Animal and Dairy Science Department
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GEORGIA DAIRYFAX

http://www.ces.uga.edu/Agriculture/asdsvm/Dairyscience/dairypage.HTML March/April 2003

Dear Dairymen:

The enclosed information was prepared by the University of Georgia Animal and Dairy Science faculty responsible for Extension Programs in Dairy Science. We trust this information will be helpful to dairy farmers and dairy related businesses for continued improvement of the Georgia Dairy Industry.

The following information is included:

Sincerely,

James W. Smith
Extension Dairy Scientist

County Extension Director or County Agent

/jlo

Analyze Reasons Cows Left the Herd

James W. Smith
Extension Dairy Scientist

The Dairy Herd Improvement (DHI) program provides many herd management measurements such as milk production, calving interval and somatic cell counts. The performance of a herd is often evaluated using these and other measurements. An important question is whether herd performance is the result of successful management or the removal of problem cows. Analyzing the reasons cows left the herd often helps uncover deficiencies in herd management.

The PCDart program provides several standard reports which can assist in the analysis. Report #146 (Entered/Left Herd Summary) shows the number of cows leaving the herd for the year and by the month for each reason category. Information is shown by lactation group and for all cows.

Report #103 shows cows which left the herd between selected dates. The reason and date left is given as well as production and reproduction information. Cows are listed in order by index number.

Another option is the creation of a user report. This option provides flexibility in selecting which items will appear on the report and how the items are sorted. An example report is shown in Table 1. In the example report, cows were sorted by the reason left herd (1 = Feet & Legs, 2 = Dairy, 3 = Low Production, 4 = Reproduction, 5 = Injury/Other, 6 = Died, 7 = Mastitis, 8 = Disease, 9 = Udder). The three major reasons cows left this herd were for reproduction (10 cows), died (10 cows) and mastitis (11 cows).

The interpretation and analysis of left herd information will be specific for each herd. Here are some questions that might be asked. Was herd somatic cell count or days open impacted by removal of these animals? What was the level of production of the animals removed and how has their removal affected herd production? Is there a pattern for reasons cows left for a specific reason? For example, did more cows die during the summer months.

All methods of herd management require accurate data in order to be meaningful and useful. Analysis of reasons cows left the herd begins with prompt and accurate data entry.

Table 1. Example PCDart Cows Left Herd Report

Index	No.	Lct Milk	Days In Date	Left Rea	Herd Br	No Open	Days Code	Repo Milk	Proj 305A T	R A Scr	Lct SCC
6006*	4	353	10-30-02		1		353	C	20572	E	7.1
9009*	2	259	10-30-02		1		259	C	18003	D	0.2
9029*	1	323	1-01-03		1	3	324	N	16982	D	0.0
6035*	3	42	10-14-02		3		42				
7038*	4	7	1-01-03		3		7				6.1
7040*	3	140	1-01-03		3	1	104		21816	C	1.6
8012*	3	71	1-01-03		3		71	C	20136	C	2.0
8020*	2	312	1-01-03		3		312	C	16934	E	2.7

