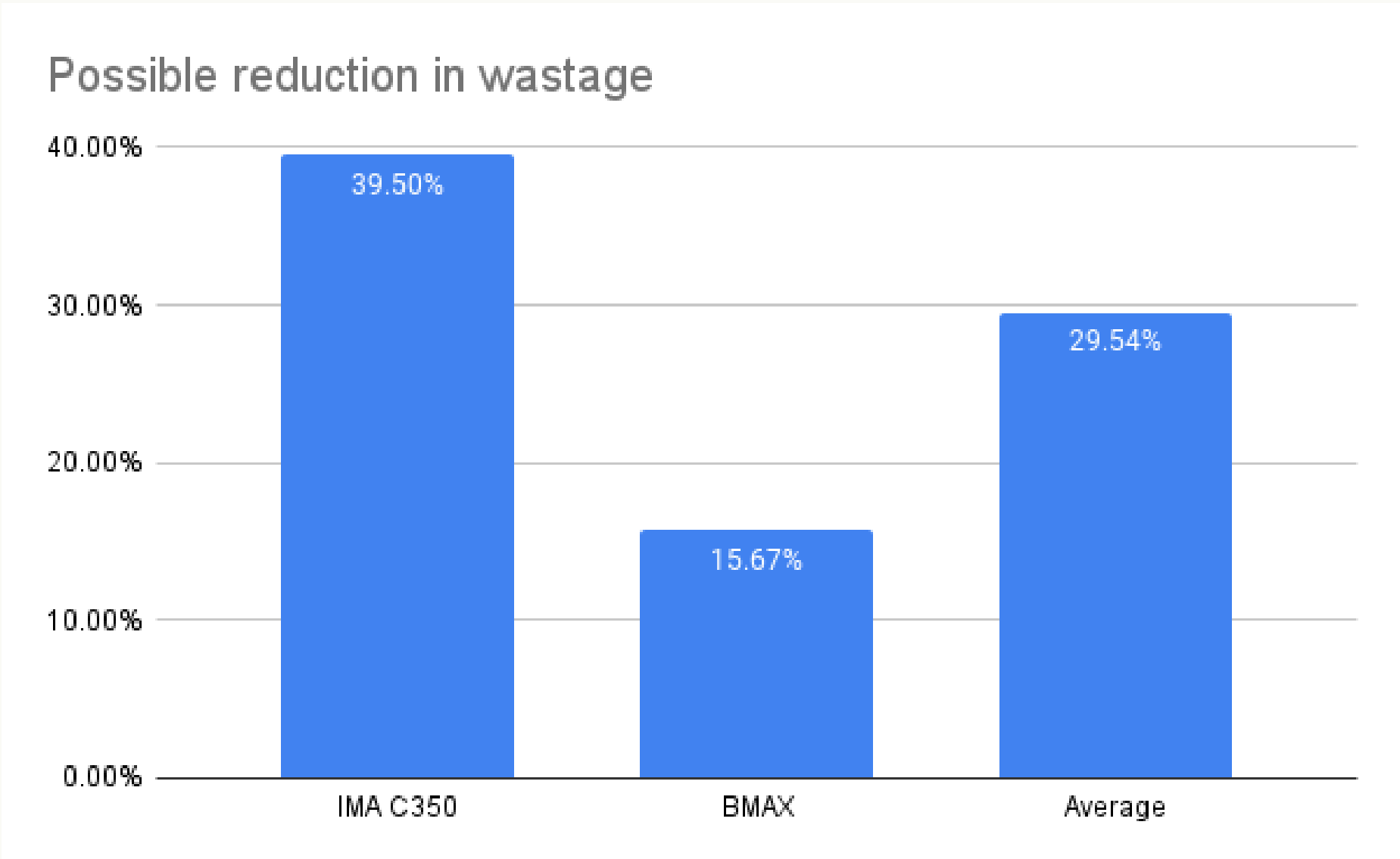
Current Waste: 0.5 kg

Improved Waste: 0 kg

Implementation:

Improve shift coordination to ensure seamless transitions.

