

PA Dairy
Milk Quality and Udder Health Drill Down



Penn State Cooperative Extension

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**PA Dairy—Milk Quality and Udder Health Drill Down
Data Input**

	Data			Description
FARM CONTACT INFORMATION				
Farm Name				
Owner's Name				
Address				
City				
State				
Zip				
Phone				
Fax				
E-Mail				
VETERINARIAN				
Veterinarian's Name				
Address				
City				
State				
Zip				
Phone				
Fax				
E-Mail				
MILKING EQUIPMENT DEALER				
Milking Equipment Dealer's Name				
Address				
City				
State				
Zip				
Phone				
Fax				
E-Mail				
OTHER CONSULTANTS				
Consultant's Name				
Address				
City				
State				
Zip				
Phone				
Fax				
E-Mail				
HERD DATA				
Milking Frequency	2X	3X	Other	Enter the milking frequency for the herd.
Total Number of Cows				Enter the total number of cows in the herd from the DHIA 202 sheet.
1st Lactation – number				Enter the number of 1 st lactation cows from the DHIA 202 sheet.
2nd Lactation - number				Enter the number of 2 nd lactation cows from the DHIA 202 sheet.
3rd+ Lactation - number				Enter the number of 3 rd lactation cows from the DHIA 202 sheet.

PA Dairy—Milk Quality and Udder Health Drill Down

Data Input

	Data	Description
% Cows in Milk		Enter the % Cows in Milk from the DHIA 202 sheet.
% Cows Dry		Enter the % Cows dry by difference from 100.
Total Number of Replacement Heifers		Enter the total number of replacement heifers on the farm.
% Heifers Custom Raised		Enter the percentage of total heifers that are custom raised off the farm.
Current Somatic Cell Count (SCC)		Enter the average SCC from the most recent month's milk check.
Tank		SCC in bulk tank
DHIA		SCC on DHIA 202 sheet
Current Production (lbs/day milking cows)		Enter the current bulk tank milk production per milking cow per day.
Percent Fat		Enter the average percent fat from the most recent month's milk check.
Percent Protein		Enter the average percent protein from the most recent month's milk check.
Current Months Days in Milk		Enter the current months Days in Milk from the DHIA 202 Sheet.
How long has herd been in existence?		Enter the number of years the current herd has been in existence.
How was herd assembled?		Describe how the herd was assembled.
Has management changed recently?	Yes No	
Has there been a recent expansion?	Yes No	Has the herd expanded recently?
MILKING SYSTEM		
Milking System	Parlor Bucket Pipeline	Select the type of milking system used on the farm.
Claw type/manufacturer		
Shell type/manufacturer		
Inflation type/manufacturer		
Vacuum Set Point		
Pump capacity		
Line Size		Select the line size for the milking system.
Regulator Location (or VSP Sensor)		
Pulsation Rate		
Pulsation Ratio		
Alternating Pulsation		Side to Side Alternating Pulsation or Front to Back Alternating Pulsation
Detacher model/manufacturer		
Detacher Settings (pounds/ohms, seconds delay)		
Number of Units		
Max Units per Slope		
Frequency of Milking Machine Maintenance		
Pre Dip Brand/mfg./supplier		
Post Dip Brand/mfg./supplier		
Milking cow mastitis treatments commonly used		
Dry cow treatments commonly used		
Other treatments		

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**PA Dairy—Milk Quality and Udder Health
Environmental Risk**

