



ARIZONA AND NEW MEXICO DAIRY NEWSLETTER

COOPERATIVE EXTENSION
The University of Arizona
New Mexico State University

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THIS MONTH'S ARTICLE:

Milking Parlor Efficiencies: Labor Benchmarks for Today's Milking Parlor

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Department of Animal Sciences
The Ohio State University

*(Reprinted from the Arizona Dairy Production Conference,
November 4, 2004, Tempe, Arizona)*

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### **February Conference a 'Don't Miss' Event for the Rural Community**

Plan to attend the interactive conference scheduled for Feb. 24 -25 in Phoenix but don't come alone. Bring your parents, grandparents, children and siblings. It's also a powerful eye-opener for those in agricultural support organizations, regulatory staff and academics who work with the rural and agricultural community. The conference is a collaborative effort of Farm Bureau's Young Farmers & Ranchers, the Young Cooperators from United Dairymen of Arizona, and Project CentrL Alumni, with major sponsorship from Farm Credit Services Southwest. The theme is "It's a Jungle Out There!" The Friday morning session will feature "The Top 10 Stupid Things Families Do to Break up Their Business" by renowned agriculture speaker Jolene Brown. "We can prevent many daily aggravations and family business catastrophes – and fighting on the way to the funeral home – if we learn from the mistakes of others," says Jolene. Her presentation is full of real-life stories and humor and is a great learning experience for members of all generations who wish to or are working together. During the afternoon the spotlight will turn to issues surrounding growing genetically modified crops. Four counties in California had propositions on the ballot in November to ban growing GMOs. Harry Cline, outspoken editor of *Western Farm Press*, will moderate a panel discussion looking at GMO's from the scientific, farming, corporate development, marketing and environmentalists' viewpoints. The conference opens Thursday evening with a casual dinner at Hofwegen Holsteins on 107<sup>th</sup> Avenue. The cost for the full conference is \$50 or \$75 per couple. Thursday dinner and Friday lunch are included. Watch the mail for registration information or call Karen Vanderhaden 520-316-0909 or Frances Lechner, United Dairymen of Arizona, 480-966-7211.

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University of Arizona Extension Dairy Website:
<http://cals.arizona.edu/extension/dairy>

New Mexico State University Extension Dairy Website:
<http://nmsu.edu/~dairy>

The following videos are available for checkout from the New Mexico State University. To obtain a video, call Kathy Bustos at (505) 646-3226 or email kbustos@nmsu.edu. The video will be sent in the mail pending availability. There is only one copy of each video available, so we request that videos be returned within two weeks. Note that several of the videos contain an English and Spanish version.

1. *The Milking School*. Utah State University. Spanish and English. 1998. 30 minutes
2. *Fitting and Showing Your Dairy Animal...A Winning Experience*. Department of Dairy Science, University of Wisconsin. 1996. 20 minutes
3. *Proper Milking Procedure*. University of Florida. Spanish and English. 1988. 12 minutes
4. *Milking Machine Maintenance*. University of Florida. Spanish and English. 1988. 16 minutes
5. *The Basics of Vacuum and Milking Systems*. DHIA Services. 1991. 53 minutes
6. *Understanding Dairy Cattle Behavior to Improve Handling and Production*. Livestock Conservation Institute. 1992. 23 minutes
7. *Managing Milking/Ordenar Lecheria*. Hoard's Dairyman. Spanish and English. 1999. 33 minutes
8. *Get Milk? Joining A Dairy Crew*. University of New Hampshire. 1999. 45 minutes
9. *What's the Best Milking Routine?* Dairy Management Institute. 1999. 60 minutes

English

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, James A. Christenson, Director, Cooperative Extension, College of Agriculture & Life Sciences, The University of Arizona.

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Español

Emitido en promoción del trabajo de la Extensión Cooperativa, leyes del 8 de mayo y 30 de junio de 1914, en colaboración con el Departamento de Agricultura de los Estados Unidos, James A. Christenson, Director, Extensión Cooperativa, Facultad de Agricultura y Ciencias de la Vida, Universidad de Arizona.

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Arizona Dairy Day

Friday, March 4, 2005

Arizona State Fairgrounds Agriculture Building
1826 West McDowell Road
Phoenix, Arizona



Booths will be available to vendors at the following prices:

10 ft. X 10 ft.	\$425
10 ft. X 20 ft.	\$475
20 ft. X 20 ft.	\$525
20 ft. X 30 ft.	\$575
Tractors, Feed trucks or other equipment:	Inside - \$200 each Outside - \$100 each

Larger spaces are available upon request
One table and two chairs furnished with each space
Power, water, additional table(s) and chair(s) are available if necessary

For more information or to request space for your company,
contact Laura Rittenbah at (520) 626-9382 or via email at ljr22@ag.arizona.edu



Dairy Day Golf Tournament Registration



Saturday, March 5, 2005

Club West Golf Course
16400 South 14th Avenue
Phoenix, AZ



Entry Fee: \$85.00 per person
Shotgun Start: 7:30 a.m.
Contact Person: Matthew VanBaale
PO Box 210038, Tucson, AZ 85721
(520) 621-1923 or (520) 349-3532
vanbaale@ag.arizona.edu

✂-----
Registration form. Please detach and return to address above.

Individual Team

Name(s) _____

Organization _____

Address _____

City/State/ZIP _____

Phone _____

Team Members:	Number of players	_____
_____		x \$85.00
_____	Total amount due	\$ _____

Please make check payable to Matthew VanBaale
Individuals will be assigned to a team.