Index	No.	Days Lct Milk	In Date	Left Rea	Herd Br	No Open	Days Code	Repo Milk	Proj 305A T	R A Scr	Lct SCC
454*	8	503	12-09-02		4	5	504	N	20939	D	6.4
458*	6	841	1-06-03		4	2	842	N	29905	A	3.4
4036*	4	610	12-04-02		4	3	314	P	26874	C	3.2
5052*	3	640	10-28-02		4		640		28184	A	0.5
6034*	3	338	2-21-03		4	6	339	N	17933	E	4.9
7008*	3	355	1-08-03		4		355	C	23010	C	4.1
7035*	3	462	2-21-03		4	4	463	N	23223	B	6.6
8033*	2	352	12-09-02		4		352	C	18639	D	2.1
9002*	2	369	1-01-03		4		369	C	21787	C	4.4
9044*	1	337	1-08-03		4	1	66	P	19244	C	0.1
5047*	5	30	10-30-02		5		30				4.0
9008*	2	29	2-12-03		5		29				1.7
37*	1	8	2-12-03		6		8				
1016*	9	442	2-26-03		6	4	275	P	23619	B	6.3
5034*	4	295	11-06-02		6	3	156	P	21209	E	7.2
5058*	4	2	2-06-03		6		2				2.0
6014*	4	9	2-04-03		6		9				3.5
6052*	4	78	12-02-02		6		78	C	23318	C	5.6
7033*	1	1004	12-12-02		6	5	1005	N	21230	C	2.8
8002*	3	4	11-06-02		6		4				2.6
8013*	3	15	10-17-02		6		15				8.0
9015*	2	51	1-01-03		6		51				0.9
4026*	5	203	2-25-03		7	2	153		15727	E	2.7
6025*	4	20	3-04-03		7		20				4.5
6040*	3	358	1-08-03		7		358	C	20394	D	6.9
7028*	3	24	3-04-03		7	24					3.1
7046*	2	378	1-08-03		7	3	182	P	24077	C	2.1
7051*	3	281	1-08-03		7	1	282	N	21741	C	7.1
8017*	3	92	2-21-03		7		92				8.3
8029*	3	118	2-21-03		7	1	119	N	16815	E	6.9
9018*	2	106	2-21-03		7	1	56		19210	D	6.0
9023*	2	226	2-21-03		7		226	C	15380	E	6.0
9035*	2	89	2-21-03		7		89		17686	D	6.8
1109*	6	1	12-04-02		9		1				3.0
4064*	6	60	10-30-02		9		60				
6064*	3	305	1-01-03		9		305	C	17976	E	3.6
7006*	4	208	1-08-03		9		208	C	19271	E	7.4
*** Averages for 45 animals ***											
	3	239			3	212		20728		4.2	

What Signs Do You Look For When Detecting Heats?

William M. Graves
Extension Dairy Scientist

More than 90 percent of cows should have shown heat by 50 days postpartum. Cows should be cycling every 21 days by that time.

The most reliable sign a cow is in heat is a stand to be mounted by another cow. Each stand lasts only 4 to 6 seconds. Cows average about 1½ mounts per hour and are in heat 15 hours.

Therefore, cows are only in heat a little more than half a day and only spend a total of 3 to 5 minutes actually standing to be mounted. It is easy to understand why you must observe for heat several times throughout the day.

Also, you should look for and record secondary signs of heat. These include:

- mounting other cows
- clear mucous discharge
- chin resting and rubbing
- swollen, red vulva, frequent urination
- muddy flanks and ruffled tailhead
- bawling, restlessness, sniffing behavior
- decreased milk production and off feed

All of these can be indications that a cow is in heat, coming into heat or going out of heat. The decision to breed should be based on standing to be mounted by another cow, not on secondary signs of heat. However, of all the secondary signs, a clear mucus discharge has been reported to be one of the more meaningful signs of heat.

Herdmates play an important role in a heat detection program. Pregnant cows, or those in the early half of their cycle, do not make good heat detectors. Cows in heat, or cows coming into or going out of heat, make excellent detectors.

Prostaglandins can help bring groups of animals in heat, drastically increasing the number of mounts per heat period and making it easier to catch animals in heat. Ovulation synchronization can allow you to breed cows with a timed insemination, thus eliminating some of the need to detect heats.

Several aids are available to producers. The most popular is the pressure sensitive heat mount detectors. They are activated after 4 to 5 seconds of continuous pressure.

Also, tailheads can be marked several times a week with chalk or crayons, or bi-monthly with paint. Producers can then monitor painted tailheads for rubbing activity. Adverse weather conditions can affect overall results obtained.

Need a pay raise with the current low milk prices? Think how much you could save by seeing more heats, getting animals bred sooner after calving and lowering the intervals between calving in your herd. Don't use a herd bull because they are convenient and efficient. Genetically and from a safety standpoint, this is a bad management decision. More importantly, get as much done as you can before it gets any hotter and conception rates decline.

Identifying Unusual Outbreaks of Disease

Dana Cole, DVM
Food Animal Health & Management Program

There is growing concern in the United States that the safety of our food supply may be jeopardized by foreign animal disease, such as Foot and Mouth or Mad Cow Disease, or by an intentional terrorist attack. Many lessons were learned in the United Kingdom (UK) as a result of the Foot and Mouth disease (FMD) outbreak, among them an appreciation for the delay that can occur between the time the first animal is infected to the time of disease discovery, and the extent of the devastation that such a delay causes. There is evidence that FMD was in the UK and spreading for 2 or 3 weeks before the first case was discovered. By the time the disease was confirmed, over 43 farms had been infected throughout the country. Obviously, the key to controlling an unusual outbreak of disease is rapid detection and diagnosis.

