ROOT CAUSE ANALYSIS

Root Cause Analysis looks beyond the immediate non-conformance or deviation to investigate what system or process allowed the non-conformance to occur in the first place.

Root Cause Analysis (RCA) is a popular and often-used technique that seeks to identify the origin of a problem using a specific set of steps, with associated tools, to find the primary cause of the problem, so that you can:

- Determine what happened.
- Determine why it happened.
- Figure out what to do to reduce the likelihood that it will happen again.

The Root Cause Analysis Process has four identifiable steps.

Step One: Define the Problem

- What do you see happening?
- What are the specific symptoms?

Be sure to start with a problem and not the solution. Ensuring that you have properly defined the problem will ensure that you are identifying the appropriate underlying causes.

Step Two: Collect Data

- What proof do you have that the problem exists?
- How long has the problem existed?
- What is the impact of the problem?

You need to analyze a situation fully before you can move on to look at factors that contributed to the problem.

To maximize the effectiveness of your RCA, get everyone together – experts and front line staff – who understand the situation. People who are most familiar with the problem can help lead you to a better understanding of the issues.

Step Three: Identify Possible Causal Factors and Identify Root Causes

- What sequence of events lead to the problem?
- What conditions allow the problem to occur?
- What other problems surround the occurrence of the central problem?

During this stage, identify as many causal factors as possible. Too often, people identify one or two factors and then stop, but that's not sufficient. With RCA, you don't want to simply treat the most obvious causes – you want to dig deeper.

Tools to help identify causal factors:

The **'5 Whys'**

The **'5 Whys'** is the simplest method for structured root cause analysis.

It is a question asking method used to explore the cause/ effect relationships underlying the problem. The investigator keeps asking the question 'Why?' until meaningful conclusions are reached.

It is generally suggested that a minimum of five questions need to be asked, although sometimes additional questions are required or useful, as it is important to ensure that the questions continue to be asked until the real cause is identified rather than a partial conclusion.

Fishbone Diagrams:

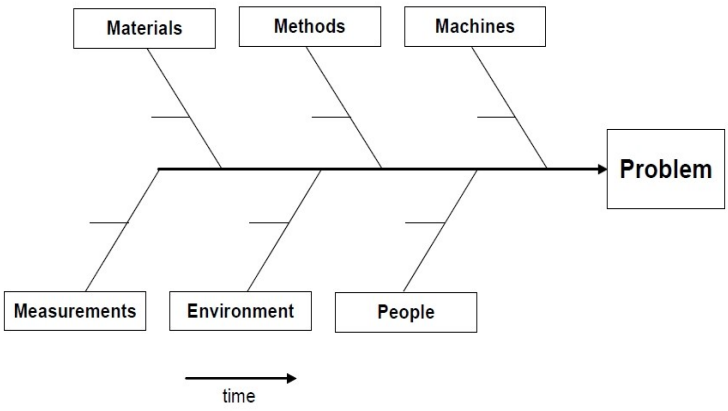
A second commonly used method of root cause analysis, is the use of fishbone diagrams (sometimes referred to a

Ishikawa models or Herringbone diagrams). They are most useful when the **'5 Whys'** is too basic, for example, where a complex issue needs to be considered in bite size pieces or where there is a lot of data that needs to be trended.

In the diagram, the various causes are grouped into categories (such as equipment, materials or processes) and the arrows in the image indicate how the causes cascade or flow toward the non- conformance.

The categories are not pre-defined but common ones include:

- Equipment – this should include consideration of all equipment that could have a role in the non-



conformity, for example, production line, facilities, computers or tools.
- Processes or Methods – how work is performed, policies, procedures, rules or work instructions.
- Measurements – any data collection or measurement, either from a process or subsequent to the non-conformance, records, check weights.
- Materials – any information relating to raw materials or final products.
- Environment – The location, time, temperature, culture.
- People – Any role involved in the implicated process.

This type of root cause analysis is a causal process, it seeks to understand the possible causes by asking 'What actually happened?', 'When?', 'Where?' 'Why?', 'How?', and 'So what?'. In other words, a possible cause is identified and the consequences and significance is investigated for each of the group categories.

Each of these tools are designed to encourage you to dig deeper at each level of cause and effect. Ask yourself:

- Why does the causal factor exist?
- What is the real reason the problem occurred?

This deeper look identifies the root causes.

Step Four: Recommend and Implement Solutions

Once the root causes have been identified the next step is to recommend and implement solutions.

Ask yourself the following questions:

- What can you do to prevent the problem from happening again?
- How will the solution be implemented?
- Who will be responsible for it?

Develop an action plan to implement the solutions. The proposed action plan should focus on ensuring that the system or process is amended such that the problem cannot occur in future. Therefore the proposed action plan should not be a repeat of the immediate corrective action. It is important that immediate action is taken to correct a non-conformity, especially when food safety is at risk , however this is separate from the root cause analysis and proposed action plan.

Analyze your cause-and-effect process, and identify the changes needed for various systems. It's also important that you plan ahead to predict the effects of your solution. This way, you can spot potential failures and prevent them from occurring.

An important final component of a successful root cause analysis is to monitor the effectiveness of the corrective actions. This is necessary to ensure that the corrective actions are fully operational, that they are effective in managing the root cause and that it does not inadvertently introduce any additional problems.

Root Cause Analysis is not just for food safety issues—it can be used in all aspects of your business as a problem solving tool.

Resources

OIMP Action Plan Template

For more information:

Ontario Independent Meat Processors

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