Dairy Day Golf Tournament Hole Sponsorship



*Sponsorship is greatly
appreciated and will be
\$200 per hole.*

Sponsorship includes:

1. Sign with your company name (If received by February 26th, 2004)
2. One Free individual registration
(If you would like to give golf balls, towels, pencils, etc., contact
Matt VanBaale at 520-349-3532 or vanbaale@ag.arizona.edu)

✂ - - - - -
Return by February 26, 2004

Organization _____

Address _____

City/State/ZIP _____

Contact Person _____

Phone _____

Article to give away _____

Name of Individual for Free Registration _____

Please make check for \$200.00 payable to:

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Milking Parlor Efficiencies: Labor Benchmarks for Today's Milking Parlor

Normand St-Pierre, Professor and Dairy Extension Specialist¹

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Introduction

There are three main reasons why producers are more and more concerned with parlor labor. First, the capital cost of a new parlor is substantial. To spread this cost over as many hundredweights of milk as possible, producers are increasingly operating their parlor as many hours as possible. Consequently, they hire more labor to operate the parlor. Eventually the sheer size of the labor cost associated with the operation of the milking center gets one's attention. The question becomes "Is my parlor labor cost competitive with the rest of the industry?" Second, cows have to be milked at certain intervals (say every 8 or every 12 hours). The rest of the operation has to be in synchrony with the parlor. For example, fresh feed should be in the bunk when cows return from the parlor; pens must be cleaned while cows are being milked, etc. Thus, the parlor and its associated labor are, in essence, the natural clock of a dairy operation. The whole farm is thrown out of kilter when parlor operation disrupts this clock. Third, producers are affected by what I call 'the headache factor'. The more people that are involved in a task, the more likely it is that something will go wrong. Thus, producers want a well-run parlor labor pool to reduce the number of catastrophes and the accompanying headaches.

Physical and Financial Parlor Labor Benchmarks

Most producers understand that labor productivity in the parlor impacts directly on their bottom line. Benchmarks are useful management tools to evaluate the status of a production system or its components. To help producers in assessing the competitive status of their parlor labor pool, we developed a set of benchmarks that we are reporting in Table 1. The minimum benchmarks should be considered thresholds of intervention. Over time, herds should achieve or exceed the competitive benchmarks. The most important benchmark among the five is *parlor labor costs per hundredweight of milk*. Two variables drive this ratio. The numerator is *labor costs per hour*, itself determined by 1) the *average labor cost per hour, per milker*, and 2) the *number of milkers* employed. Thus, the numerator represents the parlor labor expenses per hour. The denominator is the number of hundredweight harvested per hour and measures the overall productivity of the parlor labor pool. The ratio of the two is a good measure of the efficiency of labor in the milk harvesting process.

The other four benchmarks are there to assist in the diagnosis if parlor labor costs per cwt do not meet the objective.

Achieving Satisfactory Turns Per Hour

With side parlors (herringbone and parallels), a major component of parlor efficiency is determined by the number of times each side is filled in an hour. In parlor lingo, this is called the *number of turns per hour*.

- To achieve four turns per hour means that each side is filled (and emptied) with cows four times during an hour.
- Four turns per hour means that a new set of cows enters a side every 15 minutes. Five turns per hour implies a new set of cows every 12 minutes.

Valuable measurements can be made using nothing else than an inexpensive stopwatch.

- Measure the number of minutes between two consecutive openings of the entry gate on the same side of the parlor. Sixty divided by this number will give you the equivalent number of turns per hour.

Ex. 13.5 minutes elapsed between two consecutive openings of the entry gate on the West side of the parlor.

$$60 \div 13.5 = 4.44 \text{ turns/hour}$$

Based on the benchmark in Table 1, consecutive openings of the entry gate should occur every 15 minutes maximum.

- Measure the number of minutes that elapses from the time the entry gate is opened until the last milking units is attached on that side. In parlor lingo, this is called *gate up to last unit on time*. To achieve 4 turns per hour, this should be less than 6.5 minutes in a rapid exit parlor and 5.5 minutes in a conventional exit parlor. To achieve 5 turns per hour, the *gate up to unit on time* must drop to 4.5 minutes with rapid exit and 3.5 minutes with conventional exit.

Understanding this measurement is critical to achieving good labor efficiency in the parlor. When the entry gate on side A is open, all parlor labor should focus on that side. Until the last unit of side A is attached, doing other tasks on side B will not improve the number of turns per hour. In a well-operated side parlor, you have a controlled race starting about every 7 minutes. The race boils down to how long it takes to fill the side, prep the cows and attach all units. The faster this is done, the more turns per hour your parlor will achieve.

You are Budgeting Minutes

The analysis of cow throughput is much simplified when one realizes that:

$$1 \text{ hour} = 60 \text{ minutes} = 3600 \text{ seconds}$$

It is how the 3600 seconds per hour is budgeted across all the different tasks that determines parlor throughput from a labor standpoint.

Measuring the amount of time spent on each of the essential and non-essential parlor routine elements is not easy and cannot be done using a simple stopwatch. We have used a data logging device

originally designed by Dr. Larry Jones of F.A.R.M.E. Institute to measure the amount of time spent on a variety of tasks in more than 75 parlors in Ohio, Maryland, Michigan, New York, Pennsylvania, and a few parlors in California. These measurements are of great help in the calculation of an expected parlor throughput based on the specifics of the milking routine.