Livestock producers are "in the trenches" and are likely to be the first to detect a foreign animal disease outbreak or act of agricultural bioterror. However, every producer has seen disease in their herd and has treated it without a visit from a veterinarian. Often, it is not until there are a significant number of diseased or dead animals or production is severely impacted that a veterinarian is called to the farm. In the case of a foreign animal disease, continuation of the daily routine until a "threshold" of disease is reached (the point when a veterinarian is called to the farm) can result in rapid spread of the disease among farms and in the food supply. Consequently, producers need to be able to recognize the manifestations of unusual disease in the herd so that a diagnosis can be made before it has a chance to spread.

So what characterizes an unusual disease? Any of the following would be classic:

1) Unusual number of animals affected: it may be just diarrhea or lameness—you've seen it before. But this time it seems nearly EVERY animal in the herd has it—young, old, lactating and dry. Maybe every animal in a particular pasture or milking string has it. Generally speaking, if 5-10% (or more) of a group of animals seems to be sick at a time then a veterinarian should probably be called to investigate.

2) Unusual disease course or pattern: you've never seen such a thing as this before! Animals are lame, off feed and drooling. Another scenario may be one of the older cows seems disoriented and stumbles when she moves around. Maybe you go to feed one morning and find more than one animal has died in the night. The disease might follow a strange pattern where what seems to be a post-weaned heifer pneumonia affects your dry or lactating cows too.

3) Wide geographic distribution: you and your neighbor(s) seem to be having the same problem at the same time. Or you call the vet and find out that they are too busy to come out right away because they have had calls from two other farms reporting the same disease you are seeing at your place.

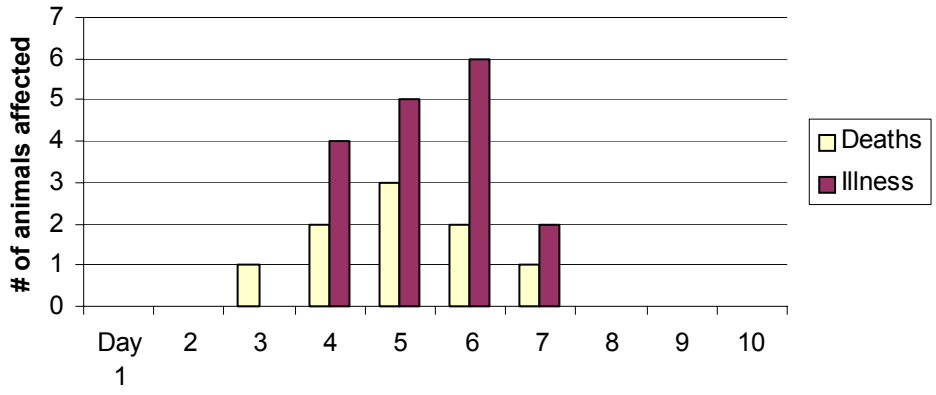
4) Simultaneous illness among animals and humans: you find out that the person feeding calves has diarrhea at the same time that the calves do. It may be that there is some diarrhea in the lactating animals and the milkers start to call in sick. It is thought that an act of agricultural bioterror may be aimed at making people sick by contaminating the food supply. One of the first signs of this will probably be at the farm.

5) Seasonal illness in the wrong season: you expect to have some calf diarrhea when the weather

gets cold and wet, but now you have an outbreak of diarrhea and it is beautiful, dry, warm weather. Maybe you turned your animals out on a new pasture one time and had a magnesium problem, but now you see the same signs in your animals that have been on this pasture for a full season.

6) Initiating event: the animals may start to get sick after a specific event, such as a feed truck drop off or the introduction of a new animal in the herd. A good way to identify the initiating event is to construct an outbreak curve (Figure 1). The pattern of illness gives the days that were most likely associated with the introduction of the illness (days 1 or 2).

