Agricultural Extension Service ● University of Minnesota

FACT SHEET

DAIRY HUSBANDRY NO. 17
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Culling Dairy Cows

The breeding program in a dairy herd involves many important decisions. Genetic improvement results from replacing poor cows with better ones. This selection process involves:

- Culling the least profitable cows.
- Choosing outstanding bulls to sire herd replacements.
- Being a sharp manager to maintain a 12–12½ month calving interval.
- Raising all heifers calves as herd replacements.

The herd will improve as poorer cows are replaced by heifers sired by outstanding bulls. Herds that use outstanding sires and raise every heifer calf born as a herd replacement can expect to make the most rapid improvement.

Effective culling is a continuous process influenced by day-to-day herd management practices.

WHY COWS LEAVE HERDS

There are two general types of culling: forced and volunteer.

- Forced culling — Some are forced from the herd because of health or physical problems. Unfortunately, many of these have been the better cows in the herd, but their future profitability is curtailed because of infertility, mastitis, udder problems, injury, or other reasons. Keeping the number of forced culls small will increase the opportunity to cull more cows voluntarily.

  Herd management to obtain good reproductive performance, good mastitis control, and good cow health is the key to reducing forced culling.
- Volunteer culling — The best kind of culling is when the dairyman makes the decision. The more cows that can be culled for low profitability, particularly low production, the better. The only exception to this principle is when replacement animals are sired by only average or poor bulls. Then replacements may not be as good genetically as the poorer cows culled from the herd.

Table 1. Major reasons cows leave herds

Reason	Cows culled (percent)
Volunteer	
Low production	33
Forced	
Poor reproduction	27
Mastitis	10
Teat or udder injury	6
Deep or weak udder attachments	5
Feet and leg problems	2
Hard milker or leaks milk	3
Other type traits	1
Poor disposition	1

This study shows that only one out of three cows is culled voluntarily. The major forced culling problems are reproduction, mastitis, and udder characteristics. There are large culling differences between herds which are associated with cow care and management. Dairymen can benefit from checking back to see why cows are leaving the herd. This will help identify management strengths and areas needing improvement.

Table 2. Use of DHI records in culling

DHI CAR* code	Reason left herd	No. cows left	Average age	From DHI records: No. cows above av.	From DHI records: No. cows below av.
Volunteer					
3	Sold for low production				
2	Sold for dairy				
	Subtotal				
Forced					
4	Sold for reproduction				
7	Sold for udder problems				
6	Died				
5	Injury, disease, or other				
	Subtotal				
	Totals				

*Condition affecting record codes from the monthly DHI report

See the past 12 monthly DHI Cow Reports for reasons. The Production Index on these reports indicates which cows were above or below average in the herd when culled. Cows with production indicies below 100 are below average.

The Estimated Producing Ability (EPA) values from the yearly Cow Ranking and Herd Summary report combine all of the cows' previous records. Below average cows in the herd will have negative EPA values.

What are the two major reasons cows left the herd?

1. _____

2. _____

How many above and below average cows left the herd this past year?

	Above av. no. cows	Below av. no. cows
Production index (from DHI cow report)		
Estimated producing ability (from DHI cow ranking and herd summary)		

The more below average cows and fewer above average cows leaving the herd, the better. A dairyman culling two or more below average for each above average cow leaving will have the most effective culling program. Some management changes are indicated if more above average than below average cows are leaving the herd.

Investigate each problem area further to develop some management action plans that will reduce forced culling in the herd and increase volunteer culling. Make a list of plans and post them on the barn wall as a daily reminder.

CULLING OPPORTUNITY—TAKE INVENTORY

The next step is to inventory replacement heifers that will be entering the herd this year and next. This indicates how many cows can be culled each year without purchasing replacements. The average predicted difference of the sires helps evaluate the producing expectations of each new group of herd replacements as compared to the older cows in your herd.