Parlor tasks are grouped into essential work routine tasks (EWRT) and non-essential routine tasks (NEWRT). There are seven essential elements:

- Enter
- Prep
- Attach
- Reattach
- Detach
- Post treatment
- Exit

Other elements, although some may be necessary (e.g. re-filling the teat-dip bottle, getting fresh towels) are not considered essentials – cows are not required; their timing is very flexible. Table 2 reports benchmarks for all EWRT elements based on measurements that we have made in the last three years pooled with those of Dr. Jones and Dr. Dennis Armstrong of the University of Arizona.

Using this table, it is very easy to establish a benchmark for the number of turns per hour to be expected from a specific milking routine.

Example 1

Herringbone parlor, pre-dipping, forestripping, and post dipping in a rapid exit parlor with automatic take-offs. The EWRT have the following expected times as minimum benchmarks:

	Seconds/Cow
Enter	5
Pre Dip	5
Wipe	7
Forestripping	8
Attach	10
Reattach	1
Post Dip	4
Exit	2
 Total EWRT	 42
+ 15% misc. and idle	6
 Total Time	 48

This milking routine takes a total of 48 seconds per cow. Thus, one milker can handle a maximum of $3600 \div 48 = 75$ cows per hour regardless of the parlor size.

Example 2.

Suppose now that we oversize the parlor (e.g. double 20 for one milker) in a herringbone configuration, with pre-spray and wipe, post-spray, rapid exit and arm take offs. The EWRT have the following expected times as minimum benchmarks:

	Seconds/Cow
Enter	5
Pre-Spray	4
Wipe	7
Attach	8
Reattach	1
Post-Spray	3
Exit	2
Total EWRT	30
Misc. and idle time	6
Total time	34

With this milking routine, one milker can handle a maximum of $3600 \div 34 = 106$ cows per hour.

Some would argue that the unit-on-time would be longer because of the reduced udder stimulation due to the lack of forestripping with this routine. This issue will be addressed in more details later. Even if the lack of forestripping increases units-on-time by 30 to 60 seconds per cow, the time when the units are on a cow (units-on-time) does not require any labor. Thus, as long as the parlor is sized according to the routine, one milker should milk 106 cows per hour using the routine described in this second example. A parlor with 32 herringbone stalls (16 per side) per milker would be well sized for this routine whereas a parlor with 20 to 24 stalls per milker would be more appropriate to the routine of example 1.

Midwestern producers hear of western herds where milkers are reportedly averaging 150+ cows/milker per hour. How do they do that? The holding area and milking routine in some herds in dry, western areas, are quite different than the standard practices in the Midwest and East Coast. For example, cows may go through a wash pen and are let to dry naturally before entering the holding pen. With this facilities configuration, the milking routine can be:

Example 3.

Parallel parlor, no pre-treatments, no post-treatments (mechanical post-dipping in the return alley), and rapid exit.

Seconds/Cow

Enter	5
Pre-Dip	0
Wipe	0
Forestripping	0
Attach	10
Reattach	1
Post Dip	0
Exit	2
Total EWRT	18
+ 15% misc. and idle	3
Total time	21

With this milking routine, one milker can handle a maximum of $3600 \div 21 = 169$ cows per hour. A parlor with 40 to 48 stalls per milker would be ideally sized.

In short, if you want to increase the parlor labor efficiency, you either must reduce the time spent for each of the essential tasks, or else, you must cut in the number of tasks done by the labor.

To forestrip or not to forestrip: the \$64,000 question

The unsolved question at this point, is what are the losses in udder health and production associated with reduced milking routine? Some producers value udder health and low SCC very highly and argue for a full preparation routine. Forestripping is an example of a strong stimulus for milk letdown. The milk letdown response occurs when oxytocin (a hormone) is released from the pituitary gland in the blood circulation and reaches the mammary gland where it causes contraction of the myoepithelial cells that surround the secretory alveoli. Many stimuli contribute to the release of oxytocin one of which is forestripping (premilking stimulation). Field evidence suggests that forestripping is critical to milk letdown, unit attachment time, peak flow rate, and milk production. Recent scientific studies do not support this. Wagner and Ruegg (2002) found no difference in milk yield, attachment time and flow rate between two pre-milking routines that include or not forestripping. This was true for both high (101.4 lbs/d) and low (57.3 lbs/d) producers. In commercial operations, the consistency in the sequence of events that stimulate milk let-down may be the key. Forestripping may facilitate achieving this consistency, but consistency can be achieved regardless of whether a full udder prep routine is followed or not.

When Things Aren't the Way They Should Be

What do you look for when *turns per hour* aren't what they should? Based on the previous discussion, this means that something is probably wrong with the labor routine. The following are possible causes to long EWRT.

Entry time too high:

- Poor working routine
- Poor design of entry
- Slippery floor
- Poor cow handling

Udder prep time too high:

- Dirty udders
- Poor working routine, equipment
- Parlor layout
- Poor cow handling

Attach time is too high:

- Slow operator
- Lack of routine
- Poor design of equipment
- Kicking cows
- Poor design of parlor

Post-treatment time is too high:

- Work routine (walking)
- Kicking cows
- Location of equipment

Miscellaneous time is too high:

- Too many interruptions
- Not enough automation
- Milker went in the holding area once!
- Too much “special care” in the parlor

Idle time is too high:

- Not enough stalls per milker
- Poor milking routine
- Long milking time per cow
- Poor grouping strategy

Examples of Parlor Throughput Diagnosis

The following 4 figures will be used during the conference to illustrate the diagnosis of insufficient cow throughput and sub-optimal labor efficiency in the parlor.

