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Making decisions regarding the balance between milk quality, udder health, and parlor throughput (part 2)

By Matthew J. VanBaale, Extension Specialist, Dairy, University of Arizona
John F. Smith, Extension Specialist, Dairy Kansas State University
Dennis V. Armstrong, Extension Specialist Emeritus, Dairy, University of Arizona
Joseph P. Harner III, Biological and Agricultural Engineering, Kansas State University

Part one of this paper published in the April issue discussed options for milking procedures and routines in parallel and herringbone parlors. In part two labor training and management issues as well as parlor performance monitoring are the focus.

Training and Motivating Employees

Since cows are milked by the employees in a dairy, employees are the most important resource of a dairy. Managers are responsible for employee training and development, and employees, in turn, are accountable to management.

Teamwork is defined by Webster as "joint action by a group of people in which individual interests are subordinated to group unity and efficiency". Together Everyone Achieves More! To have a teamworking environment it must be clear who makes up the team and what each member of the team's role is.

The most effective way to identify team members and their role within the team is to have a flow chart of every job on the dairy. A flow chart should clearly define the chain of command within the team and who is accountable for each and every member of the team. If a member of the team answers directly to more than one person, the chart organization should be re-visited.

The milking parlor is the heart and soul of any dairy. Harvesting quality milk requires more than just milkers in a parlor. Typically a shift supervisor or leader will be directly responsible for the milking during their shift. Cow pushers bring cows to the parlor to be milked and return them to their pens. In some parlors, cow pushers play a role in the milking routine used to milk the cows. Spreadsheets and other tools may be incorporated to monitor the daily activities in and surrounding the milking parlor.

The most important aspect to training and communicating effectively to employees are through Standard Operating Procedures (SOPs). SOPs provide a clear understanding of responsibilities of a specific job and they prepare employees to succeed. Each SOP should have a specific set of objectives. In other words, if the SOP is followed precisely, employees will be very successful, ultimately contributing to the overall success of the dairy.

Designing jobs (with input from employees) to be effective yet simple, thus allowing each employee doing the same job to perform equal amounts of work, will minimize employee turnover and improve labor efficiency. Well designed SOPs fit the person to the job, not the job to the person. Standard operating procedures should be written (in the language of choice) and given to all employees prior to performing a job. It is also beneficial to have SOPs posted in plain site in each work area for everyone to see.

The relationship between management and employees are inseparable. Below is an example of a process for milking cows, along with the influence for each step. Although many procedures can be developed depending upon particular management strategies of a dairy, the items below are basic underlying methods that may be employed to maximize milk yield, parlor throughput, and udder health.

Basic Principles For Milking Cows

(For more on Parlor Management for Large Herds, see VanBaale and Smith, 2004).

1. Provide cows with a clean, dry, stress-free environment to help ensure calm cows with clean udders are brought into the parlor (management).
2. Prepare clean dry teats for milking (employee).
3. Properly pre-dip teats with an effective teat dip (employee).
4. Provide some type of physical stimulation (forestrip?) (employee)
5. Dry teats completely with an individual towel or cloth (employee).
6. Attach teat cups appropriately, minimize air inlet, and align units to ensure even milk out (employee).
7. Remove the milking unit as soon as milk flow slows substantially (management (detacher settings) and employees).
8. Post dip with an effective teat dip immediately following removal (employee)
9. Remove cows from the parlor in an expeditious manner (management and employees).
10. Ten percent rule: If ≤ 10% of cows are still milking, properly remove unit and remove all cows from parlor (management and employees).

Protocol Considerations

What about forestripping every cow every milking? Some say "No time to prep"; others say "No time not to prep". Currently the authors do not know of any published data that suggests additional forestripping speeds up parlor through-

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Stotz Dairy Daily KPI Report for Thursday January 31, 2002

