



SCC DIAGNOSTICS TOOL BOX

Quality Counts Worksheet 1: SCC General Assessment

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Labor supply:

Family labor _____ FTE*

Hired labor _____ FTE*

* One FTE = 50 hrs/week

Farm diagnostic team members:

Name	Position or role

Dairy Herd

Number of milk cows (including dry cows) _____

Number of youngstock _____

Number of steers _____

Total number of animals (including dry cows) _____

Annual milk shipped per cow:

Milk lb _____

Production records:

- DHIA
- Other (please describe): _____

See: DHI Yardstick on-line at <http://www.mndhia.org/tools/yardstick03.html>
DHI Scorecard on-line at <http://www.mndhia.org/tools/scorecard03.html>

Youngstock

Do you raise your own young stock/replacements?

- Yes
- No, I sell all my calves and buy heifers back
- No, another farmer raises my young stock

Milking Cows

Housing of the milking herd:

What kind of housing do you have for the lactating herd?

- Tie stall
- Free stall barn with curtain sides
- Free stall barn, conventional steel sides
- Open front barn with loose housing
- Other (please describe): _____

What kind of bedding is used in stalls of the dairy cows?

- Sand
- Sawdust
- Mattresses
- Straw
- Recycled solids
- Paper
- Other (please describe): _____

What kind of walking surface is provided for your dairy cows?

- Slatted floor
- Grooved cement
- Concrete floor
- Other (please describe): _____

Milking Facility

What kind of milking facility do you have?

Milking system	No. of milking units	Capacity (no. of stalls)
Bucket system in a stanchion/tie stall barn		
Pipeline system in a stanchion/tie stall barn		
Step-up parlor		
Swing parlor		
Herringbone parlor		
Side-opening parlor		
Parallel parlor		
Carousel		
Other (please describe):		

Does your milking parlor include the following options?

- ATO
- Rapid exit
- Automatic daily milk measuring

Frequency of milking equipment checks:

- 1 time per year
- 2 times per year
- Other: _____ times per year or per hours of operation (i.e., every 1000 hours)

Parlor throughput: _____ cows/hour/milker
_____ lb of milk/milker

See Reference Material: Dairy Update #119 – Effect of Cow Prep on Milk Flow, Quality and Parlor Throughput

Frequency of milking:

- 2 times per day
- 3 times per day

How many weeks of the year do you teat dip all cows after milking? _____ weeks

What was the average SCC last 12 months? _____

What were high and low SCC last 12 months?

High: _____, in the month of: _____

Low: _____, in the month of: _____

Standard plate count
average last 12 months: _____

Lab pasteurization count
average last 12 months: _____

PI counts last 12 months: _____

Coliform counts last 12 months: _____

Average number of (new) clinical mastitis cases each month: _____

Describe your antibiotic treatment record system:

- Computerized
- Manual records
- Calendar
- Memory
- Other (please describe): _____

Describe how treated cows are identified: _____

Number of antibiotic residue violations last 12 months: _____

Dry Cows

Describe housing of the dry cows:

Dry group*	Housing facility**

* For example: Close-up group, or from 3 weeks before up until calving

** For example: Freestall barn, or inside pen with straw bedding

Dry-treat all quarters of all cows at dry off?

- Yes
- No

Dry-treat selected cows?

- Yes (please describe criteria): _____
- No

Have you divided your dry cows in a close-up group and a far-off dry group?

- Yes
- No

Health

Veterinary use on the farm:

- Only for emergency cow care
- Only for herd health care/advice
- Both of the above
- None of the above

How do you maintain animal health? (please describe): _____

How many times was a veterinarian on your farm last year to service the dairy herd?

_____ times for herd health visit
_____ times for an emergency visit

What type of routine preventive medicine program do you have with your veterinarian?

- Reproduction
- Vaccination
- Mastitis control
- Parasite control
- Other (please describe): _____

How do you record all diagnoses, treatments and vaccinations?

- Computerized
- Manual records
- Calendar
- Memory
- Other (please describe): _____

Do you have separate maternity pens/sick pens?

- No maternity or sick pens
- Combined maternity/sick pen
number of pens: _____
- Separate maternity/sick pen
number of maternity pens: _____
number of sick pens: _____

Are cows that have recently calved kept in close contact with sick cows?