Conclusions

Because parlor cow throughput has deep ramifications on the rest of the dairy operation and its implication to overall profitability, producers are increasingly looking at techniques and technologies to improve labor efficiency in the parlor. Benchmarks presented in this paper should assist producers in optimizing labor in their parlor.

Table 1. Minimum and competitive benchmarks for parlor labor.

	Minimum Benchmark	Competitive Benchmark
Parlor labor costs per cwt ¹	\$0.70	\$0.50
Side turns per hour ²	4	4.5
Cows/milker per hour	80	100
Cwt/milker per hour	20	30
Hourly labor costs/milking stall	\$0.75	\$0.50

¹Includes wages, payroll taxes, and benefits of milkers and dairy center supervisor when applicable but does not include labor expenses of cow pushers unless they are actively involved with milking more than 15 minutes per hour. When herd owner and/or unpaid family labor are involved in the milking, a cash-equivalent wage should be used.

²Assumes side parlors (Parallel or Herringbone).

Table 2. Suggested minimum benchmarks for time to accomplish essential work routine tasks in parallel and herringbone side parlors.

Activity	Parallel	Herringbone
Essential Work Routine Tasks	-----	sec/cow -----
Enter	4	5
Pre-Spray	4	4
Pre-Dip	5	5
Wipe	6	7
Forestrip	8	8
Attach	10	10
		8 for arm units
Reattach	1	1
Post-Spray	3	3
Post-Dip	4	4
Exit (Rapid Exit)	2	2
(Conventional Exit)	5	6
Misc. and Idle Time	-----	15% of EWRT -----