Date	Milk Cows Total	Lac 1	Lac 2+	Shipped/Cow Total	Lac 1	Lac 2+	Butterfat% Total	Lac 1	Lac 2+	Flow/Cow Total	Lac 1	Lac 2+	Milk/Cow FCM	150dim	Feed Ref	% of Pens
Jan 31	3097	1287	1810	27.3	25.8	28.4				81.5	78.1	83.7		89.0	4.0%	42%
Jan 30	3097	1287	1810	79.6	72.1	85.0				82.1	75.1	86.9		88.8	4.1%	46%
Jan 29	3093	1284	1809	81.1	74.5	85.8				81.8	75.1	86.6		88.1	4.4%	51%
Jan 28	3085	1278	1807	81.2	74.9	85.7				79.8	69.1	87.4		86.2	10.3%	52%
Jan 27	3074	1274	1800	80.3	73.5	85.0	3.58	3.63	3.54	78.7	69.1	85.6	81.4	85.1	5.0%	81%
Jan 26	3096	1283	1813	78.2	69.4	84.5	3.52	3.57	3.48	83.3	72.9	90.7	78.5	89.6	5.5%	67%
Jan 25	3081	1277	1804	79.7	70.4	86.3	3.56	3.65	3.47	80.0	68.5	88.4	80.4	86.8	1.9%	51%
Last 30	3059	1257	1802	76.9	70.0	79.8	3.57	3.62	3.53	77.2	71.0	81.6	77.9	84.4	4.2%	66%

Date	Dry Matter Intake FrshC	FrshH	Lact2+	Lact1	Close	Faroff	Spc	DIM	Feed Cost /cwt	/cow	m&d	DME IOFC
Jan 31	32.4	22.2	55.5	50.4	35.7	33.9	26.6	194	$5.15	$4.24	46.1%	.62 $5.28
Jan 30	42.5	22.8	55.4	50.3	36.8	33.9	22.6	189	$5.32	$4.20	44.8%	.65 $5.32
Jan 29	42.6	22.7	54.9	49.1	36.8	34.0	24.4	187	$5.31	$4.24	45.5%	.61 $5.42
Jan 28	34.7	25.7	58.0	49.7	36.8	34.9	24.4	188	$5.15	$4.27	46.2%	.65 $5.33
Jan 27	43.7	25.6	56.6	49.6	36.8	34.9	24.4	188	$5.50	$4.27	47.1%	.65 $5.14
Jan 26	33.6	24.6	59.9	50.3	40.5	34.9	24.4	188	$5.05	$4.32	45.2%	.63 $5.62
Jan 25	41.5	24.8	60.1	50.8	44.2	34.9	24.4	190	$5.72	$4.43	49.2%	.66 $4.95
Last 30	36.3	24.5	56.0	49.6	36.7	35.6	24.5	192	$5.56	$4.25	48.3%	.65 $4.97

Health Problems Last 30 Days

	Head	Total	Percent
Milk Fevers	1	195	.51%
RP's	12	322	3.73%
DA's		322	%
Lact2+ DOA	9	195	4.62%
Lact1 DOA	16	127	12.60%
Total DOA	25	322	7.76%
Cows Died	13	3341	.39%
Abortions	4	3341	.12%
Lost Pregnancies	7	94	7.45%
Ketosis	0	322	.00%
Scours <= 60 dim	12	629	1.91%
Total Scours	28	3341	.84%
Uterine Infections	45	322	13.98%
Mastitis	118	3341	3.53%

HOSPITAL COWS

	Lac 1	Lac 2+	Total	Percent
Repro	8	4	12	.36%
Lame	1	0	1	.03%
Resp	1	2	3	.09%
Digest	2	6	8	.24%
NewMast	3	23	26	.78%
RepMast	3	3	6	.18%
Downers	0	1	1	.03%
Lumps	0	0	0	.00%
Total	18	39	57	1.71%

Avg Days in Hosp	Avg Lact #	Avg DIM
3	3	121

Cows in Hosp 14+ days

Cow#	Problem	L#	DIM	Days
12941	Mastitis C	3	122	18

BREEDER EVALUATION

Bred between VWP+24 days			
84 of 92	91.3%	Lact 1	
198 of 200	99.0%	Lact 2+	
Preg by VWP plus 65 days			
46 of 69	66.7%	Lact 1	
73 of 93	78.5%	Lact 2+	
Non-Lactating Heifers			
132 of 137	96.4%	Brd by 30	
49 of 53	92.5%	Pg by 60	

CALVES & HEIFERS

Good Serum Protein Scores		
this week	18 of 20	90.0%
last week	51 of 51	100.0%

	Wt	Ht	ADG	
St 1 > St 2	143		1.02	#
St 2 > St 3	422	44.60	1.63	#
Breeding	990	54.63	1.90	#

Morbidity and Mortality			
New patients	7 / 2523	.28%	
Total patients	7 / 2523	.28%	
St 1 died	2/ 274	.73%	last 30 days
St 2 died	0/ 610	.00%	last 30 days
St 3 died	0/ 1639	.00%	last 30 days

