

Using Dairy One tools to evaluate culling.

Cull numbers can be mysterious. There are many different ways to look at the data, and many different places to find it in your DHI data and on-farm software. Let's look at some of the culling data and discuss what it really means.

Most people find the current cull rate for their herd on page 1 of the [DHI 202 Herd Summary](#). This cull rate is used to predict inventory of cows to milk and can be the past year's actual cull rate or a rate chosen by the dairy. Because this number is being used to predict cows to milk over the next half year, cows sold for voluntary as well as involuntary reasons are included.

MONTH	NOV	DEC	JAN	FEB	MAR	APR
* MILKING	180	177	188	219	227	223
DRY	23	36	30	21	21	27
COWS TO CALVE	5	12	20	12	10	10
HEIFERS TO CALVE		13	9	27	12	5
* ASSUMES 2.1% PER MONTH CULLING RATE						

Some people panic when they see this number and may consider it too high compared to their goal. It is important to remember that those animals that are sold for dairy purposes, often due to the dairy's good management are included in the overall cull rate. The potential revenue generation is good.

The number used above at 2.1% or about 26% annual is the actual cull rate for this herd. It will be used unless the dairy indicates something different on test day with their technician. The rate option #48 can be changed using on the test day herd options input section on DHI 213.

48	MONTHLY CULL RATE %	<input type="text" value="0.0"/>	<input type="text" value="."/>
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Below is an example of a herd that has chosen to project herd inventory using a cull rate slightly different than the one calculated for the past year. This herd has selected to project using 3% monthly or 36% annually even though their past year calculated to 39%.

MONTH	JUL	AUG	SEP	OCT	NOV	DEC
* MILKING	75	73	74	63	56	56
DRY	11	10	7	16	22	20
COWS TO CALVE	2	4	4	5	8	13
HEIFERS TO CALVE						
* ASSUMES 3.0% PER MONTH CULLING RATE.						

48	MONTHLY CULL RATE %	<input type="text" value="3.0"/>	<input type="text" value="."/>
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Page 2 of DHI 202 Herd Summary does a better job of looking at culling practices on the dairy by making a distinction between animals "sold for dairy" and those "sold for failures in genetics, disease control, or faulty management". This [Yearly Summary Of Cows Entered And Left The Herd](#) breaks the herd down into 1st, 2nd, and 3 or more lactations and uses 7 common definitions for why cows are sold for some failure. A different category is used for cows that died and likely provided no salvage value. The other two columns provide for data reporting when cows are sold for dairy purposes and those sold or died but not recorded with a reason seen here. We are also reminded that only cows are reported in the culling summary. Heifers that are projected to affect the inventory of cows to milk will only be used to adjust that *projection* and not the *cull rate* for the herd.

YEARLY SUMMARY OF COWS ENTERED AND LEFT THE HERD												
COWS ENTERED HERD		COWS LEFT HERD		NUMBER OF COWS LEFT THE HERD								
				DAIRY	LOW PROD.	REPO.	MAST.	UDDER	FEET & LEGS	INJURY OR OTHER	DIS-EASE	DIED
NUM.	%	NUM.	%									
38	41	10	11	1	1	1	3		2	1		1
		9	10	1		3	1			1		3
		22	24	3	2	6	6		1	2		2
38	41	41	44	5	3	10	10		3	4		6
		39		% LEFT HERD FOR INVOLUNTARY REASONS								

It is important to understand that when we view the herd summary, we see 2 separate cull rates. The 39% should be used for evaluating the rate that we sell cows that were not necessarily planned. The 44% listed above it is the total rate that we have moved cows out of the herd. To maintain an equal number of cows milking, we have to have a similar rate of cows entering the milking herd including heifers that were born and raised in the herd.

There are report options available to help determine what cows may be targeted for culling. The Special Management List DHI - 510 is a culling guide that lists cows by the lowest "Projected Relative Profit". The PRP is based on the projected production of the cows and maintenance cost when she will not be producing prior to her next calving. The value here is that cows, even when ranked high for past production, can have a lower value to the dairy because they are not pregnant.