	1 Low Limitation	2 Moderate Limitation	3 High Limitation	Limitation (Low	Ranking Moderate	High)
ENVIRONMENTAL RISK 1	LOW	MOD	HIGH			
Housing type:	Free stall	Tie stall	Bedded pack	Dry Lot	Other	
Animal Type:	Lactating	Dry	Maternity	Bred Heifer		
1. Manure soiling of udder in excess of 30% surface area	< 10%	10 to 25%	> 25%			
2. Ventilation and humidity control	Dry with good air exchange	Humid with some ammonia odor	Strong ammonia odor with condensation			
3. Stall usage/cow comfort: % cows not eating or drinking or lying down	> 80%	60 to 80%	< 60%			
4. Bedding type, ability to support bacterial growth	Inorganic/ sand	Dry/organic/ straw/shavings	Damp-wet/organic/ sawdust			
5. Bedding depth and renewal	Generously/ daily	2 to 3X weekly	Scant/ infrequent/ >weekly			
6. Bedding moisture/urine content proximal to udder	Dry	Damp	Moist/wet			
7. Stocking density: Animals/stall, Cows/100 sq.ft. bedded pack, Maternity cows/300 sq.ft. bedded pack/box pen	≤ 1	1.1 to 1.2	> 1.2			
8. Exposure to mud, free standing manure and water puddles	Rare/infrequent	Occasionally	Frequent/many times daily			
ENVIRONMENTAL RISK 2	LOW	MOD	HIGH			
Housing type:	Free stall	Tie stall	Bedded pack	Dry Lot	Other	
Animal Type:	Lactating	Dry	Maternity	Bred Heifer		
1. Manure soiling of udder in excess of 30% surface area	< 10%	10 to 25%	> 25%			
2. Ventilation and humidity control	Dry with good air exchange	Humid with some ammonia odor	Strong ammonia odor with condensation			
3. Stall usage/cow comfort loose housing: % cows not eating or drinking or lying down	> 80%	60 to 80%	< 60%			
4. Bedding type, ability to support bacterial growth	Inorganic/ sand	Dry/organic/ straw/shavings	Damp-wet/organic/ sawdust			
5. Bedding depth and renewal	Generously/ daily	2 to 3X weekly	Scant/ infrequent/ >weekly			
6. Bedding moisture/urine content proximal to udder	Dry	Damp	Moist/wet			
7. Stocking density: Animals/stall, Cows/100 sq.ft. bedded pack, Maternity cows/300 sq.ft. bedded pack/box pen	≤ 1	1.1 to 1.2	> 1.2			
8. Exposure to mud, free standing manure and water puddles	Rare/infrequent	Occasionally	Frequent/many times daily			

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Environmental Risk**

	1 Low Limitation	2 Moderate Limitation	3 High Limitation	Limitation (Low	Ranking Moderate	High)
ENVIRONMENTAL RISK 3	LOW	MOD	HIGH			
Housing type:	Free stall	Tie stall	Bedded pack	Dry Lot	Other	
Animal Type:	Lactating	Dry	Maternity	Bred Heifer		
1. Manure soiling of udder in excess of 30% surface area	< 10%	10 to 25%	> 25%			
2. Ventilation and humidity control	Dry with good air exchange	Humid with some ammonia odor	Strong ammonia odor with condensation			
3. Stall usage/cow comfort: % cows not eating or drinking or lying down	> 80%	60 to 80%	< 60%			
4. Bedding type, ability to support bacterial growth	Inorganic/ sand	Dry/organic/ straw/shavings	Damp-wet/organic/ sawdust			
5. Bedding depth and renewal	Generously/ daily	2 to 3X weekly	Scant/ infrequent/ >weekly			
6. Bedding moisture/urine content proximal to udder	Dry	Damp	Moist/wet			
7. Stocking density: Animals/stall, Cows/100 sq.ft. bedded pack, Maternity cows/300 sq.ft. bedded pack/box pen	≤ 1	1.1 to 1.2	> 1.2			
8. Exposure to mud, free standing manure and water puddles	Rare/infrequent	Occasionally	Frequent/many times daily			
ENVIRONMENTAL RISK 4	LOW	MOD	HIGH			
Housing type:	Free stall	Tie stall	Bedded pack	Dry Lot	Other	
Animal Type:	Lactating	Dry	Maternity	Bred Heifer		
1. Manure soiling of udder in excess of 30% surface area	< 10%	10 to 25%	> 25%			
2. Ventilation and humidity control	Dry with good air exchange	Humid with some ammonia odor	Strong ammonia odor with condensation			
3. Stall usage/cow comfort: % cows not eating or drinking or lying down	> 80%	60 to 80%	< 60%			
4. Bedding type, ability to support bacterial growth	Inorganic/ sand	Dry/organic/ straw/shavings	Damp-wet/organic/ sawdust			
5. Bedding depth and renewal	Generously/ daily	2 to 3X weekly	Scant/ infrequent/ >weekly			
6. Bedding moisture/urine content proximal to udder	Dry	Damp	Moist/wet			
7. Stocking density: Animals/stall, Cows/100 sq.ft. bedded pack, Maternity cows/300 sq.ft. bedded pack/box pen	≤ 1	1.1 to 1.2	> 1.2			
8. Exposure to mud, free standing manure and water puddles	Rare/infrequent	Occasionally	Frequent/many times daily			