Figure 1. Average time spent on essential and non-essential tasks - **Farm P**

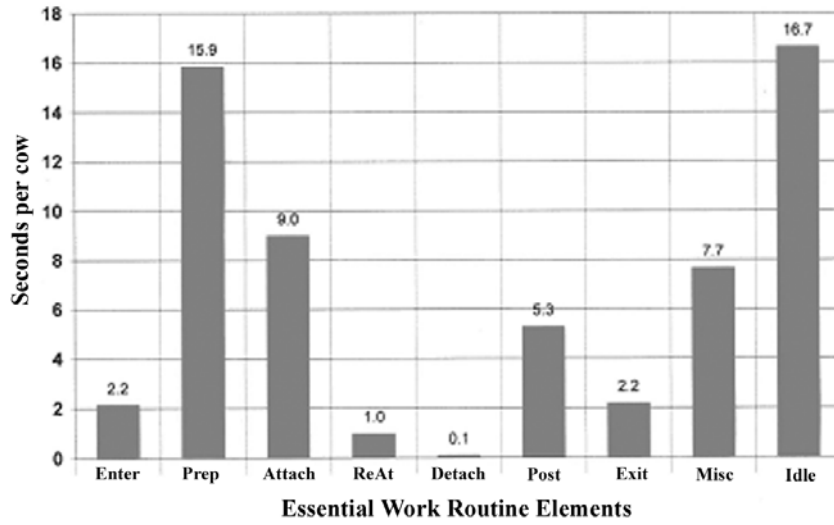


Figure 2. Cow throughput as a function of cycle numbers - **Farm P**

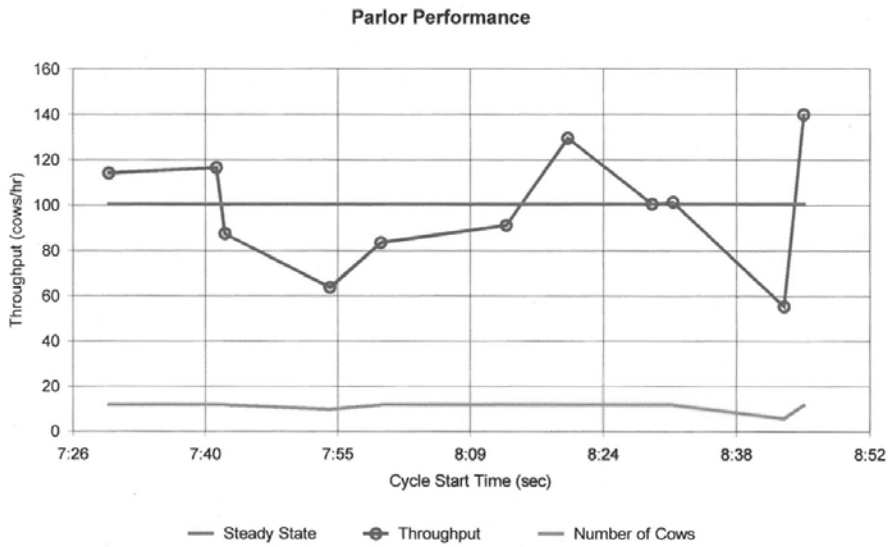


Figure 3. Average time spent on essential and non-essential tasks - **Farm S**

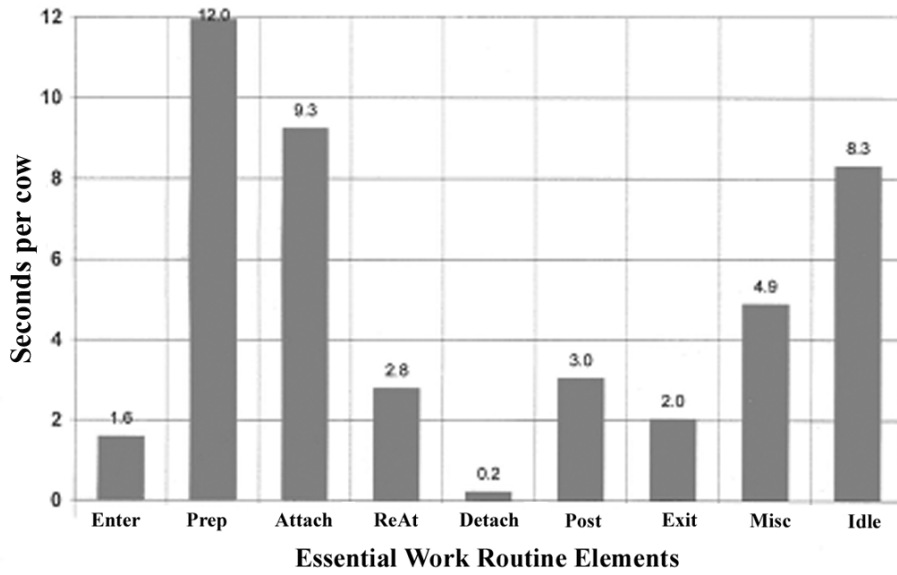


Figure 4. Cow throughput as a function of cycle numbers - **Farm S**

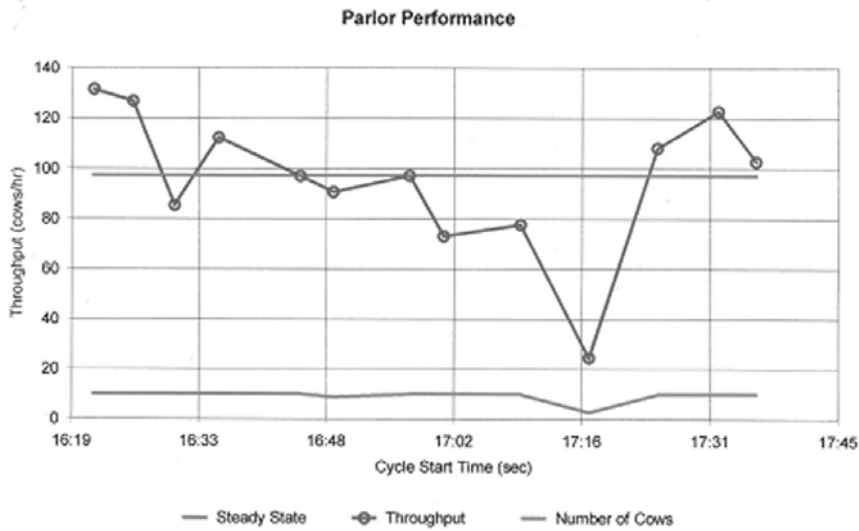


Figure 5. Average time spent on essential and non-essential tasks - **Farm St – First Visit.**

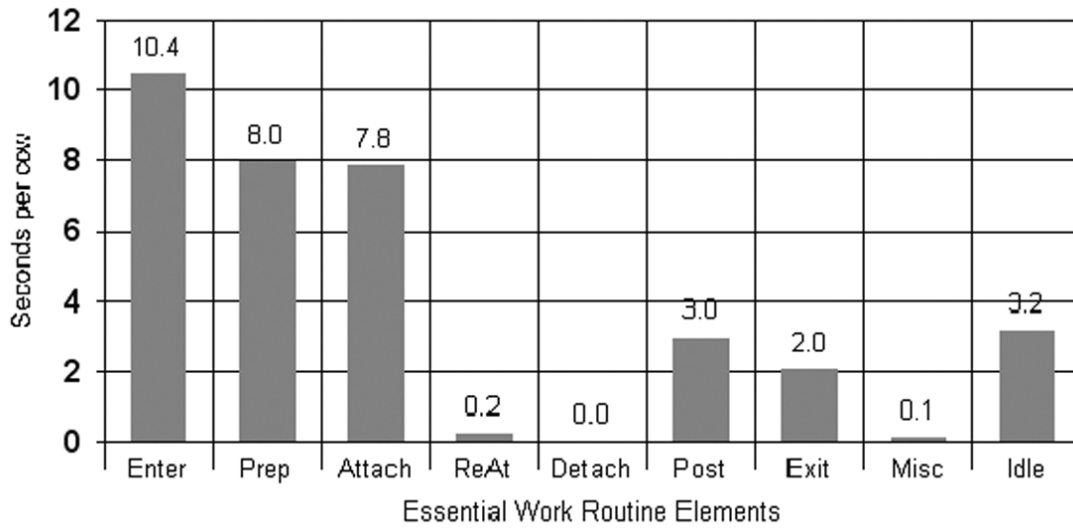


Figure 6. Cow throughput as a function of cycle numbers - **Farm St – First Visit.**

