

Case Study 1: Ongoing Underfill Issue on Line 1 — Root Cause Analysis Required

Background

Nature's Best Juice Co. is currently dealing with a production issue on Line 1. Over the past several days, there's been a noticeable and rising number of underfilled bottles. QA has flagged it as a priority defect trend, but the cause is still unclear.

Problem Statement

There is a growing rate of underfilled bottles being produced on Line A. We don't yet know the exact start date or what's driving the issue, but it appears to be gradually getting worse.

Your Task (as the Analyst)

You are assigned to investigate and report on the issue. Specifically:

- Determine when the defect trend began and how it has evolved
- Compare the defect rate before vs. after the issue became noticeable
- Identify patterns tied to filler settings, nozzles, operator shifts, or temperature/humidity conditions
- Deliver a data-backed RCA with clear explanations and recommendations for the Operations team

Who You're Supporting (The Operations Team)

- Quality Control Manager: Ensures product meets quality standards and flags any issues
- Maintenance Lead: Keeps machines running smoothly and handles repairs
- Production Line Manager: Manages daily output on Line A
- Plant Director: Leads the full plant operation