- Yes
- No

Cleaning of the maternity/sick pen:

- After every calving and/or sick animal
- Every _____ weeks
- Every _____ calving and/or sick animal

Disinfecting of the maternity/sick pen:

- After every calving and/or sick animal
- Every _____ weeks
- Every _____ calving and/or sick animal

Bedding material in the maternity/sick pen:

- Sand
- Sawdust
- Mattresses
- Straw
- Recycled solids
- Paper

Where do you purchase the medicines for your animals?

- Local veterinarian
- Direct sales route
- Mail order catalogue
- Farm & Fleet stores

Where do you get treatment advice?

- Herd veterinarian
- Drug sales representative
- Other dairy farmers
- Other (please describe): _____

Biosecurity

Do you purchase animals or do you have a closed herd?

- Yes, I purchase animals

What animals are purchased?

- Youngstock
- Springing heifers
- Mature cows

- No, I do not purchase animals

When animals are purchased, is their health status as determined by appropriate testing (blood, milk, study or research) similar or better than your own herd?

- Yes, their health status (mastitis, SCC) is better or similar
- No, their health status (mastitis, SCC) is sometimes worse
- The health status (mastitis, SCC) of the purchased animals is unknown
- I don't know the health status (mastitis, SCC) of my own herd

Do you or have you previously participated in the Milk and Dairy Beef Quality Assurance Program?

- Yes
- No

Cow Comfort and Hygiene

What is the size of your stalls?

Length: _____ Width: _____

If you use free stall housing what is the cow density (cows/stall)? _____

Describe cow cleanliness and hock injuries: _____

See QCW-2: Cow Hygiene Scorecard

See QCW-3: Hock Injury Scorecard

See QCW-4: Lameness Scorecard

B. Mission / Goals / SCC and Mastitis Concerns / Attitude

How many years do you plan to be in the dairy business? _____

Do you have a written Mission Statement for your dairy business?

- Yes (please attach your Mission Statement)
- No – See Worksheet 5: Developing a Mission Statement in the Dairy Diagnostics Tool Box at: <http://www.ansci.umn.edu/dairy/toolbox/toolbox.htm>

What are the **short-term farm business goals** (less than one year)?

See Worksheet 6: SMART Goals in the Dairy Diagnostics Tool Box at: <http://www.ansci.umn.edu/dairy/toolbox/toolbox.htm>

What do you consider to be the **three problems** on this farm that if solved would make the biggest difference in the next 12 months?

1. _____
2. _____
3. _____

What are the **short-term family goals**?

What **three changes** in this farm operation over the next 5 years would make the most positive differences?

1. _____
2. _____
3. _____

What are your **long-term family goals**?

See Worksheet 7: **DRIVE** Goals in the Dairy Diagnostics Tool Box at:
<http://www.ansci.umn.edu/dairy/toolbox/toolbox.htm>

As a participant in the **QUALITY COUNT\$** Program, what are your expectations?