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**PA Dairy—Milk Quality and Udder Health
Environmental Risk**

	1 Low Limitation	2 Moderate Limitation	3 High Limitation	Limitation (Low	Ranking Moderate	High)
ENVIRONMENTAL RISK 5				LOW	MOD	HIGH
Housing type:	Free stall	Tie stall	Bedded pack	Dry Lot	Other	
Animal Type:	Lactating	Dry	Maternity	Bred Heifer		
1. Manure soiling of udder in excess of 30% surface area	< 10%	10 to 25%	> 25%			
2. Ventilation and humidity control	Dry with good air exchange	Humid with some ammonia odor	Strong ammonia odor with condensation			
3. Stall usage/cow comfort: % cows not eating or drinking or lying down	> 80%	60 to 80%	< 60%			
4. Bedding type, ability to support bacterial growth	Inorganic/ sand	Dry/organic/ straw/shavings	Damp-wet/organic/ sawdust			
5. Bedding depth and renewal	Generously/ daily	2 to 3X weekly	Scant/ infrequent/ >weekly			
6. Bedding moisture/urine content proximal to udder	Dry	Damp	Moist/wet			
7. Stocking density: Animals/stall, Cows/100 sq.ft. bedded pack, Maternity cows/300 sq.ft. bedded pack/box pen	≤ 1	1.1 to 1.2	> 1.2			
8. Exposure to mud, free standing manure and water puddles	Rare/infrequent	Occasionally	Frequent/many times daily			
ENVIRONMENTAL RISK 6				LOW	MOD	HIGH
Housing type:	Free stall	Tie stall	Bedded pack	Dry Lot	Other	
Animal Type:	Lactating	Dry	Maternity	Bred Heifer		
1. Manure soiling of udder in excess of 30% surface area	< 10%	10 to 25%	> 25%			
2. Ventilation and humidity control	Dry with good air exchange	Humid with some ammonia odor	Strong ammonia odor with condensation			
3. Stall usage/cow comfort: % cows not eating or drinking or lying down	> 80%	60 to 80%	< 60%			
4. Bedding type, ability to support bacterial growth	Inorganic/ sand	Dry/organic/ straw/shavings	Damp-wet/organic/ sawdust			
5. Bedding depth and renewal	Generously/ daily	2 to 3X weekly	Scant/ infrequent/ >weekly			
6. Bedding moisture/urine content proximal to udder	Dry	Damp	Moist/wet			
7. Stocking density: Animals/stall, Cows/100 sq.ft. bedded pack, Maternity cows/300 sq.ft. bedded pack/box pen	≤ 1	1.1 to 1.2	> 1.2			
8. Exposure to mud, free standing manure and water puddles	Rare/infrequent	Occasionally	Frequent/many times daily			

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**PA Dairy—Milk Quality and Udder Health
New Infections**