Figure 1. Outbreak Curve



The most important point is that you know what is typical on your farm. You know about how many animals you expect to have calf diarrhea during the wet weather, how many weanlings will start coughing when they are first put together and how many cows are usually lame at a time. This provides your baseline. Anything that seems to exceed this baseline should result in a visit by your veterinarian. Veterinarians are trained to recognize unusual disease outbreaks and have a vast support network, including the Georgia Veterinary Diagnostic Laboratories, the University of Georgia and the Cooperative Extension Service, the USDA, and the State Veterinarian's office to help them come up with the answer for you. Even if your outbreak isn't the first in a foreign animal disease outbreak, it is good to know just what it is, how it got there and how to stop it or prevent it from happening again. So if in doubt, call your veterinarian and ask—to go it alone could be devastating.

Dairy Business Analysis Project 2001 Summary: Herd Size and Milk Production

Lane O. Ely, Albert DeVries and Russ Giesy
University of Georgia and University of Florida

Data was collected for 2001 for the Dairy Business Analysis Project. Last month, we presented the summary data for the project for Georgia and Florida. The data was sorted by herd size (<400, 400-800, >800 cows) and level of milk production (<16,000, 16,000-18,000, >18,000 pounds of milk per cow per year).

Table 2.1 lists the business size and production for the groups. Herd size increased for the herd group but it also increased with the level of production. The largest herds produced the most milk per cow.

Table 2.2 lists the revenue, expenses and net farm income for the groups. Total revenue was fairly equal across the groups. Total expenses declined with increasing herd size and increasing level of milk production resulting in increasing net farm income.

The financial performance is listed in table 2.3. The rate of return on assets, rate of return on equity and operating profit margin ratio increase with increasing herd size and level of production.

The balance sheet values are listed in table 2.4.

The values presented can be used to evaluate your herd. We are collecting data for 2002 and would welcome all who would like to participate.

Table 2.1. DBAP 2001 Summary - Business size and production efficiency by average number of cows and milk per cow.

	Average number of cows			Milk per cow (lbs/year)		
Category	< 400	400-900	> 900	< 16,000	16,000-18,000	> 18,000
Number of farms	13	13	13	13	13	13
Business size						
Average number of cows	201	621	2,108	625	920	1,385
Average number of heifers	118	309	1,002	271	451	708
Milk sold (million lbs)	3.26	11.04	38.35	9.17	15.47	28.01
FTE workers	5	13	37	12	16	27
Acres of pasture+cultivated land	180	304	827	372	507	433
Production efficiency						
Milk sold/cow (lbs)	16,144	17,840	17,525	14,358	16,897	20,254
Cows/FTE worker	41.29	50.81	62.48	46.13	54.67	53.79
Milk sold/FTE worker (million lbs)	0.66	0.90	1.09	0.65	0.92	1.07
Cull rate	0.41	0.32	0.34	0.34	0.41	0.33

Table 2.2. DBAP 2001 Summary - Revenues and expenses by average number of cows and milk per cow.

	Average number of cows			Milk per cow (lbs/year)		
Category	< 400	400-900	> 900	< 16,000	16,000-18,000	> 18,000
Number of farms	13	13	13	13	13	13
Revenues (per cwt)						
Milk sold ($)	17.71	18.15	18.87	18.18	18.19	18.35
Raised, leased cow sales ($)	0.50	0.83	0.36	0.38	0.78	0.53
Heifer sales ($)	0.24	0.22	0.41	0.48	0.18	0.21
Gain on purchased livestock sales ($)	0.23	(0.28)	(0.17)	(0.09)	(0.10)	(0.04)
Other revenues ($)	0.36	0.14	0.15	0.32	0.15	0.18
Total revenues ($)	20.34	19.66	20.01	20.54	19.69	19.76
Expenses (per cwt)						
Personnel ($)	2.39	2.87	2.82	2.63	2.81	2.64
Purchased feed ($)	7.31	7.47	7.19	7.58	7.22	7.17
Crops ($)	0.90	0.32	0.21	0.86	0.25	0.32
Machinery ($)	1.27	0.80	0.94	1.22	0.97	0.83
Livestock ($)	1.48	1.69	1.75	1.53	1.80	1.59
Milk marketing ($)	1.06	1.07	1.01	0.92	1.15	1.07
Buildings and land ($)	0.59	0.71	0.60	0.62	0.72	0.56
Interest ($)	0.81	0.56	0.45	0.81	0.54	0.47
Depreciation:						
Livestock ($)	0.66	0.54	0.82	0.68	0.73	0.61
Machinery ($)	0.64	0.45	0.41	0.58	0.39	0.54
Buildings ($)	0.33	0.19	0.19	0.29	0.13	0.30
Other expenses ($)	1.84	1.43	1.30	1.90	1.33	1.34