MILKING PENS

Pen	Head	DIM	FCM	%	DMI	DME
PEN 31 -	155	11	87.7	115	42.3	.48
[illegible]	155	11	87.7	115	42.3	.48
PEN 10 -	44	9	60.4	93	23.6	.39
[illegible]	44	9	60.4	93	23.6	.39
PEN 25 -	230	41	105.9	98	52.9	.50
PEN 26 -	240	82	107.9	107	57.7	.53
PEN 23 -	242	118	100.6	112	59.3	.59
PEN 24 -	218	154	90.0	109	60.8	.68
PEN 21 -	244	201	79.6	110	57.3	.72
PEN 27 -	177	324	61.7	90	41.6	.67
PEN 22 -	177	330	63.2	115	62.0	.98
PEN 28 -	211	487	48.8	99	53.2	1.09
[illegible]	1739	217	82.2	105	55.6	.72
PEN 9 -	122	33	93.1	80	35.8	.38
PEN 11 -	121	60	97.5	91	41.9	.43
PEN 12 -	143	101	75.8	108	50.8	.67
PEN 1 -	143	150	73.9	106	52.8	.71
PEN 2 -	151	209	68.6	107	53.9	.79
PEN 5 -	124	259	77.4	108	58.2	.75
PEN 6 -	104	318	89.4	102	53.4	.60
PEN 7 -	126	386	43.3	102	46.5	1.07
PEN 8 -	142	406	76.7	120	56.9	.74
[illegible]	1476	214	77.3	103	50.0	.68
[illegible]	70	125	64.5	93	41.8	.81

FEEDER EVALUATION

DATE	Fdr0	Fdr1	Fdr2	Fdr3	Fdr4	AllFdr
Jan 31	98.4%					98.4%
Jan 30	98.6%	100.0%	98.3%	100.0%		99.2%
Jan 29	100.0%	100.0%		100.0%		100.0%
Jan 28		94.1%	99.3%	100.0%		98.0%
Jan 27	96.9%			96.7%	92.3%	95.3%
Jan 26		100.0%	94.9%	92.7%	88.9%	94.1%
Jan 25		98.3%		99.2%	90.0%	97.6%
Average	98.5%	98.5%	97.5%	98.2%	90.4%	97.6%

LAB RESULTS

Date	Tank	SPC	Coli	LPC	SCC
Jan 23,02	1	2,000	80	120	200,000
Jan 23,02	2	2,000			210,000
Jan 23,02	3	1,000			250,000
Jan 23,02	4	10,000	30	100	300,000
Jan 18,02	2	7,000			260,000
Jan 17,02	1	1,000			160,000
Jan 14,02	3	9,000			380,000
Jan 14,02	4	4,000	120	140	390,000
Jan 09,02	3	2,600			340,000
Jan 09,02	4	3,000	140	200	300,000
Jan 06,02	1	8,000	10	150	200,000
		3,874	90	263	262,571

Feed to Order

	Days Left	Need /day
GREENCHOP		189953
MOLASSES		7298
GIN TRASH		9050
CORN		57508
CALF PELLETS		952
FRESH*MINERAL		330
TALLOW		1758
HEIFER*MINERAL		780
DEVELOPER*	4	677

WEATHER

Date	High	Low	Avg	Rain	Heat Stress
Jan 30	55	34	45		No Stress
Jan 29	58	41	49		No Stress
Jan 28	62	47	54		No Stress
Jan 27	66	39	52		No Stress
Jan 26	70	33	52		No Stress
Jan 25	68	30	48		No Stress
Jan 24	63	36	48		No Stress
	63	37	50		