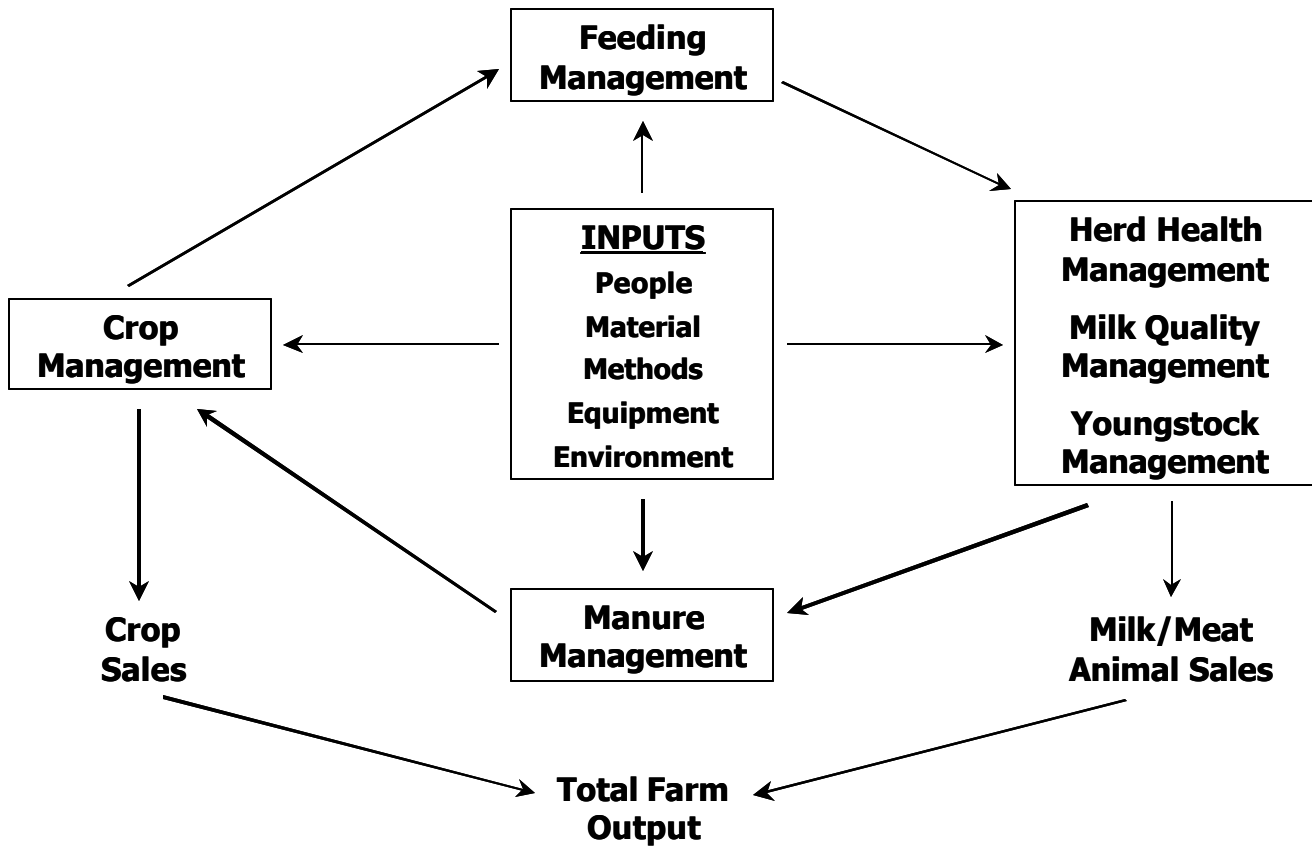
What is your personal attitude about milk quality and cow cleanliness?

See QCW-5: **SCC Risk Quiz**

See QCF-9: **Key to Process Improvement**

C. Dairy Production System Diagram

The dairy production system diagram (below) serves to remind the herd investigator that dairy producers have more than milk quality and mastitis to worry about. However, there are many areas of the entire dairy production system that have either direct or indirect effect on milk quality and mastitis. Certainly inputs, feeding, herd health management, youngstock management and manure management are all involved with milk quality. Therefore, it should always be kept in mind that any recommended solution(s) must be practical and fit within the context of the farm's operational system.



D. SCC Problem Solving Approach

Step 1. Define the Problem

Begin to define the problem by collecting the appropriate data. Study of herd records, existing management protocols, as well as your own observations and measurements will help you to understand which cows are becoming infected, when they are becoming infected and what interaction there may be between herd management and the herd mastitis problem.

★★★ = Essential information ★★ = Helpful information ★ = Good to have but not essential

Records

Herd records (DHI and/or on-farm) ★★★

See QCW-6: DHI SCC Records Analysis

Bulk tank SCC and component records from milk plant ★★

See Reference Material: *Statistical Process Control (SPC)*

Clinical mastitis records ★★

See Clinical Mastitis Records spreadsheet: MASTFORM.xls (series of Excel spreadsheets developed by AABP; sponsored by Pharmacia Animal Health, which is now Pfizer)

Existing Management Protocols

Dry cow ★★

See Reference Material: *Standard Operating Procedures* (by Richard Stup, Pennsylvania State University)