HENRY SMITH, JR												
HERD CODE NUMBER					DATE TESTED			SPECIAL MANAGEMENT LIST DHI-510				
ST	CO	HERD	MO	DAY	CULLING GUIDE			CULL VALUE PROD. LEVEL = \$6.02				
55	99	9993	7	14	PROJECTED 305 DAY-ME		DAYS IN MILK	AGE IN MONTHS	DAYS OPEN	ERPA MILK	RAT-ING	PRP
COW INDEX	DAILY LBS. MILK	DATE DUE			MILK	FAT						
514	39.9	OPEN			12257	456	287	30	287	-5114	E	519
577	53.3	OPEN			16033	526	66	24	66	-1908	E	688
147	39.6	4-07			15976	637	178	66	165	-1303	E	718
166	48.3	OPEN			16962	530	915	37	915	-2123	E	781
466	36.8	11-18			14814	545	244	40	90	-4015	E	850
1075	43.9	OPEN			17236	627	333	25	333	-2880	E	856
151	39.5	2-10			17214	725	249	61	179	-618	D	944
412	43.3	11-04			16575	596	242	51	74	+646	E	975
482	50.3	1-11			20105	637	197	39	97	+198	D	1088
1072	51.8	4-05			21422	664	288	28	273	-716	D	1094
6178	41.5	OPEN			22616	815	376	90	376	-647	B	1130
1023	26.6	OPEN			22675	757	483	50	483	+1338	C	1140
502	47.9	OPEN			19736	880	247	34	247	-1358	C	1147
455	22.8	1-11			20479	766	334	39	234	+889	C	1194
620	46.3	OPEN			23788	825	568	25	568	+1101	B	1295
644	40.1	OPEN			23749	846	526	24	526	+770	B	1324
142	37.8	OPEN			26089	945	622	52	622	+3110	A	1401
183	47.1	OPEN			25309	925	593	44	593	+2871	A	1416
453	46.1	OPEN			27803	933	399	38	399	+2844	A	1519

Those dairies using Dairy Comp 305 software have additional ways to evaluate culling. One simple way is to make a list of cows by relative value (RV). This uses strictly RV as the ranking criteria and is based on the average for the herd being 100%. The lower the value below 100%, the less valuable she is compared to her herd-mates in terms of her ability to produce milk.

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- Command : SHOW REG RV DUE MILK SCC BY RV FOR INMILK RV>0\P FOR RV<60
REG      RV      DUE      MILK      SCC      REG      RV      DUE      MILK      SCC
-----  ---  -----  -----  -----  -----  ---  -----  -----  -----
090321797 33 12/22/07    7    62      60672148 55      -    68    23
090321553 33 10/28/07   20   152     62011068 55      -    47   123
090321820 33      -    38   174     60370917 56      -    74   123
620111114 36      -    3    29     090321482 56 12/ 9/07   44   38
61278722 38 10/27/07   10   746     61278942 56      -    31  429
62011176 38      -    24   81     61278977 57 1/12/08   25   23
090321444 44 11/ 4/07   18   985     090326572 58      -    35 1600
090322516 45 2/24/08    63   606     61278752 58 9/15/07   39   71
62011062 49      -    45   44     61278808 59 9/29/07   48   62
090321551 49 9/22/07    29   200     62011026 59 1/12/08   55   31
62011190 52      -    41  429     60371187 59 10/21/07  42  985
090326051 52 2/ 2/08    52  857
62011167 53      -    0    0
60672356 54      -    0    0
Total: 25
    
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Producers wanting to capture true economic value from culling will expand on that idea and use COWVAL to aid in those decisions. Here we can use reproductive herd performance, replacement cost, cull cow value, production value, and feed cost to calculate a "Cow Value" for each cow in the herd. Ever think that getting a cow pregnant would make her less valuable? With this tool you may find that out.

