



SCC DIAGNOSTICS TOOL BOX

QCF-4: Mastitis and Milk Quality Problem Identification With Cause and Effect Diagrams

Effective problem solving begins with a clear understanding of the systems/processes that effect mastitis and milk quality. Too often diagnostic tests are run and conclusions drawn with an insufficient understanding of all factors affecting milk quality or mastitis. As a result, unbalanced or erroneous diagnoses and ineffective recommendations may be given. Cause-and-effect diagramming (also called fishbone or Ishikawa diagrams) is helpful in identifying and systematically listing all the different causes that can be attributed to an “effect” or “problem”. This approach helps all participants to understand and visualize the potential root causes of any problem or effect being considered within the context of the whole system. It can also be used in process improvement by helping herd managers and consultants identify those factors most likely limiting performance. Development of a cause-and-effect diagram is relatively simple. Ideally it should be done as part of a brainstorming session where the herd consultant(s), herd manager, herds person and employees are working together to gain a clear understanding of the herd problem. A sample of a generic cause-and effect (fishbone) diagram is shown in Figure 1.

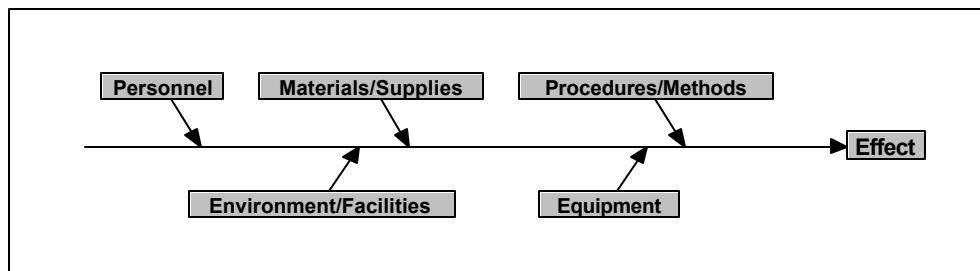


Figure 1. Generic fishbone diagram.

The diagram is started by drawing a straight horizontal line (the backbone) with an arrow pointing to a brief statement of the “effect” or “problem”. Since every process has five standard inputs (people, material, methods, equipment, environment), all of which could be potential “causes”, the five large bones of the fishbone diagram can be drawn connecting to the “backbone” as show in Figure 1. Occasionally all five of the generic categories are not appropriate in which case those inappropriate may be discarded. With this accomplished, the next step is to brainstorm asking the question “why” for each of the “large bones” of the fishbone diagram. As responses are made, they are added as contributing sub-cause “small” bones along each of the “large” bones (Figure 2). Each time a sub-cause is added, the why question is asked and as each answer is given, it is added as an offshoot of the bone that spawned the question until nobody can think of answers to the why questions. Using this procedure will lead you (in theory) to the potential root causes of the “problem” or “effect” of concern. Figure 2 is an example of a fishbone diagram for a dairy concerned about a high BTSCC. Every dairy’s high BTSCC fishbone diagram will have similarities but because of differences in process inputs (people, material, methods, equipment, and environment), every fishbone diagram may look very different. This is to be expected and is not important. What is important is that all interested parties have become involved in the systematic thought process. Because each has had input, they now are more likely to also feel ownership and as a team, will now have a clearer understanding of what needs to be done.

Once the cause and effect diagram is completed to everyone’s satisfaction, the next step is to identify which of the potential contributing factors are most likely in need of improvement. A plan should then be devised and implemented with monitors identified to measure progress.

The use of cause-and-effect diagrams has the advantage of providing a better understanding of all the components of any process being considered and the relationship between each. As a result, they encourage systematic approach to problem solving or process improvement.

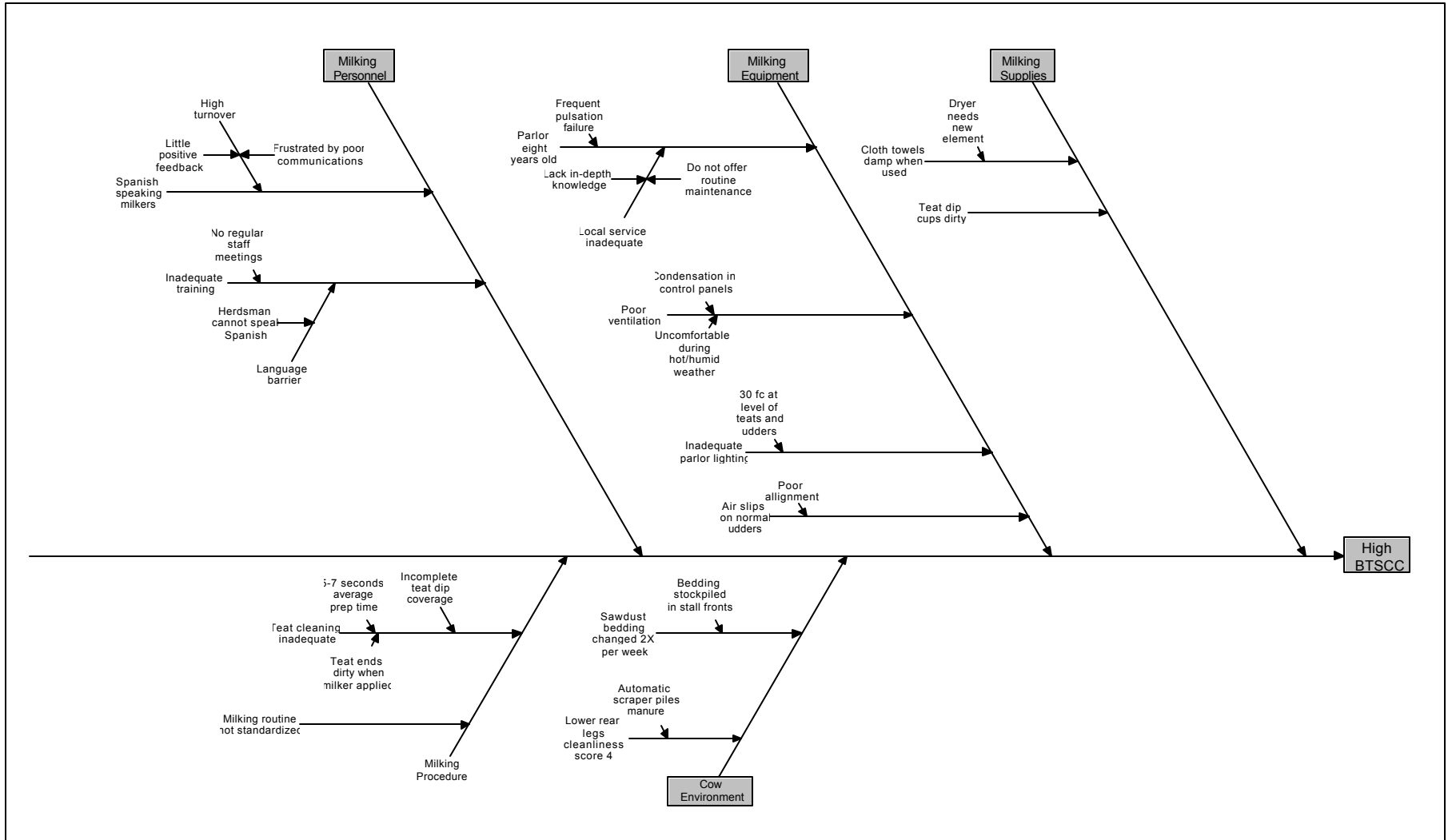


Figure 2. Fishbone diagram for an example herd with high BTSCC problem.

