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CONTINUOUS IMPROVEMENT PLAN

Continuous improvement is an ongoing effort to improve products and/or processes. There are always opportunities for improvement in any quality and food safety system. Developing a continuous improvement plan is a requirement of GFSI-benchmarked schemes and a way for senior site management to demonstrate their commitment to the quality and food safety system and culture. One tool used to outline the process of continuous improvement is the DMAIC model: **D**efine, **M**easure, **A**nalyze, **I**mprove, and **C**ontrol.

Define

Continuous improvement begins by defining a problem or area of improvement in a process and/or product. Consider the following scenario: a company processing groundfish conducts daily inspections to determine if employees are following the company's Employee Hygiene and Good Manufacturing Practices (GMP) Policy. The Production Supervisor completes these inspections, and any deviations observed, such as an employee not wearing their hairnet or not washing their hands after returning from break, are recorded. The Production Supervisor has noticed an increase in deviations in the last few months, which has driven the company to prioritize employee hygiene and GMPs as an area of improvement.

One tool that can help to identify and define the problem is **root cause analysis**. In the scenario given, the company conducted a root cause analysis and found that the frequency of training employees on the Employee Hygiene and GMP Policy (annually and upon hire) is too infrequent, and employees tend to forget.

Once the area of improvement is identified and the problem is defined, the next phase is to measure.

Measure

Measuring continuous improvement can be accomplished by establishing Key Performance Indicators (KPIs). KPIs are defined as quantifiable measures used to evaluate an organization's success, employee behaviour, etc., in meeting objectives for performance. KPIs must be SMART:

- **Specific** – clear and directly related to the site's continuous improvement goals
- **Measurable** – enables the site to assess progress towards continuous improvement goals
- **Achievable** – targets must be challenging but realistic with sufficient resources available
- **Relevant** – targets aim to improve product quality and safety or processes
- **Time-bound** – a target timeline must be established, i.e., long-term or short-term. The timeline must allow the site to review progress and, if necessary, redefine the problem and solutions.

FACT SHEET

Below are some common examples of KPIs for quality and food safety. It is best to focus on one or two KPIs when beginning.

- Customer complaints
- Employee training completion (e.g., employees have received adequate training and annual refresher training and effectiveness checks are completed)
- CCP deviation incidents
- Non-conforming product incidents
- Product recall or withdrawal incidents
- Number of product rejects and returns
- Amount of rework and waste
- Final product testing results
- Environmental monitoring results
- Pre-operational inspection results

- Water quality results
- Record keeping completion (e.g., records are filled in correctly and verified in a timely manner)
- Shelf-life study results
- Label compliance
- Internal and external audit/inspection results (e.g., score, number, and type of non-conformances)
- Sensory evaluation results
- Corrective/preventative action completion
- Non-conformance completion and closure
- Pest control inspection findings
- Meeting finished product specifications'

The measurement of current performance is critical since it serves as the reference point for improvement and as a visual for recognizing progress and the completion of tasks. During the measure phase, data is collected to identify and monitor defects in the product or process.

Using the scenario described above, the company's KPI to measure employee adherence to the hygiene GMP policy will be the average number of deviations found during the employee hygiene and GMP inspections per month. The company has determined the current average to be 3.5 deviations/month and is aiming to decrease the average to ≤2 within five months. To complete this, the number of deviations will be recorded on the Daily GMP Inspection Record, and at the end of each month, the average number of deviations will be calculated.
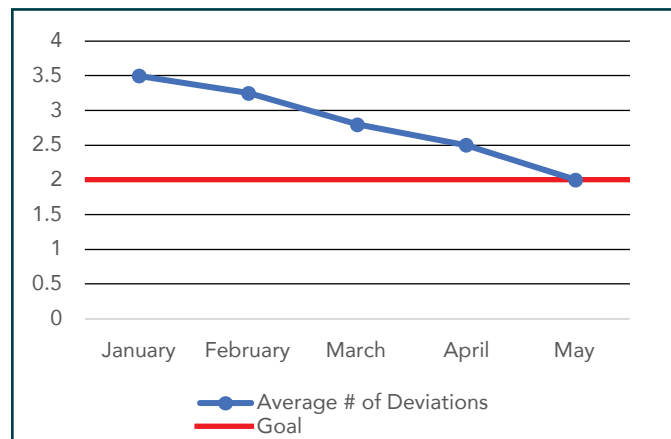
Once the KPIs have been identified and measured, the next phase is to analyze the data.

Analyze

The data can be analyzed using statistics, charts, or graphs to view the data objectively and observe trends.

This visualization will allow the site to compare the results with the baseline and the targeted goal. In the scenario given, the Food Safety Manager will calculate the average deviations per month and plot the results on a line graph:

Month	Week	# of Deviations	Average # of Deviations/Month
January	1	3	3.5
	2	4	
	3	4	
	4	3	
February	5	2	3.25
	6	2	
	7	3	
	8	6	
March	9	3	2.8
	10	4	
	11	2	
	12	3	
	13	2	
April	14	2	2.5
	15	3	
	16	2	
	17	3	
May	18	3	2
	19	2	
	20	2	
	21	1	

FACT SHEET

Improve and Control

Once conclusions are drawn based on the data, solutions can be made to improve the process. In the given scenario, to increase awareness and understanding of the Employee Hygiene and GMP Policy, the policy will be reviewed during toolbox talks before production, and it will also be posted in all staff amenities. The Production Supervisor will be responsible for completing the toolbox talks and following up with employees who are not following the Employee Hygiene and GMP Policy.

Once the solution is implemented, it is critical to continue monitoring performance to determine the effectiveness of the solution in achieving improvement. If not, the site may need to redefine the problem or KPI, reanalyze the data or determine a new solution. In this scenario, if the company did not see a decrease in deviations, the root cause may not have been identified correctly and would need to be redefined, or a new solution such as changing the training style to one that is more effective for the employees may need to be implemented. Once a company achieves one of their current continuous improvement goals, and the problem is under control, they can now focus on another area of improvement using the DMAIC model process.

Continuous improvement and KPIs must be discussed and reviewed by senior management at an appropriate frequency or at a minimum quarterly. All discussions must be communicated to all levels of staff and management. The continuous improvement log shown below is a convenient method for summarizing the company's improvement goals and efforts.

Date Initiated	KPI	Action To Be Taken	Responsibility	Target Date	Completed Date
January 1, 2021	Average number of deviations related to Employee Hygiene and GMP per month	Increase awareness of the Employee Hygiene and GMP Policy practices by reviewing them during the daily toolbox talk before production and posting the Employee Hygiene and GMP Policy in all staff amenities.	Production Supervisor	June 1, 2021	June 1, 2021
		The number of deviations for each will be recorded, and the monthly average will be calculated and trended.	Food Safety Manager		

References & Further Reading:

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