Bedding ★★

Clinical mastitis treatment ★

Milking equipment maintenance ★

Milking equipment cleanup ★

Vaccination ★

Dairy supply ordering ★

Observations

Cow hygiene score ★★★

See QCW-2: Cow Hygiene Scorecard

Pre- and post-dipping teat coverage ★★

See QCF-1: White Towel Test

Cow prep teat end cleanliness ★★

See QCF-2: Teat End Swab Test

Teat condition score ★

See QCW-7: Teat End Scorecard

Cow handling skill / attitude ★

Lameness score ★

See QCW-4: Lameness Scorecard

See ZinPro's Lameness Calculator on-line at:

<http://www.availa4.com/locomotion/lamenesscalculator.html>

Hock injury score ★

See QCW-3: Hock Injury Scorecard

Measurements

Cow prep and milking routine ★★★

See QCW-8: Milking Procedure Analysis

See QCF-6: Hand Strip Yield Test

Milking machine performance ★★

See QCW-9: Milking Equipment Evaluation

See *Effective Installation, Cleaning, and Sanitizing of Milking Systems* (available for purchase) on the Dairy Practices Council Web site at <http://www.dairypc.org/gllist.htm>

Attitude check ★★

See QCW-5: SCC Risk Quiz

See QCF-9: Key to Process Improvement

Stray voltage check ★

See *Stray Voltage Detection* on the Midwest Rural Energy Council Web site at <http://www.mrec.org/pubs/svd.pdf>

Step 2. Identify the Troublemakers

Determine what bacteria are causing the elevated SCC or clinical cases. Knowing WHAT is causing the infections will help you understand the possible cause and effect relationships and which mastitis control procedures will be effective.

Cultures

See QCF-3: Use of Lab Culture Results

- Bulk tank cultures for mastitis pathogens ★★★
- Individual cows cultures ★★
- Bedding cultures ★★

Step 3. Estimate Losses and List Possible Cause and Effect

Working with the information you have gathered in Steps 1 and 2, generate the possible causes and consider the possible solutions. Do not limit your thought process by jumping to conclusions too soon. Utilizing a cause and effect diagram in your discussion and thought process may help your diagnostic team visualize cause and effect relationships and illuminate root causes of the herd mastitis and SCC problem.

See QCF-4: Mastitis Problem Identification

Step 4. Develop a Practical Action Plan

Determine what practical options will solve the herd mastitis and SCC problem. Select the best option based on economic return and probability of success. It is very important to determine WHO will implement the plan and WHEN the plan will begin.

See QCF-5: Goal/Action Plan Selection

See QCW-10: Mastitis Action Plan

Step 5. Establish a Method to Monitor Progress

One of the most important components of any plan is to set up monitors to show whether your plan is working. The use of multiple monitors (e.g., BTSCC and bulk tank culture) is often best since no monitor is perfect. Some possible mastitis and milk quality monitors are:

- Bulk tank SCC graph for each milk pickup
- Monthly bulk tank culture for mastitis pathogens
- Individual cow DHI SCC
- CMT of all fresh cows
 - How many cows are calving infected?
 - Which quarters are infected?
- Culture of all fresh cows with high CMTs
 - What organisms are causing infection?
- Culture of all new clinical cases and new sub-clinical infections (new cows over 200,000 SCC) each month
 - What organisms are causing infection?
- New infection rate on all cows (goal < 5%)
- New infection rate on fresh cows (goal < 10%)
- Rate of clinical mastitis (goal < 2%/month)

See Mastitis Monitoring spreadsheet: **MASTMON.xls**
(Excel spreadsheet developed by Jim Salfer, University of Minnesota Extension Service)

Step 6. Implement the Plan

Make the changes you and your team decided is appropriate based on the facts you have gathered. Once implemented, be careful not to tinker with the plan unless there is strong evidence the plan is not working.

Step 7. Monitor Progress and Adjust Plan as Needed

Review the monitors monthly (or more frequently) to determine if the desired progress is being made. If it is, continue on the same course. If not, find out why. Is the problem the plan of action itself or failure to successfully implement the plan? Reevaluate the action plan and/or retrain personnel. Continue to fine-tune your plan until you achieve your SCC goals. Progress may be slow depending on the causes of the high SCC or clinical mastitis problem or the plan being implemented. However, if you use a systematic approach, you will make consistent progress toward your goal. Once reached, a low SCC will reward your farm with increased profitability and personal satisfaction.