Total expenses ($)	18.47	17.54	17.25	18.80	17.50	16.96
Net farm income from operations ($)	1.86	2.11	2.76	1.74	2.20	2.80
Appreciation ($)	0.02	0.19	0.23	0.25	0.05	0.14
Net farm income ($)	1.88	2.31	2.99	1.98	2.25	2.94

Table 2.3. DBAP 2001 Summary - Financial performance by average number of cows and milk per cow.

	Average number of cows			Milk per cow (lbs/year)		
Category	< 400	400-900	> 900	< 16,000	16,000-18,000	> 18,000
Number of farms	13	13	13	13	13	13
Liquidity						
Current ratio	2.70	2.19	1.59	2.33	1.65	2.50
Working capital ($)	31,707	55,775	468,480	(99,858)	204,959	450,862
Solvency						
Debt to asset ratio	0.32	0.34	0.29	0.32	0.28	0.34
Equity to asset ratio	0.68	0.66	0.71	0.68	0.72	0.66
Debt to equity ratio	0.67	1.00	0.49	0.63	0.90	0.64
Profitability						
Rate of return on assets	0.03	0.10	0.15	0.04	0.09	0.14
Rate of return on equity	0.00	0.10	0.22	0.01	0.11	0.20
Operating profit margin ratio	0.02	0.11	0.15	0.05	0.09	0.14
Financial efficiency						
Asset turnover rate	0.67	0.95	1.06	0.68	0.97	1.05
Operating expense ratio	0.79	0.81	0.77	0.80	0.80	0.77
Depreciation expense ratio	0.08	0.06	0.07	0.07	0.06	0.07

Interest expense ratio	0.04	0.03	0.02	0.04	0.03	0.02
Net farm income ratio	0.09	0.10	0.13	0.08	0.11	0.14
Repayment capacity						
Cash flow coverage ratio	1.72	5.36	1.46	1.77	1.50	5.27
Term debt coverage ratio[1]	2.46	5.19	18.60	16.97	1.96	7.31
Capital replacement margin[2] ($)	20,007	216,808	921,788	172,893	449,668	536,042

[1]Term debt and capital lease coverage ratio.

[2] Capital replacement and term debt repayment margin.

Table 2.4. DBAP 2001 Summary - Balance sheet by average number of cows and milk per cow.

	Average number of cows			Milk per cow (lbs/year)		
Category	< 400	400-900	> 900	< 16,000	16,000-18,000	> 18,000
Number of farms	13	13	13	13	13	13
Balance sheet (January 1)						
Current assets/cow ($)	456.00	401.00	497.00	291.00	382.00	681.00
Total assets/cow ($)	5,904.00	4,152.00	3,548.00	5,113.00	4,178.00	4,313.00
Current liabilities/cow ($)	406.00	280.00	443.00	338.00	247.00	545.00
Total liabilities/cow ($)	1,552.00	1,170.00	1,193.00	1,400.00	1,130.00	1,384.00
Equity/cow ($)	4,437.00	3,031.00	2,375.00	3,731.00	3,111.00	3,002.00
Balance sheet (December 31)						
Current assets/cow ($)	539.00	445.00	637.00	368.00	460.00	794.00
Total assets/cow ($)	6,198.00	4,264.00	3,715.00	5,169.00	4,527.00	4,480.00
Current liabilities/cow ($)	378.00	330.00	475.00	403.00	308.00	472.00
Total liabilities/cow ($)	1,570.00	1,216.00	1,117.00	1,347.00	1,220.00	1,336.00
Equity/cow ($)	4,721.00	3,092.00	2,619.00	3,849.00	3,369.00	3,215.00