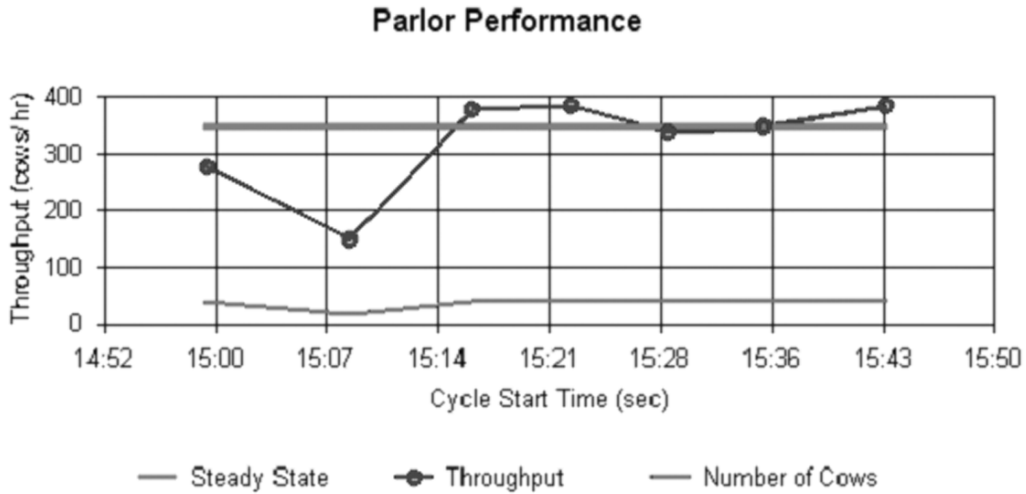


Figure 7. Average time spent on essential and non-essential tasks - **Farm St – Second Visit.**

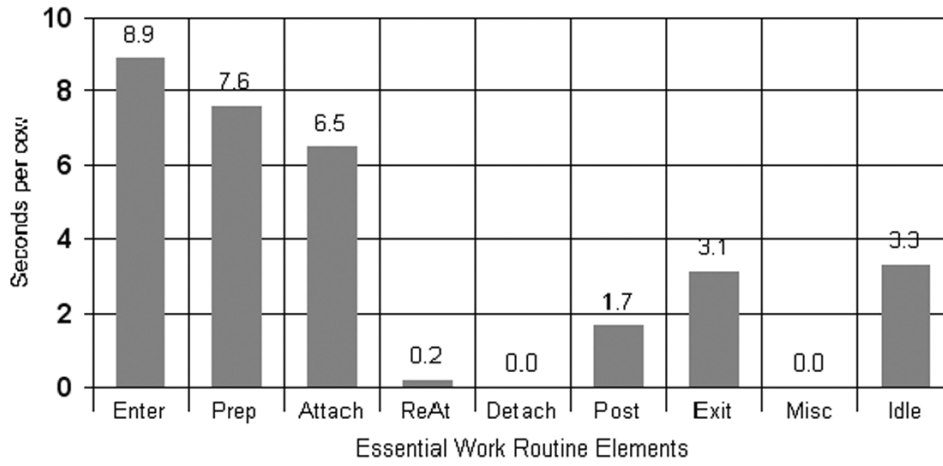


Figure 8. Cow throughput as a function of cycle numbers - **Farm St – Second Visit.**

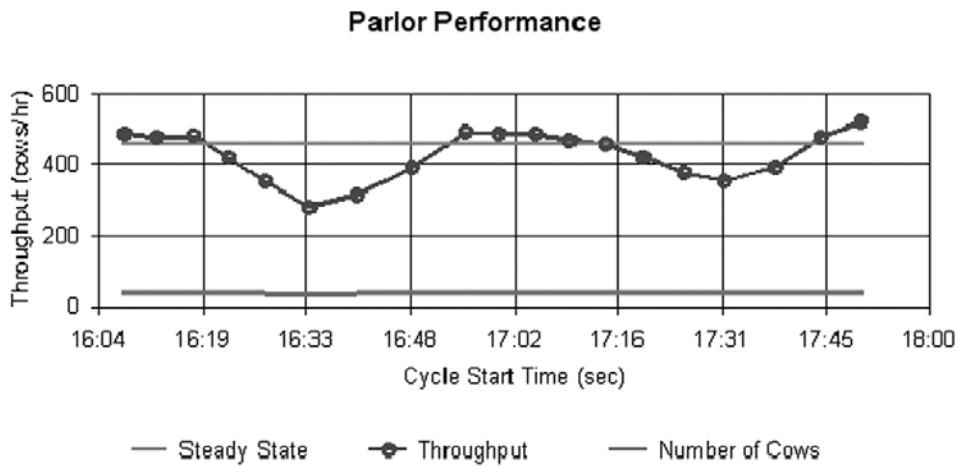


Figure 9. Average time spent on essential and non-essential tasks - **Farm St – Third Visit.**

