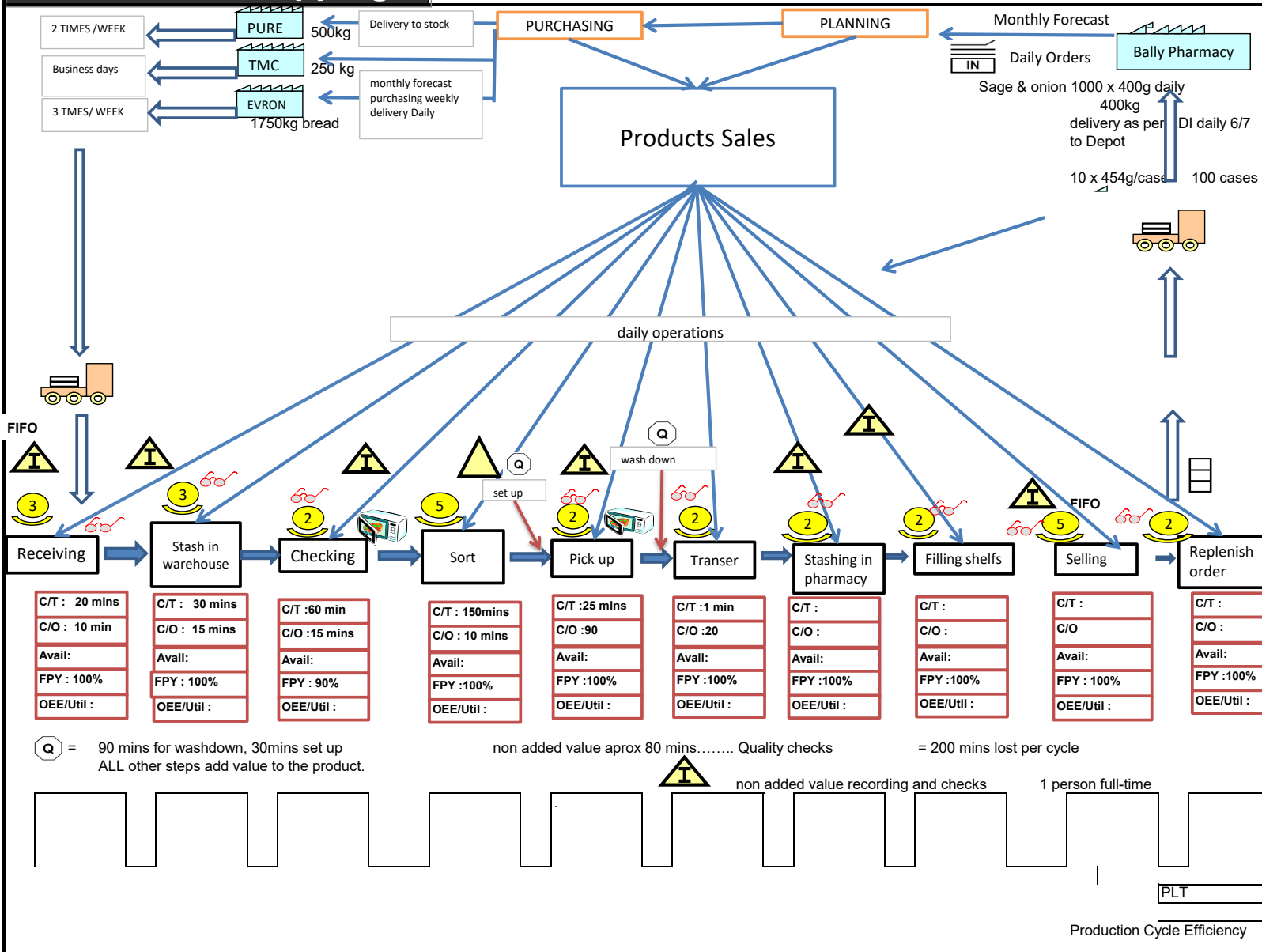


# Value Stream Mapping

Process : Sage and onion stuffing

Date :