Table 3. Inventory of milking herd and replacement heifers

	Number of cows	Sire's average predicted difference	
		Milk	Fat
Milking herd			
Number of cows in the milking herd	_____	_____	_____
Number of first lactation cows in milk	_____	_____	_____
Yearlings			
Number of heifers over 2 years not in milk	_____	_____	_____
Number of bred yearlings under 2 years	_____	_____	_____
Number of open yearlings under 2 years	_____	_____	_____
Calves			
Number of heifer calves less than 1 year raised for replacements	_____	_____	_____

Dairymen replace about 28-32 percent of their herds each year. Most herds have one first lactation cow for every three to four cows in the milking herd. The potential new cow entry rate can be determined now for a herd and for 2 years into the future from the inventory of replacement heifers.

If the new cow entry rate goes below 25 percent, it may be due to one of the following reasons:

- Increased size of milking herd
- A small number of heifer calves born
- Higher than normal calf death loss (above 8 percent)
- Heifer calves or yearlings sold
- First calf heifers, bred to beef bulls so offspring cannot be used as herd replacements.

A low percentage of first lactation animals suggests purchasing additional quality replacements to allow for an effective culling opportunity.

DECIDING WHICH COWS TO CULL

Culling is a continuous process of gathering facts and making judgments about an animal's present and future profitability. Making a list monthly of culling candidates is a useful practice. It provides a way to routinely evaluate and identify potential culls and to make final culling decisions easier. Production and health records of each animal, together with the dairyman's knowledge of each animal, need to be considered in listing culling candidates.

Cows culled voluntarily are those removed because of poor profitability. Low production is the best criterion to use.

The following pointers will help identify the culling candidates in a herd. In practice, final culling decisions are usually based on more than one consideration.

1. Cows with serious health problems such as brucellosis, tuberculosis, cancer, leukemia, staph mastitis, and serious cases of IBR, BVD, etc., from which they are unlikely to recover or require continuous or repeated treatment.
2. Cows with serious permanent physical defects (feet, leg, or udder problems, injured teats) that affect productivity or the amount of labor required for special care.
3. Cows not pregnant after 120 days in the current lactation. If the cow is producing 20 percent or more above the herd average, this time can be extended to 150-160 days. Include cows that will have a long dry period (more than 70 days).
4. Cows that are slow milkers or have poor dispositions or other characteristics that affect ease of care, time, or safety.
5. Cows in the lowest 20 percent of the herd based on current production. Cows with a production index below 85 will usually fall into this category. Also consider the lowest ranking cows on EPA from the herd's Cow Ranking and Herd Summary Report.

THE CULLING DECISION

The final culling decision will be easier when facts are listed. Then the decision of the dairyman is which cows and when. Cows appearing on the culling candidate list month after month are headed toward removal.

Profitability, current and future, should be the primary basis of this final decision. The "Production Index" and EPA values are based on mature cow production. Therefore, these measures will overestimate current profitability of young cows, but will reflect potential competition as mature cows in the herd.

Time each cow's removal to harvest current profitability. Income over feed cost per day can be a helpful guide to good timing—cull when the cow becomes unprofitable. It is costly to keep cows dry or at low levels of production before culling.

Be sure to coordinate removals with the number of replacements available, feed supply, labor availability, facilities, and market price of cattle.

Table 4. Culling candidates on October 25, 1976

	Current performance							Previous records		Culling plans
	Lact.		Samp. day	Days	Prod.	Date	Comments	EPA		
Cow name	no.	Age	Inc/FC	in milk	index	due	phys. cond.	Milk	Fat	Notes
Favorite	1	2-06	$ .84	325	115	3-10		+2185	+84	Cull Now
Spot	5	6-08	$2.93	150	118	open	Mastitic broken udder	+1876	+72	Cull at 10FC $1.00
Bossy	2	3-02	$1.78	32	81	open		-2152	-52	Cull when 1/FC $1.00
Lilly	1	2-04	$1.60	64	73	open	Hard milker	NA	NA	Cull next month
Amy	3	4-06	$2.31	128	102	open		-249	-8	Cull when 1/FC $1.00

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