



Minnesota Dairy Days

Educating the dairy industry on today's and tomorrow's dairy technologies.

Decreasing Early Lactation Culling: Non-Nutritional Factors

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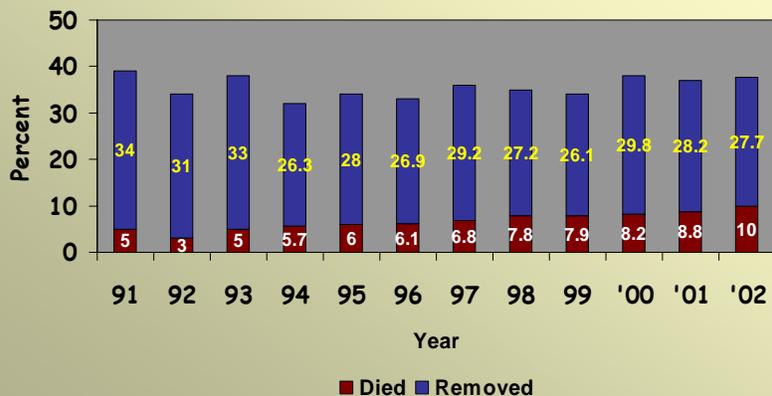


Reasons Cows Leave

Reason	NAHMS (2002)	NAHMS (1996)	Older Studies	% of Calvings
Voluntary	19.3%	21.3%	39.1%	7.5%
Repro	26.5%	25.3%	22.1%	8.9%
Mastitis	26.9%	25.1%	15%	8.8%
Dis/injury	6.0%	4.1%	12%	1.4%
Death	4.8%	3.8%	5.8%	1.8%
Disposition	0.9%	0.9%	0.7%	0.3%
Feet & legs	16.3%	14.2%	3.6%	5.2%
Other	4.1%	3.9%	8.5%	1.4%



Mortality appears to be increasing (ID)



Tripp, DHI-Provo

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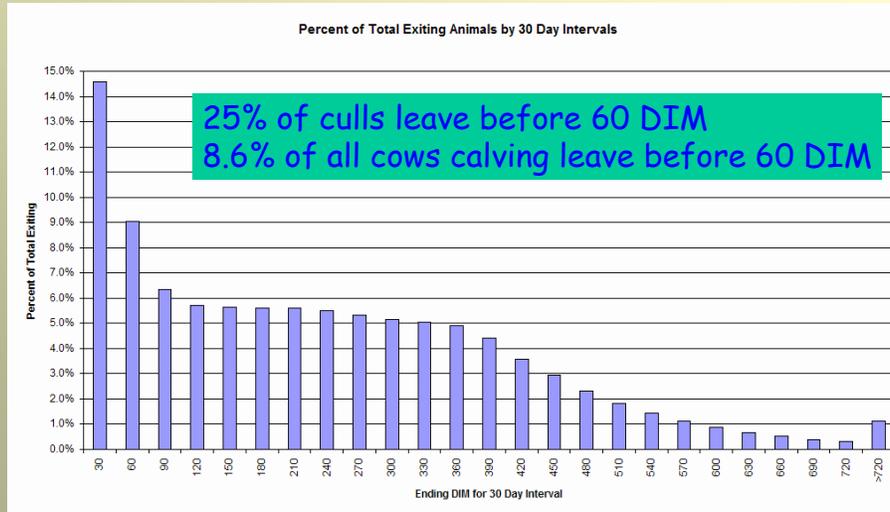
Death rate in dairy herds

- An average of 8% of cows in western dairy herds die
- The range of death loss is 5.25 to 12.3% by state
- Very little information of causes of death

Olson, 2004

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When are cows leaving herds



Stewart et al., 2001



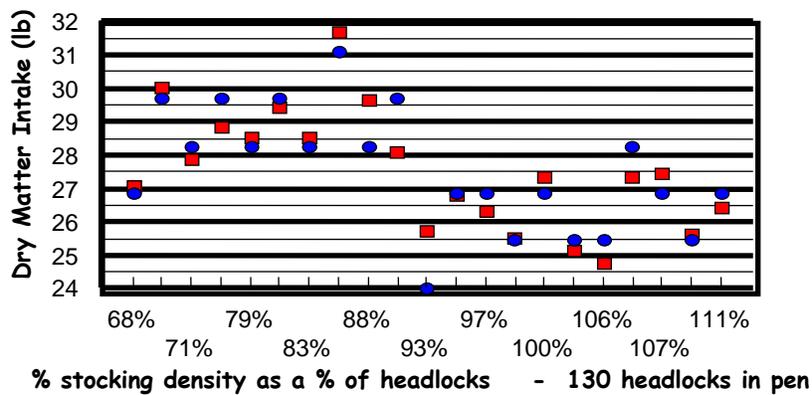
Factors affecting fresh cow health and performance

- Stocking density
- Pen moves
- Cow handling
- Facilities
- Calving intervention