Current	Future	Ideal
Timeline	Shared Proc.	Operator
Ded. Proc.	Shared Proc.	Proc. Time
Verbal Info	Proc. Cell	Prod. Lead
See Sched.	Tel. Info	Tel. Info
Elec. Info	Man. Info	E-MAIL
Supplier/ Customer	OR	Manual pull/ Withdrawl
Production Control	MRP/ ERP	Order Input
Kanban	Signal	Production
Post	Kanban	Kanban
Withdrawl	Kaizan	Queue
Kanban	Burst	Queue
Load Leveling	Store / WIP	Safety Stock
Inventory	First in, First out	FIFO
Push: Matl. Move	Push	Sequenced Pull
Shipment	Shipment	Shipment
External Movement	Warehouse	Warehouse
Oven / Heat / Prep.	Quality Problem Area	Quality Problem Area

Metric / Data Box Definitions :

T/T = Travel time L/T = Lead time  
Q/T = Queue time L/T = P/T + T/T

Considerations : 22 Work day / month ; 1 shift => 7 hour (after PFD) = 7.5 Hour - 2 x 10 Min - 10 Min

C/O = Change over time C/Te = Cycle time (Oven, Equipment)  
P/T = Process time P/T = Q/T + C/T + C/O Perf = Performance  
Takt = Available work time per shift  
Time customer demand qty. per shift

Define effective Work hour/day  
x working day & calculate Takt time.



## **flavoured stuffing- Introduction**

### **Scenario**

A variety of seasonal flavoured stuffings:

Garlic and Herb

lemon and Dill

Apple, Cranberry and Satsuma zest

Customer: Major Retailer

Frequency: Daily deliveries to Ballymun Depot Monday-Sunday

Quantities based on EDI Electronic Data Exchange ordering system, allocations and previous history

### **Customer Requirements**

Minimum Shelflife int depot: 75% of total shelf life i.e full shelf in 17 days, 12.75 days, round down to 12 days

Anti-fog films, pp tray new ping sticker to be put on all product.

Temperature on receipt : 0-5°C

BRC Global food standard vers 7 & Tesco Food Manufacturing Standard vers 6 .

### **Suppliers:**

Bread: Evron, Daily delivery 5/7 days Delivered by the Supplier

Butter: TMC 5/7 days Delivered by Supplier

Brecon: Garlic/Roast Garlic ex Wales, delivery to VF Coldstores Dublin, stored there collected as required by our own transport

Pure Ingredients: herbs/spices/ fruits Deliered by Supplier

Printworks: pixell ink design, Dollard printers new line artwork to be delivered for first production. Delivered by courier.

Print pass to be attended by retailer and Company

Packaging supplier: Boron Packaging

Cavan Box

### **Assumptions**

The staff numbers will not increase, but operators may be reassigned to different tasks, and each operator can perform any of the tasks.

The configuration of the workstations / tables will not be changed, and extra tables can be provided.

“Only an activity that physically changes the shape or character of a product or assembly can add value.”

“Any activity that does not change the product or assembly is waste.”

Column1	Column2	Column3
<b>25 Essential Lean Tools</b>		
The following is a collection of 25 essential lean tools. Each tool is distilled into a simple description of what it is and how it helps.		
Lean Tool	What Is It?	How Does It Help?
5S	Organize the work area:	Eliminates waste that results from a poorly organized work area (e.g. wasting time looking for a tool).
	Sort (eliminate that which is not needed)	Sort (eliminate that which is not needed)
	Set In Order (organize remaining items)	Set In Order (organize remaining items)
	Shine (clean and inspect work area)	Shine (clean and inspect work area)
	Standardize (write standards for above)	Standardize (write standards for above)
	Sustain (regularly apply the standards)	Sustain (regularly apply the standards)
Andon	Visual feedback system for the plant floor that indicates production status, alerts when assistance is needed, and empowers operators to stop the production process.	Acts as a real-time communication tool for the plant floor that brings immediate attention to problems as they occur – so they can be instantly addressed.
Bottleneck Analysis	Identify which part of the manufacturing process limits the overall throughput and improve the performance of that part of the process.	Improves throughput by strengthening the weakest link in the manufacturing process.
Continuous Flow	Manufacturing where work-in-process smoothly flows through production with minimal (or no) buffers between steps of the manufacturing process.	Eliminates many forms of waste (e.g. inventory, waiting time, and transport).
Gemba (The Real Place)	A philosophy that reminds us to get out of our offices and spend time on the plant floor – the place where real action occurs.	Promotes a deep and thorough understanding of real-world manufacturing issues – by first-hand observation and by talking with plant floor employees.
Heijunka (Level Scheduling)	A form of production scheduling that purposely manufactures in much smaller batches by sequencing (mixing) product variants within the same process.	Reduces lead times (since each product or variant is manufactured more frequently) and inventory (since batches are smaller).
Hoshin Kanri (Policy Deployment)	Align the goals of the company (Strategy), with the plans of middle management (Tactics) and the work performed on the plant floor (Action).	Ensures that progress towards strategic goals is consistent and thorough – eliminating the waste that comes from poor communication and inconsistent direction.