	1 Low Limitation	2 Moderate Limitation	3 High Limitation	Limitation (Low	Ranking Moderate	High)
MILKING MANAGEMENT RISK				LOW	MOD	HIGH
1. Parlor/Tie stall exposure to cow contact stray voltage	< 0.5 volts	0.5 to 2 volts	> 2 volts			
2. Planned visual inspection of milking equipment (rubber components, etc.)	Daily to weekly	Weekly	> Weekly			
3. Cow handling (to and through parlor, during milking process)	Calm & deliberate	Occasionally abrupt	Mostly abrupt/fractious			
4. Use of gloves during milking	Always	Usually	Never			
5. Average Pre dip teat coverage (barrel of teat)	>90% of entire teat barrel	70 to 90% of entire teat barrel	<70% of entire teat barrel			
6. Pre dip contact time	~30 seconds	20 to 30 seconds	<20 seconds			
7. Fore-stripping	Vigorous (2 to 3 squirts/teat)	Less Vigorous (1squirt/teat)	Not practiced			
8. Use of California Mastitis Test (CMT) to detect new cases of mastitis	Routinely	Sometimes	Never			
9. Average teat stimulation time	15 to 20 seconds	10 to 15 seconds	<10 seconds			
10. Alcohol swab teat end test	<10% dirt/manure stained	10 to 20% dirt/manure stained	>20% dirt/manure stained			
11. Use of single service paper towels or washed/dried cloth towels	Always	As needed	Never			
12. Average time from first teat stimulation to unit attachment	~45 to 90 sec.	90 to 180 sec	>180 or <30 sec			
13. Liner slips/100 milkings	<5%	5 to 15%	>15%			
14. Average unit on time	<5 minutes	5 to 7 minutes	>7minutes			
15. Cleaning of units and milking area during milking	Frequently	Sometimes	Never			
16. Timeliness of unit removal if operator initiated	>80% at 1st dribble	60 to 80% at 1st dribble stage	<60% at 1st dribble stage			
17. Post dip teat coverage (barrel of teat)	>90% of entire teat barrel	70 to 90% of entire teat barrel	<70% of entire teat barrel			
18. Post dip use/management during cold weather (<30F°)	Tie Stall or post dip and daub dry	discontinue dipping	Not considered			
19. Occurrence of teat end erosions	<15% with rough+ teat ends	15 to 25% with rough+ teat ends	>25% with rough + teat ends			
20. Written/Posted milking procedures	Clearly displayed	Verbal	None			
21. Posted treatment and animal health records	Posted, current and milker accessible	Verbal	No system in place			
22. Timely milker education with performance feedback	Monthly	Every 3 to 6 months	Never			

PA Dairy—Milk Quality and Udder Health

New Infections

	1 Low Limitation	2 Moderate Limitation	3 High Limitation	Limitation (Low	Ranking Moderate	High)
ANIMAL HEALTH—BIOSECURITY RISK				LOW	MOD	HIGH
1. Use of vaccine (J-5) to reduce the incidence of Coliform Mastitis	Always	Selectively	Never			
2. Udder flaming/clipping	Routinely	Intermittently	Never			
3. Uniform balanced rations with appropriate trace minerals and vitamins to all stages of cattle (with emphasis on Vitamin E: lactating cows 500 IU/day, dry cows 1000 IU/day, Close-up Cows 4000 IU/day; Selenium 0.3 ppm; Copper 20 ppm)	Always	Most of time	Do not know			
4. Use of bulk tank and milk cultures as a management and monitoring tool	Always	Sometimes	Never			
5. Dietary and management (bST withdrawal) changes to facilitate dry off (reduce milk production)	Always	Sometimes	Never			
6. Incidence of lameness (walking with arched back to 3 legged lame)	<10%	10 to 20%	>20%			
7. Regularly scheduled herd health program	Routinely	Intermittently	Never			
8. Incidence of udder edema around calving	<10%	10 to 20%	>20%			
9. Incidence of metabolic problems before and after calving (milk fever, ketosis, DA, downer cow)	<5%	5 to 10%	>10%			
10. Use of records to evaluate udder health problems in terms of new infections, chronics, DIM, season, and parity	Routinely	Sometimes	Never			
11. New clinicals and chronically infected contagious cows milked separately	Routinely	Sometimes	Never			
12. Purchased cows screened for contagious forms of mastitis prior to herd entry	Routinely	Sometimes	Never			
13. Cleaning/disinfection of hands after handling a cow with mastitis	Routinely	Sometimes	Never			
14. Feeding of un-pasteurized waste milk to calves	Never	Sometimes	Routinely			
15. Maternity pen cleaned and bedding replaced between calvings	Routinely	Sometimes	Infrequently			
16. Were appropriate Intra mammary treatment of heifers used at least two weeks prior to calving	Routinely	Sometimes	Infrequently			