Cow Value

Cow Value Item CWVAL Lact 1 CullRate 0.30

Pregnancy Item PGVAL Lact 2 CullRate 0.35

Heat Detection 0.56 Lact 3 CullRate 0.45

Conception Rate 0.34 Lact 4 CullRate 0.55

Wait Period 60 Lact 5 CullRate 0.65

Avg Days Open 130 Lact 6 CullRate 0.70

Heifer Cost 1200 Lact 7 CullRate 0.75

Cull Value 300 Lact 8 CullRate 0.80

Milk Price/100 13.00 Lact 9 CullRate 0.90

Marginal Feed 3.00 Lact 1 305 Milk 18301

Maint Feed/day 1.50 Lact 2 305 Milk 21938

Discount Rate 0.10 Lact 3 305 Milk 22887

Lact 1 Persist 0.96

Lact 2 Persist 0.94

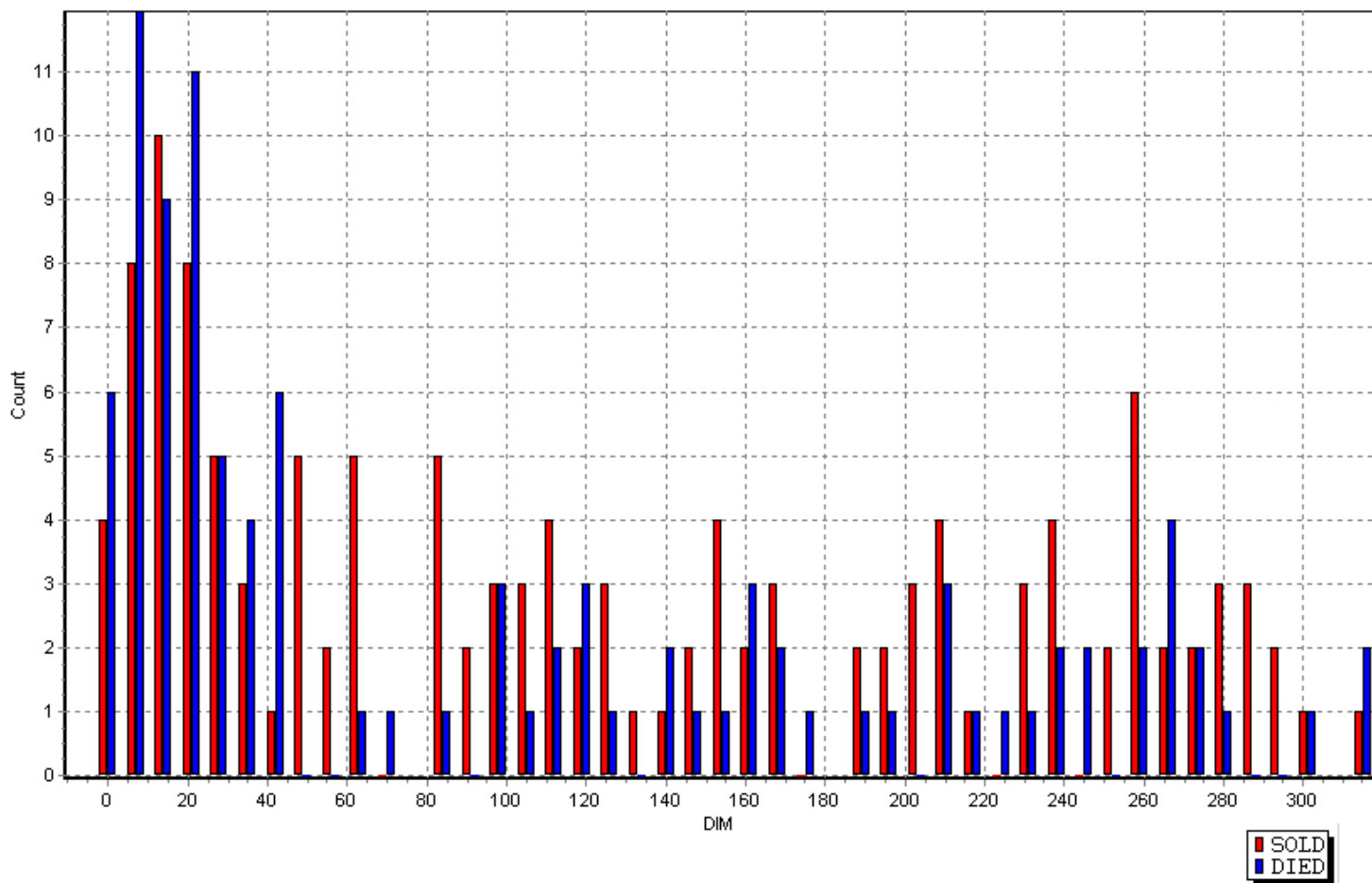
Lact 3 Persist 0.92

Buttons: OK, Cancel, Use defaults, Restore Prev

Heat Detection Rate is the ratio of heats observed to heats occurred. Most dairies have heat detection rates between 0.35 and 0.75 Pregnancy rate is automatically calculated as the product of heat detection and conception

One final way to look at the culling data on a dairy is to look at when culling takes place. Imagine not only the disappointment of having to sell a cow that is short of reaching her peak potential, but the economic impact of such culls. Everyone would agree that avoiding management flaws that cause cows to exit the herd in early lactation for involuntary reasons is a high priority of dairies. Much of what we looked at thus far for culling has been the why's, who's, and reasons behind culling. We can again turn to software like DC305 to look at when culls happen the most frequently.

Running the command Egraph\ID can give us a picture of when culling occurs. Note the incidence of both sold and died in the first 60 days in milk. Now we have useful data to find out why the highest rate of culling happens in the first 60 days. In this example 35% of all cows that left the herd in the past year did so in their first 60 days in milk. Another fact we can discover is that of all the cows that calved in the past year and had to be sold, 29% of them were less than 60 days in milk.



Example of Egraph\ID

Looking at cull rates seems to be at times a favorite pastime of dairy related people. One final thought we might leave you with is that while we know what rates our cows leave herds at, when they leave, and reasons they leave, we still haven't done anything to change those rates and reasons. Aside from SCC testing, disease tracking might be as great or even greater value to the dairies we work with.