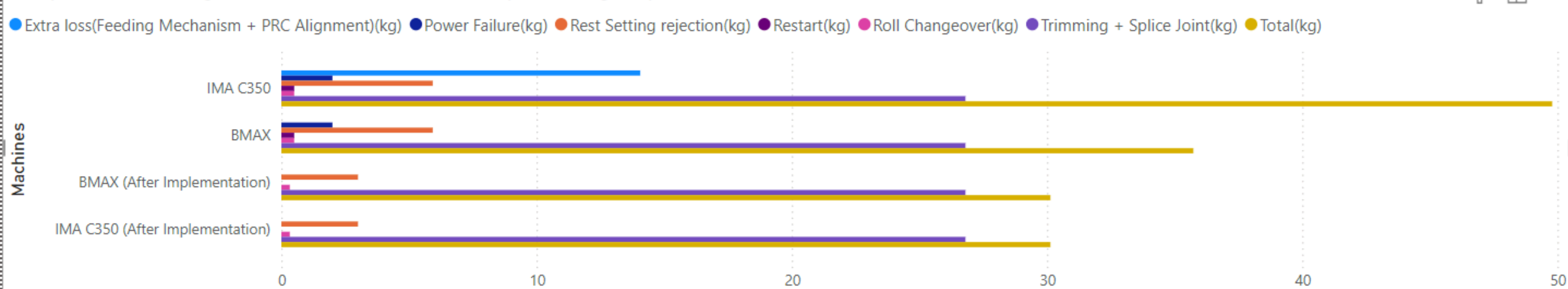
Aim: Reduce waste during restarts.





Causes	Extra loss(Feeding Mechanism + PRC Alignment)(kg)	Power Failure(kg)	Rest Setting rejection(kg)	Restart(kg)	Roll Changeover(kg)	Trimming + Splice Joint(kg)	Total(kg)
BMAX	0.00	2	5.93	0.50	0.50	26.80	35.73
BMAX (After Implementation)	0.00	0	3.00	0.00	0.33	26.80	30.13
IMA C350	14.06	2	5.93	0.50	0.50	26.80	49.79
IMA C350 (After Implementation)	0.00	0	3.00	0.00	0.33	26.80	30.13

Comparison of Wastage Reduction Before and After Implementing Proposed Solutions



## POSSIBLE COST REDUCTION(Assuming Rs650/kg)

### IMA C350:

- Current Cost: ₹32,344 per batch (49.79\*650).
- New Waste Reduction: 19.66kg (from 49.79 kg to 30.13 kg).
- New Cost: ₹19,584.50 per batch.
- Savings per Batch: ₹12,759.5

### BMAX:

- Current Cost: ₹23,224.50 per batch.
- New Waste Reduction: 5.6 kg (from 35.73 kg to 30.13 kg).
- New Cost: ₹19,584.50 per batch.
- Savings per Batch: ₹3,640



# Control Phase

## **Monitoring Plan:**

- Regular collection and analysis of waste data.
- Use control charts to monitor waste reduction progress.

## **Control Charts & KPIs:**

- Key Performance Indicators (KPIs) to track progress.
- Establishment of control limits for acceptable waste levels.

## **SOPs:**

- Develop and implement standard operating procedures for consistent operations.