MILKER EVALUATION

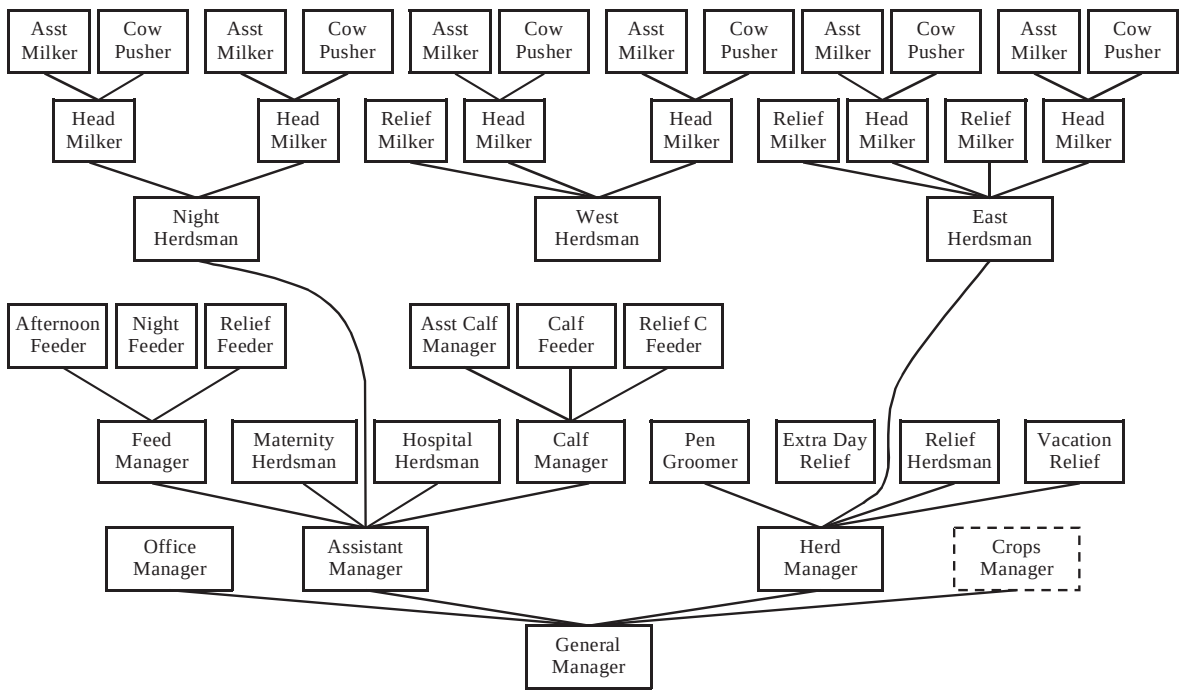
Shift	#/cow	Hrs	Head	Hd/hr	Shift	#/cow	Hrs	Head	Hd/hr
1	25.7	7.8	1194	152	1	30.0	7:54	1760	223
2	28.0	7.7	1194	156	2	31.0	7:31	1760	234
3	23.2	7.5	1194	159	3	31.0	7:30	1707	228
East	76.9	7.7	1194	156	West	92.0		1742	228

put. *Stewart et al. (2002)* reported a 10.2 to 15.6 second reduction in milking time per cow when automatic cluster removal settings were increased. Average milk flow per minute increased 0.11 to 0.42 lb/minute, and milk production was not negatively impacted – thus suggesting that increasing automatic cluster remover settings represents an opportunity to increase parlor performance.

Although often a challenge for large dairies, it is **necessary** to forestrip milk from teats to detect clinical mastitis. Some dairies have chosen to strip cows intermittently (once a week or as needed) with a herdsperson or lead milker. Others have chosen to forestrip two groups of cows per day, thus on a dairy with 10 pens all cows would be forestripped at least once every five days. If 0.5% of a herd has clinical mastitis, and each case last five days, then only 0.1% of the herd will be diagnosed each day. Which means, in a herd with 1,000 cows milked three times per day it would be necessary to forestrip 12,000 teats to detect one new case of mastitis (W. Nelson Philpot, Ph.D., professor emeritus Louisiana State University, and President of Philpot and Associates International, Inc.).

By identifying the mastitis causing microorganism(s) your cows are infected with (by taking samples to a proven milk quality laboratory) you can improve prevention and treatment. In addition, laboratories can expose other problems such as cows not being sanitized properly during milking, cows being milked wet, poor maternity housing/bedding management, or heifers calving with mastitis. When taking milk samples from cows it is important to:1) minimize sample contamination during collection; 2) use a proven milk quality lab with an acceptable turn around time; 3) effectively communicating the information between employees and management; and 4) effectively utilizing the information to improve mastitis control and overall milk quality. Routine sampling of fresh cows and clinical cows in addition to bulk tank milk samples is warranted.

Employee job flow diagram for Stotz Dairy, Buckeye, Arizona



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For further information contact:
Dr. Ragan Adams, Editor
ILM, CSU-VTH
300 W. Drake Road
Fort Collins, CO 80523
970-297-0371
radams@lamar.colostate.edu