



# The Impact of Freestall Remodeling on Milk Production and Lameness

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## Objective

**This study aimed to demonstrate changes in health and productivity as a result of improvements in cow comfort.**

Freestalls in a 310 cow Holstein dairy were remodeled in February 2003. Cows were housed in a 6-row mattress freestall barn with 4 pens. The first lactation heifer pen was left unchanged, while each of the three mature cow pens were altered at low cost by increasing width from 44 inches to 48 inches on center and moving neck rails from 63 inches from the rear curb to 70 inches (Table 1).

Each of the three mature cow pens went from 74 stalls to 68 stalls (total loss of 18 stalls) and herd size was reduced to 298 cows. 11 cows were sold as dairy sales.

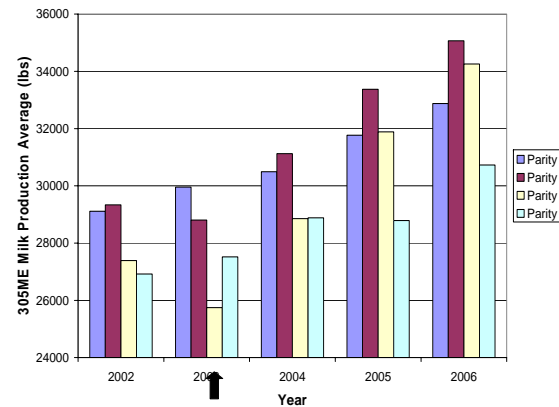
**Table 1.** Stall dimensions before and after width and neck rail modifications

Dimension (inches)	Before	After
Length	98	98
Width	44	48
Curb to brisket locator	66	66
Curb to neck rail	63	70
Height of lower divider rail	10	10
Height of neck rail	43	43
Loop diameter	32	32
Curb height	12	12
Surface	Mattress	Mattress



**Figure 1.**  
Narrow stalls before modification.

**Figure 2.** Change in Mature Equivalent 305 day milk production (305ME) by parity between 2002 and 2006



Turnover rate has been reduced while rolling herd average milk production has increased by 4,905lbs over the last 3 years, and milk per cow per day has increased by 14lbs (Table 2).

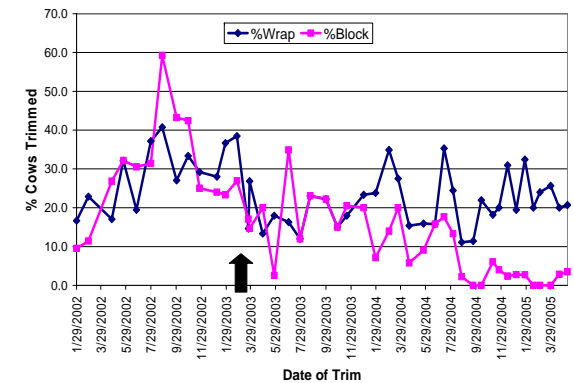
Changes in 305ME by parity are shown in Figure 2. Note the rate of change in ME in older parity groups compared to first lactation heifers. Concerns over increased stall width and udder health have not been realized, with a reduction of 94,000/ml in weighted mean annual SCC.

**Table 2.** Herd performance statistics for 3 years following the stall modifications in 2003.

Parameter	Year				Difference Year 1 to Year 4
	02/01/03	02/01/04	02/01/05	02/01/06	
Herd Size	310	298	297	299	-11
Turnover rate (%)	48	49	43	38	10
Rolling Herd Average Milk (lbs)	25,999	26,864	28,649	30,904	4905
1 <sup>st</sup> Lactation 305ME (lbs)	29,042	29,701	31,858	34,482	5440
Mature cow 305ME (lbs)	26,645	28,230	30,741	32,318	5673
Weighted Annual Mean SCC ('000/ml)	285	211	160	191	94
Milk per cow (lbs)	84	87	90	98	14
Rolling Average DIM	185	173	183	169	16

Herd improvements in cow comfort and stocking density reduced the new lameness case rate and allowed the hoof-trimmer to move to trimming cows twice a year. These improvements did not change the rate of infectious lameness, but dramatically reduced the proportion of cows receiving hoof blocks for claw horn lesions to less than 5% of cows trimmed (Figure 3).

**Figure 3.** Rate of infectious lesions and block treatments for claw horn lesions from hoof trimming records before and after the change in stalls and increase in preventive trimming.



Improvements in cow comfort are extremely cost effective when compared to herd losses due to lameness and overstocking.



**Figure 4.**  
Widened stalls with neck rails moved forward.