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**PA Dairy—Milk Quality and Udder Health
Culling and Treatment Risk**

	1 Low Limitation	2 Moderate Limitation	3 High Limitation	Limitation (Low	Ranking Moderate	High)
CULLING RISK				LOW	MOD	HIGH
1. Willingness to cull cows with known cases of Mycoplasma mastitis	Without Question	Usually	Never			
2. Willingness to cull chronically infected cows with known cases of Staph aureus mastitis	Without Question	Usually	Never			
3. Annual culling rate (*low cull rates due to expansion or heifer sales frequently increase tolerance for chronically infected cows)	>27%	22 to 27%	<22%			
TREATMENT RISK				LOW	MOD	HIGH
1. Dry treatment	Always	Selectively	Never			
2. Use of internal teat sealer (Orbeseal - Pfizer Animal Health) as an adjunct to dry treatment	Always	Selectively	Never			
3. Clearly understood written treatment protocols and procedures	Always	Verbal	None			
4. Other than suspected cases of coliform mastitis, are treatments of new clinical cases delayed routinely	Never	Sometimes	Frequently			
5. Use of aseptic technique (pre-dip, alcohol pads/cotton balls) prior to intra-mammary therapy	Always	Most of the time	Never or Infrequently			
6. Use of extra label drugs/ homeopathic remedies in place of FDA approved drugs	Never	Sometimes	Frequently			
7. Use of records to evaluate the success of treatment	Routinely	Sometimes	Rarely/Never			

**PA Dairy—Milk Quality and Udder Health
Sanitation**

	1 Low Limitation	2 Moderate Limitation	3 High Limitation	Limitation (Low	Ranking Moderate	High)
				LOW	MOD	HIGH
CLEANING AND SANITIZING						
1. Complete wash cycle at end of milking and complete sanitation cycle prior to milking	Routinely	Most of the time	Infrequently			
2. Use of quality cleaning and sanitizing products backed by service	Routinely	Most of the time	Infrequently			
3. Wash cycle solid slug formation (>7/cycle)	Routinely	Most of the time	Infrequently			
4. End detergent cycle wash water temperature > 120 degrees F	Routinely	Most of the time	Infrequently			
5. Potable water source for cleaning and sanitizing	Routinely	Most of the time	Infrequently			
6. Presence of foreign material (manure, bedding, dirt) in milk filter	Never	Sometimes	Routinely			
7. Visual inspection of rubber and plastic parts for air leaks, cleanliness & replacement	Routinely	Occasionally	Never			
8. Visual inspection of milking system for low spots and areas of poor water drainage	Routinely	Occasionally	Never			
MILK COOLING						
				LOW	MOD	HIGH
1. Cooling capacity of bulk tank to cool 1st milking to <40 degrees F within one hour of milking	Routinely	Occasionally	Never			
2. Cooling capacity of bulk tank to maintain blend milk temperature < 45 degrees F during subsequent milkings	Routinely	Occasionally	Never			
COW HYGIENE/ENVIRONMENTAL RISK						
				LOW	MOD	HIGH
1. Manure soiled udders, legs and flanks (herd average)	None/Scant	Areas of visible manure staining and some caked on	Heavily soiled/much caked on manure			
2. Udder flaming/clipping	Routinely	Occasionally	Never			
3. Water free udders and clean dry teats prior to unit attachment	Routinely	Occasionally	Never			
4. Udder exposure to mud/manure puddles and free standing manure	Never	Occasionally	Frequently			
MASTITIS RISK						
				LOW	MOD	HIGH
1. Routine use of bulk tank cultures to monitor for contagious forms of mastitis, such as Streptococcus Agalactiae	Routinely	Occasionally	Never			

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