Jidoka (Autonomation)	Design equipment to partially automate the manufacturing process (partial automation is typically much less expensive than full automation) and to automatically stop when defects are detected.	After Jidoka, workers can frequently monitor multiple stations (reducing labor costs) and many quality issues can be detected immediately (improving quality).
Just-In-Time (JIT)	Pull parts through production based on customer demand instead of pushing parts through production based on projected demand. Relies on many lean tools, such as Continuous Flow, Heijunka, Kanban, Standardized Work and Takt Time.	Highly effective in reducing inventory levels. Improves cash flow and reduces space requirements.
Kaizen (Continuous Improvement)	A strategy where employees work together proactively to achieve regular, incremental improvements in the manufacturing process.	Combines the collective talents of a company to create an engine for continually eliminating waste from manufacturing processes.
Kanban (Pull System)	A method of regulating the flow of goods both within the factory and with outside suppliers and customers. Based on automatic replenishment through signal cards that indicate when more goods are needed.	Eliminates waste from inventory and overproduction. Can eliminate the need for physical inventories (instead relying on signal cards to indicate when more goods need to be ordered).
KPI (Key Performance Indicator)	Metrics designed to track and encourage progress towards critical goals of the organization. Strongly promoted KPIs can be extremely powerful drivers of behavior – so it is important to carefully select KPIs that will drive desired behavior.	The best manufacturing KPIs:
		Are aligned with top-level strategic goals (thus helping to achieve those goals)
		Are effective at exposing and quantifying waste (OEE is a good example)
		Are readily influenced by plant floor employees (so they can drive results)
Muda (Waste)	Anything in the manufacturing process that does not add value from the customer's perspective.	Eliminating muda (waste) is the primary focus of lean manufacturing.
Column1	Column2	Column3
Overall Equipment Effectiveness (OEE)	Framework for measuring productivity loss for a given manufacturing process. Three categories of loss are tracked:	Provides a benchmark/baseline and a means to track progress in eliminating waste from a manufacturing process. 100% OEE means perfect production (manufacturing only good parts, as fast as possible, with no down time).
	Availability (e.g. down time)	
	Performance (e.g. slow cycles)	
	Quality (e.g. rejects)	
	An iterative methodology for implementing improvements:	Applies a scientific approach to making improvements:

PDCA (Plan, Do, Check, Act)	Plan (establish plan and expected results)	Plan (develop a hypothesis)
	Do (implement plan)	Do (run experiment)
	Check (verify expected results achieved)	Check (evaluate results)
	Act (review and assess; do it again)	Act (refine your experiment; try again)
Poka-Yoke (Error Proofing)	Design error detection and prevention into production processes with the goal of achieving zero defects.	It is difficult (and expensive) to find all defects through inspection, and correcting defects typically gets significantly more expensive at each stage of production.
Root Cause Analysis	A problem solving methodology that focuses on resolving the underlying problem instead of applying quick fixes that only treat immediate symptoms of the problem. A common approach is to ask why five times – each time moving a step closer to discovering the true underlying problem.	Helps to ensure that a problem is truly eliminated by applying corrective action to the “root cause” of the problem.
Single Minute Exchange of Die (SMED)	Reduce setup (changeover) time to less than 10 minutes. Techniques include:	Enables manufacturing in smaller lots, reduces inventory, and improves customer responsiveness.
	Convert setup steps to be external (performed while the process is running)	
	Simplify internal setup (e.g. replace bolts with knobs and levers)	
	Eliminate non-essential operations	
	Create standardized work instructions	
Six Big Losses	Six categories of productivity loss that are almost universally experienced in manufacturing:	Provides a framework for attacking the most common causes of waste in manufacturing.
	Breakdowns	
	Setup/Adjustments	
	Small Stops	
	Reduced Speed	
	Startup Rejects	
	Production Rejects	
SMART Goals	Goals that are: Specific, Measurable, Attainable, Relevant, and Time-Specific.	Helps to ensure that goals are effective.
Standardized Work	Documented procedures for manufacturing that capture best practices (including the time to complete each task). Must be “living” documentation that is easy to change.	Eliminates waste by consistently applying best practices. Forms a baseline for future improvement activities.
Takt Time	The pace of production (e.g. manufacturing one piece every 34 seconds) that aligns production with customer demand. Calculated as $\text{Planned Production Time} / \text{Customer Demand}$ .	Provides a simple, consistent and intuitive method of pacing production. Is easily extended to provide an efficiency goal for the plant floor ( $\text{Actual Pieces} / \text{Target Pieces}$ ).
Total Productive Maintenance (TPM)	A holistic approach to maintenance that focuses on proactive and preventative maintenance to maximize the operational time of equipment. TPM blurs the distinction between maintenance and production by placing a strong emphasis on empowering operators to help maintain their equipment.	Creates a shared responsibility for equipment that encourages greater involvement by plant floor workers. In the right environment this can be very effective in improving productivity (increasing up time, reducing cycle times, and eliminating defects).

Value Stream Mapping	A tool used to visually map the flow of production. Shows the current and future state of processes in a way that highlights opportunities for improvement.	Exposes waste in the current processes and provides a roadmap for improvement through the future state.
Visual Factory	Visual indicators, displays and controls used throughout manufacturing plants to improve communication of information.	Makes the state and condition of manufacturing processes easily accessible and very clear – to everyone.



# Sku Sage and Onion stuffing - Potential Improvements

	Issue		Tools
stores	1 Need to eliminate out-of-stock situation in stores		5S, Kanban
	2 Need to eliminate queuing at stores		SMED, Kanban
	3 Need to minimise dispensing time at stores		SMED, Kanban
all over gopher and line maintenanc	4 Operator #1 collecting material, when added to time for Step 1, delays subsequent steps		SMED, workflow
weigh up	5 delays in ingredient delivery multiple weighing ..all done manually takes time and leaves room for error, rework		Automation, work flow SMED
cooking	6 delays in ingredient delivery, stirring manually takes time and leaves room for error, rework	automate reduce staff x 3	Automation, work flow SMED
mxing	7 Need to eliminate bottle neck at mixing due to 1 1/2 down time for allergen wash		SMED, Kanban, 5S, workflow

## Stores

A Kanban approach to stock control (inventory) would eliminate out-of-stock problems.  
A 5S approach should be used to tidy the stores, put the components into a logical order that would facilitate retrieval, and keep them tidy and orderly.  
Providing the PRODUCTION SCHEDULES delivers directly to the Stores at the start of the shift is a SMED approach that would allow the Store Operator to pre-assemble the items associated with 5S would

## Weigh-up-

5S and automation in the weigh up area would reduce time and errors  
reduce 1 person....

## Cooking

automation, requires 5 people constantly strring the bratt pans all the time, could automat using automatic stirrers ...reduce staff to 2.

## Mixing

SMED, 5S,

planning of schedule and redevelopment of product to remove palm oil

reduces 1 person required for wash down, saves 1 1/2 hours per cycle.