Table 5. Summary of DBAP Project 1998-2001

	Milk Price	Total Revenues	Total Expenses	Net Farm Income
1995	$15.51	$17.03	$18.51	-$1.48
1996	$18.19	$19.93	$17.79	$2.14
1997	$16.87	$18.31	$18.02	$0.29
1998	$18.56	$19.59	$17.65	$1.94
1999	$17.82	$19.07	$16.40	$2.67
2000	$16.68	$18.16	$16.81	$1.35
2001	$18.27	$20.25	$18.07	$2.14

Collecting 2002 Data for the Dairy Business Analysis Program

Lane O. Ely
Extension Dairy Scientist

Now is the time to make an appointment to participate in the 2002 Dairy Business Analysis Project. As the economic climate changes, it is especially important to evaluate the financial program.

The primary data needed are:

1) P and L for 2002 (cash inflows and outflows).
2) Balance sheet for 1/1/02 and 12/31/02 (assets and liabilities).
3) Cow flow information; cow numbers 1/1/02 and 12/31/02 plus number of cows that entered and left the herd during 2002.
4) Other inventory information, such as number of young stock and bulls, value of feed and supplies on hand, 1/1/02 and 12/31/02.
5) Accounts payable, accounts receivable and cash on hand for 1/1/02 and 12/31/02.
6) Depreciation for tax year 2002 for a) cattle, b) equipment and c) buildings and improvements.

The information is handled in a confidential manner to preserve your privacy. Each participant receives a farm report and a project summary report for the project and your farm.

To participate, call Lane Ely - (706) 542-9107 or e-mail laneely@uga.edu.

Another Successful Commercial Dairy Heifer Show

Warren D. Gilson
Extension Dairy Scientist

Once again we had a very successful Commercial Dairy Heifer Show. Two hundred fifty-eight heifers were exhibited by 238 youth. The Grand Champion was shown by Brian Edger from Houston County FFA. The Reserve Champion was shown by Zachery West also from Houston County FFA. Ashley Price and Amanda Davis from Houston County FFA and Jenna Saxon and Alicia Aaron from Oglethorpe County 4-H were also Division winners.

The high school showmanship class winners were all from Houston County FFA. Audrey Shutter won 12th grade, Ashley Price won 11th grade, Kathryn Bell won 10th grade and Megan Bell won 9th grade. Whitney Franks from Burke County 4-H was the winner in the 8th grade class, Anna Savelle from Oconee County 4-H won the 7th grade class and Jesse Lawson from Bonaire Middle FFA was first in the 6th grade class. Katie Garrett from Oconee County 4-H and Megan Steed Wilson were the winners in the 5th and 4th grade classes.

Congratulations to all of these winners as well as the other youth who participated in the show.

Thanks to all of the following dairy producers who so graciously provided the animals which these youth reared for the five months prior to the show. This show would not be possible without their support, guidance and willingness to work with these fine youth.

Alan Bridges
Albert Hale
Allen Bridges
Alex Millican
Angie Cook
Benny Cross
Bill Dodson
Blan Dougherty
Brooks Co. Dairy
Bruce Harper
Carla Cash
Charles Strange Dairy
Chris McElveen
Chuck Lee
Cindi Borders
Dale Tessier
Dan Durham
Dan Warren
Danny Bell
Danny Copelan
Dave Clark
David West
Dick Whitlock
Donnie Vernon
Double C Dairy
Double R Dairy
Edna Ogletree
Ethan Tewksbury
Everett Williams Dairy
Franklin Wright
Franks Farm
E. W. Greene
Gina Meyer
Hadley McClure
Harold & Kenny Pritchett
Henry Cabaniss
Jeff Smith
John Roper
Johnny Benkoski
Jody Farmer
John Daniel
Judd Chambers
Justin Callaway
Kingsley Dairy Farm
Lowrey Dougherty
Mark Brenneman
Mark Dawson Dairy
Mark Stovall
Michael Sims
Muddy H. Holstein
Neal Tallon
Oma Braggin Jerseys
Pete Miller
Ray Moore
Ray Ward
Ronald Hise
Shady Oaks Dairy
Stanley Yoder
Steve Crawford
Tanya Chastain
Ted Perfect
Thomas Reed
Troy Yoder
Truelove Dairy
Volunteer Jersey Dairy Farm
Walkers Dairy
Wayne Williams