## **Training Programs:**

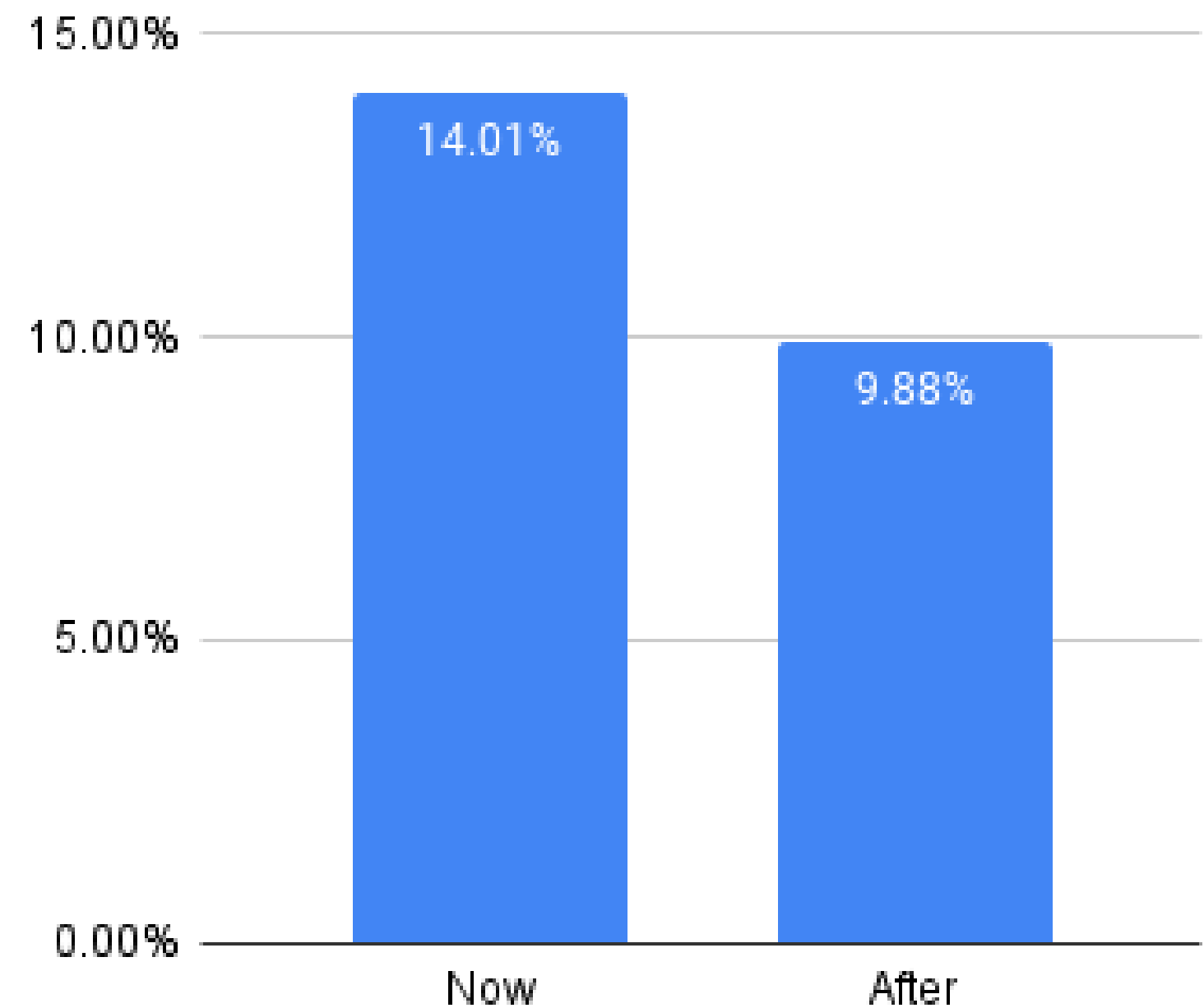
- Continuous training and retraining of operators.



# CONCLUSION

- **Summary of Findings:**
- Identified major waste contributors: feeding mechanism, PRC alignment, power failures, roll changeovers, restart waste, incorrect settings.
- **Impact on Operations:**
- Expected waste and cost reduction and efficiency improvements.
- Enhanced operator skills and better machine performance.

Possible outcome after  
Implementing Solutions







**THANK YOU!**

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