Wash Area: congested with people, causes queuing, possible cross contamination, 5S allows for area to be streamlined .1 person to do the work expand

responsibility to waste removal from floor and general clean up will remove 1 person each from Mixing, tubbing

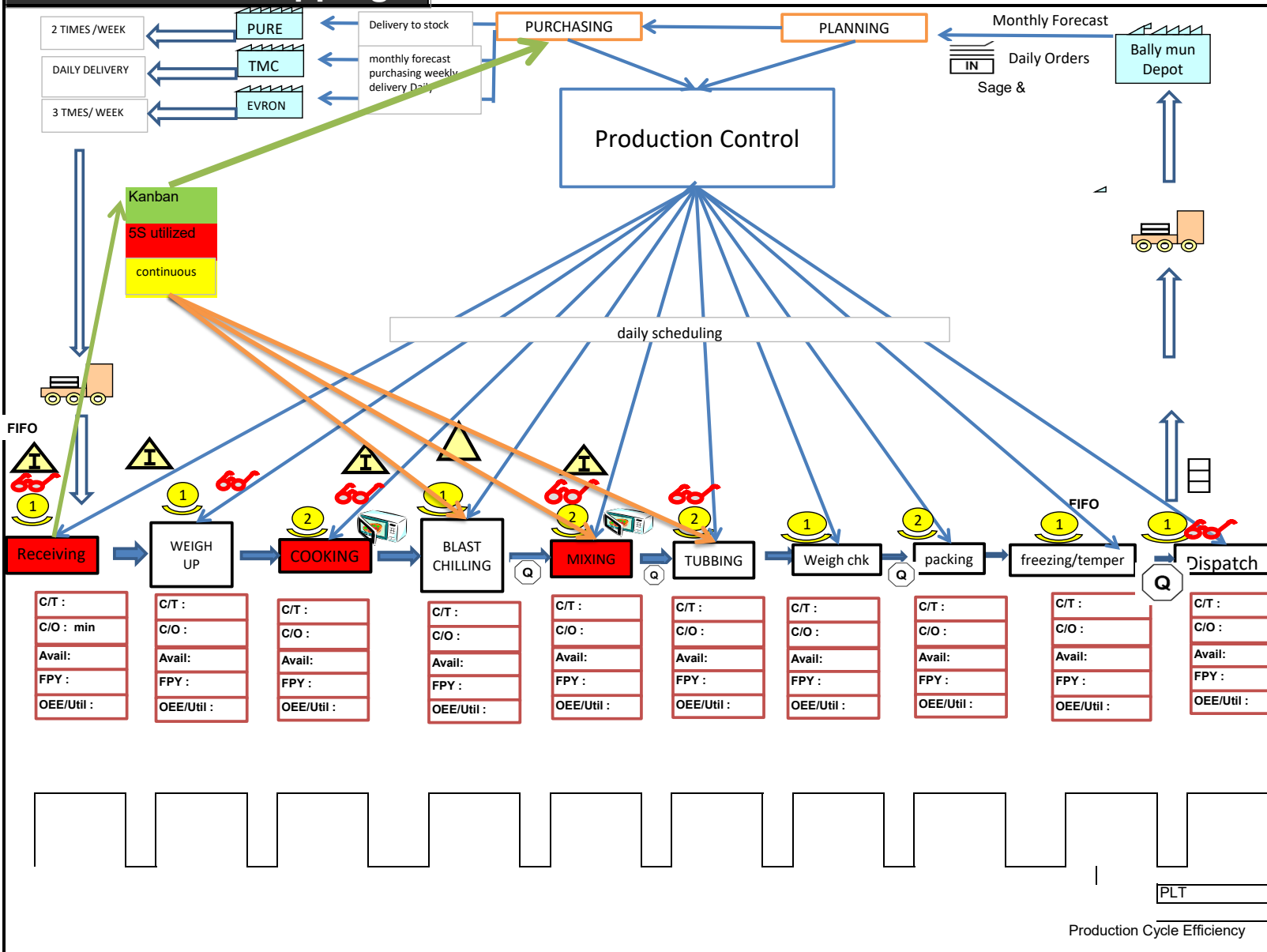
### **Tubbing**

can remove 1 person, normally used to clean and dispose of waste due to dedicated cleaner

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