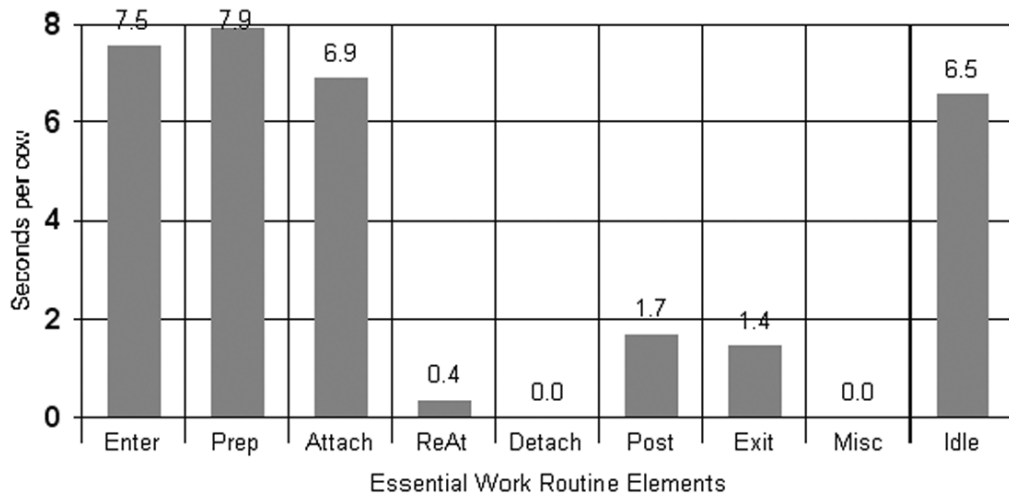
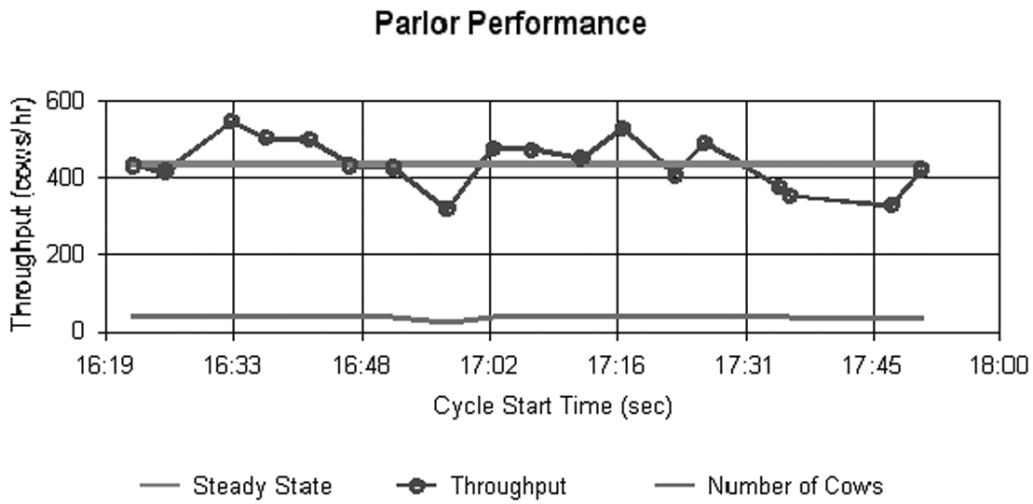


Figure 10. Cow throughput as a function of cycle numbers - **Farm St – Third Visit.**



HIGH COW REPORT OCTOBER 2004

MILK

Arizona Owner	Barn#	Age	Milk	New Mexico Owner	Barn #	Age	Milk
* Treger Holsteins	202	5-07	50,430	* Breedyk Dairy	9044	5-06	41,380
* Treger Holsteins	6455	4-11	47,940	* Providence Dairy	4534	4-09	37,560
* Treger Holsteins	6452	3-04	44,770	* Pareo Dairy	897	9-00	37,497
* Treger Holsteins	6356	3-06	44,190	* Pareo Dairy	8313	8-01	37,139
* Mike Pylman	1012	3-04	42,290	Ken Miller Dairy	971	4-00	36,967
* Treger Holsteins	4931	7-00	42,180	* Do-Rene Dairy	5862	4-03	36,420
* Mike Pylman	1343	5-07	40,300	* Hafliger Dairy	7656	4-03	36,350
* Dairyland Milk Company	366	6-09	38,390	Ken Miller Dairy	495	8-04	36,037
* Mike Pylman	1349	3-11	38,080	* Providence Dairy	9210	3-11	35,800
* Stotz Dairy	14509	5-03	38,050	* Pareo Dairy	8206	4-02	35,527

FAT

* Shamrock Farms	T341	6-04	1588	* Hafliger Dairy	7656	4-03	1491
* Treger Holsteins	6356	3-06	1553	* Hafliger Dairy	7495	5-06	1379
* Mike Pylman	1349	3-11	1442	* Pareo Dairy	897	9-00	1351
* Treger Holsteins	6455	4-11	1412	* Pareo Dairy	1339	7-00	1307
* Stotz Dairy	14468	5-03	1387	* Hafliger Dairy	7177	5-06	1278
* Mike Pylman	1929	4-07	1379	* Butterfield Dairy	1254	3-11	1260
* Dairyland Milk Company	227	7-02	1373	* Pareo Dairy	7974	4-10	1259
* Mike Pylman	1343	5-07	1326	* Pareo Dairy	1877	6-00	1258
* Stotz Dairy	12663	6-10	1323	* Hafliger Dairy	7535	5-06	1250
* Stotz Dairy	14976	4-11	1323	* Goff Dairy	13032	6-06	1247

