

Workflow: Maintenance and Asset Care

Toolkit 7.2

Critical Equipment

target audience

Farmer, supervisors, equipment operators, and contractors.

what it is

Developing an appropriate maintenance and asset care strategy requires understanding the criticality of the equipment being maintained. Since it is just as easy to “over maintain” an asset as it is to neglect it, determining the criticality of each piece of equipment will enable the maintenance department to develop the appropriate strategy for the equipment. Refer to [Toolkit 7.1 – A Reliability Approach to Asset Care](#).

Within manufacturing, the term “critical equipment” has a particular meaning. It refers to equipment for which, when a failure occurs, the consequences are very severe (e.g., fatality, personal injury, environmental incident, significant production loss, etc.). The same principle can be adopted in any operating environment, including farming and packhouses. When conducting an analysis to determine equipment criticality, it is important to apply a consistent and objective approach (criteria) based on the consequence of failure, including safety, environmental, and business consequences, and the estimated risk of failure (i.e., how likely is the failure to occur?).

why it is important

In today’s business environment it is important to be efficient in all activities, including maintaining the asset. Farm leaders are continually under pressure to be more productive while at the same time reducing cost of production and optimising yield. In other words, it is business critical to “work smarter, not harder”.

For maintenance, working smarter means making balanced trade-offs regarding the amount to spend on maintaining the equipment in the condition required. The best way to make those trade-offs is to understand equipment criticality. The consequences for not developing a maintenance and asset care strategy based on criticality include safety, environmental, and operational problems that could hurt people, damage the environment, and reduce the farm’s ability to supply quality products to its customers.

success factors

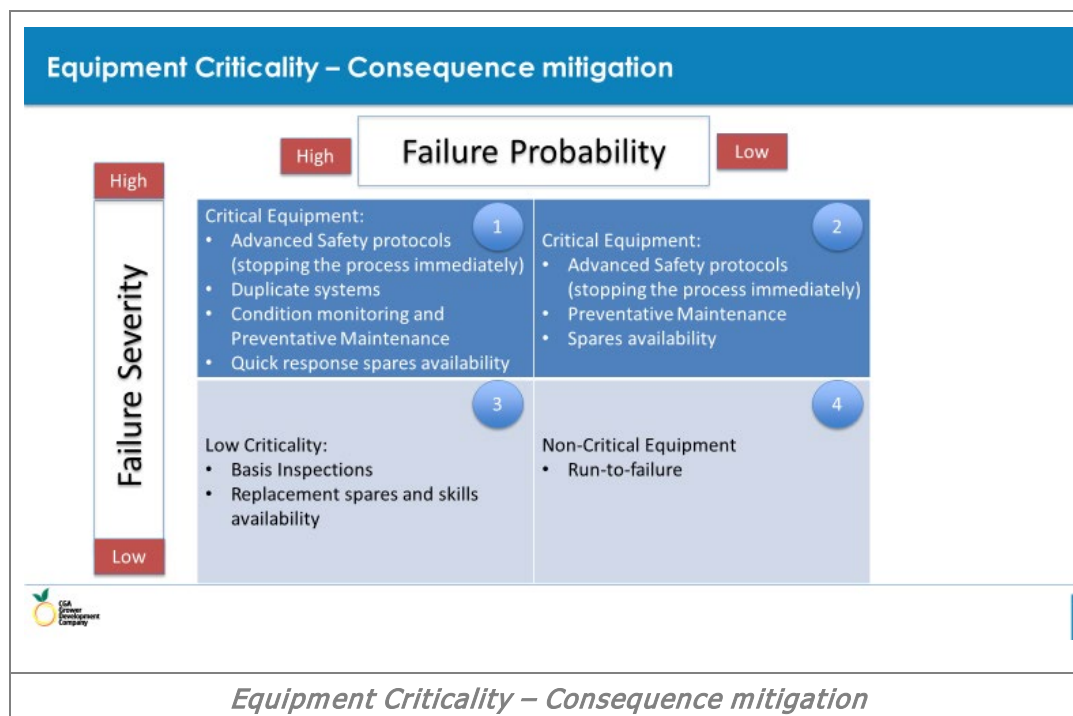
- Agree on a Standard Rating System – There are a variety of methods used to develop an objective critical equipment list. Some computerized maintenance management systems

(CMMS) provide tools and functionality to capture the critical ranking of the assets within the system. The issue, irrespective of the method used, is to rank the assets.

➤ There are two key factors to determine criticality:

- The consequences of the failure.
- The likelihood of the failure occurring.

Once the farm has aligned on a relative value for the consequence to the people, environment, and operation, and agreed on a value that represents the likelihood of failure, the relationship between consequence and occurrence frequency can be shown by mapping it onto a graph. The graph will provide guidelines to determine the criticality and subsequent prevention or mitigation measures to be used.



- Classify equipment based on rating system and develop a formal equipment log.
- Maintain the classification and equipment log over time.

execution steps

1. The farm manager needs to put together a team to conduct the analysis, which is typically lead by the farmer or a maintenance specialist. The team should include people who:
 - Are familiar with the operation and know the consequence of failure of the systems.
 - Have information available to objectively estimate the potential occurrence level for failure and time required to return the equipment to operable condition.
 - Understand employee safety and environmental impact of equipment failure.
2. Review each piece of equipment that affects the operation by first rating the severity of the consequences of a failure in that system or piece of equipment as high, medium, or low. The

review should include all categories from safety through cost to arrive at the total consequence of the failure, expressed as high, medium, or low.

3. Review the equipment history and assign a potential frequency of occurrence in terms of high, medium, or low.
4. Chart and prioritize all assets in the analysis to identify the most critical.
5. Introduce the appropriate mitigation strategy as proposed per criticality quadrant.

assessment questions

Please Note: There is no minimum / maximum amount of questions you can add

1.	Has management developed criteria to identify critical equipment?
2.	Is there a process to evaluate equipment criticality?
3.	Is there a maintenance plan for each piece of equipment identified as critical?
4.	Is there an updated critical equipment log sheet?

resources

1.	Critical Equipment Logsheet
2.	Critical Equipment Criteria example