PROTEIN

* Treger Holsteins	6356	3-06	1282	* Hafliger Dairy	7656	4-03	1149
* Mike Pylman	1343	5-07	1258	Ken Miller Dairy	971	4-00	1131
* Mike Pylman	1012	3-04	1178	* Goff Dairy	6895	5-06	1083
* Treger Holsteins	6455	4-11	1176	* Goff Dairy	8381	5-06	1070
* Treger Holsteins	6452	3-04	1096	* Goff Dairy	13032	6-06	1067
* Mike Pylman	1349	3-11	1086	* Pareo Dairy	8178	4-00	1065
* Mike Pylman	3841	7-02	1083	* Providence Dairy	546	3-02	1065
* Treger Holsteins	4931	7-00	1059	* Providence Dairy	9210	3-11	1064
* Saddle Mountain Dairy	2350	5-10	1055	* Pareo Dairy	897	9-00	1062
* Mike Pylman	1003	3-11	1052	* Pareo Dairy	8313	8-01	1057

*all or part of lactation is 3X or 4X milking

ARIZONA - TOP 50% FOR F.C.M.^b OCTOBER 2004

<u>OWNERS NAME</u>	<u>Number of Cows</u>	<u>MILK</u>	<u>FAT</u>	<u>3.5 FCM</u>	<u>DO</u>
* Stotz Dairy West	21,150	26,424	959	26,971	206
* Triple G Dairy, Inc.	4,559	25,434	945	26,316	143
* Joharra Dairy	917	25,312	883	25,258	123
* Red River Dairy	4,590	24,662	888	25,058	156
* Mike Pylman	4,326	24,106	865	24,445	168
* Stotz Dairy East	1,170	24,065	849	24,168	168
* Del Rio Holsteins	857	23,487	839	23,756	134
* Arizona Dairy Company	5,907	23,349	823	23,437	176
* Danzeisen Dairy, Inc.	1,407	22,710	824	23,177	185
* DC Dairy, LLC	1,057	22,395	824	23,041	155
* Shamrock Farm	8,583	23,315	792	22,920	156
* Treger Holsteins, Inc.	2,062	22,511	800	22,702	149
* Zimmerman Dairy	1,138	22,125	809	22,681	173
* Butler Dairy	630	23,405	774	22,667	207
* Saddle Mountain Dairy	2,852	23,634	764	22,604	151
* Withrow Dairy	5,280	23,625	762	22,567	159
Paul Rovey Dairy	416	22,156	797	22,500	133
* Dairyland Milk Co.	2,825	22,669	778	22,413	142
* RG Dairy, LLC	1,348	22,158	773	22,111	145
Lunts Dairy	553	21,681	783	22,067	136
* Hillcrest Dairy	2,285	22,171	754	21,809	183
* Goldman Dairy	2,082	21,851	762	21,800	158
* Parker Dairy	4,307	20,971	768	21,517	170
* Dutch View Dairy	1,612	20,981	735	20,987	174
* Yettem Dairy	2,942	17,708	807	20,738	133
* Jerry Ethington	621	20,035	714	20,237	161
* Cliffs Dairy	306	19,632	702	19,868	179

NEW MEXICO - TOP 50% FOR F.C.M.^b OCTOBER 2004

<u>OWNERS NAME</u>	<u>Number of Cows</u>	<u>MILK</u>	<u>FAT</u>	<u>3.5 FCM</u>	<u>DO</u>
* Pareo Dairy #1	1,457	26,292	944	26,677	207
* Tallmon Dairy	461	25,653	866	25,135	215
* Hide Away Dairy	2,238	26,296	821	24,684	176
Ken Miller	401	24,865	858	24,665	208
Providence Dairy	2,714	26,064	818	24,535	209
* Macatharn	1,010	24,745	846	24,418	187
* New Direction Dairy 2	1,706	23,332	859	24,018	228
* Pareo Dairy #2	3,127	23,158	828	23,440	184
* Do-Rene	2,417	23,642	803	23,244	190
Prices Roswell Farm	2,744	23,081	805	23,034	182
* Goff Dairy 1	4,213	22,769	812	23,013	206
Butterfield Dairy	1,763	22,761	797	22,766	201
Milagro	3,359	22,625	793	22,642	215
Halflinger Dairy	2,135	21,653	806	22,433	170
Vaz Dairy	1,695	22,490	778	22,341	213
	1,747	22,276	781	22,297	13.9

* all or part of lactation is 3X or 4X milking

^b average milk and fat figure may be different from monthly herd summary; figures used are last day/month

ARIZONA AND NEW MEXICO HERD IMPROVEMENT SUMMARY FOR OFFICIAL HERDS TESTED OCTOBER 2004

		ARIZONA	NEW MEXICO
1.	Number of Herds	53	25
2.	Total Cows in Herd	85,467	40,251
3.	Average Herd Size	1,613	1,610
4.	Percent in Milk	85.2	87.1
5.	Average Days in Milk	197	199
6.	Average Milk – All Cows Per Day	57.9	59.1
7.	Average Percent Fat – All Cows	3.7	3.6
8.	Total Cows in Milk	67,424	33,798
9.	Average Daily Milk for Milking Cows	66.4	68.2
10.	Average Days in Milk 1st Breeding	81	74
11.	Average Days Open	157	148
12.	Average Calving Interval	14.0	14.1
13.	Percent Somatic Cell – Low	87	80
14.	Percent Somatic Cell – Medium	8	14
15.	Percent Somatic Cell – High	5	6
16.	Average Previous Days Dry	62	65
17.	Percent Cows Leaving Herd	30.0	31.8
STATE AVERAGES			
	Milk	21,738	22,863
	Percent butterfat	3.6	3.5
	Percent protein	3.0	3.1
	Pounds butterfat	780	858
	Pounds protein	646	706



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Arizona Dairy Day

Phoenix, Arizona

March 4, 2005