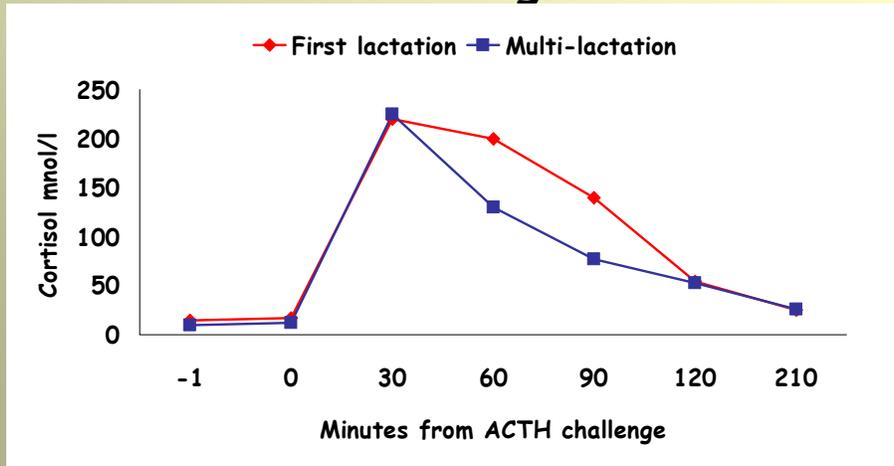
Stocking Density

Feeding Space and DMI: Close-Up Cows



Buelow, 1999

Cortisol levels associated with overcrowding cows



Gonzalez et al, Appl. An. Behav. Sci, 2003

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Other observations

- Adult cows more dominant
- Higher cortisol in older cows associated with alley lying at night
- 1st lactation cows ate at less favorable times and lay down in less preferred places
- 1st lactation cow spent more time walking and lying alley every day
- 1st lactation cows spent more time eating and walking at night due to lack of stall space

Gonzalez et al, Appl. An. Behav. Sci, 2003

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Other research

- Increased feed access and reduced competition may reduce the risk of metabolic problems such as acidosis and DA's (Shaver, 2002; Cameron et al., 1998)
- Each 10% increase in pre-fresh stocking density above 80% decreased milk 1.6 lb/day in 1st lactation cows (Cook et al., 2004)



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Recommendation

Provide at least one stall per cow and a minimum of 30 inches of linear bunk space per cow for pre-fresh cows

Cook et al, 2004

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Pen Moves



Changes of scenery represent a stress to cows...

- **Aggressive behavior was highest for two days after moves** (Kundo & Hurnik, 1990)
- **Subordinate heifers produced 3.8-5.5% less milk in the second week after moving and showed altered patterns of behavior** (Hasegawa et al., 1997)



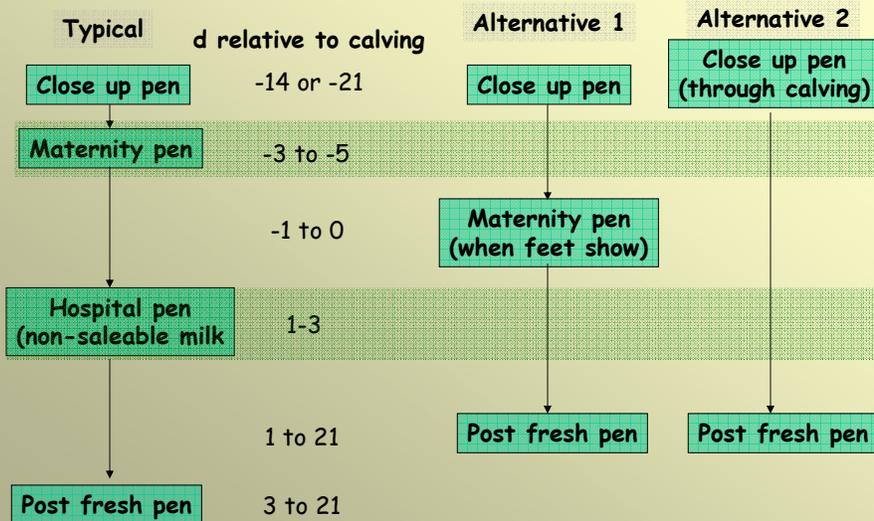
Effect of maternity pen stay on performance after calving

Outcome	Length of maternity stay		Diff
	Short (<3 d)	Long (≥ 3 d)	
Herd 1 (Avg. 4.5 d in maternity pen)			
Calving, number	112	182	---
Sold or dead by 60 d, %	3.6	9.3	2.6X
1 st projection, lbs	20,777	20,205	-572
Herd 2 (Avg. 5.9 d in maternity pen)			
Calving, number	34	129	---
Sold or dead by 85 d, %	2.9	9.3	3.1X
Subclinical ketosis, %	6.9	16.0	2.3X
Displaced abomasum, %	2.9	5.4	1.9X

Oetzel, AABP 2003



Alternatives to minimize moves



Proximity of move

- **Familiarity of surroundings important to minimize stress**
 - Headlocks
 - Water
 - Parlor
 - Stalls

Recommendation

- **Minimize moves for 3 days before and after calving**
- **Provide as much familiarity to surroundings as possible - especially heifers**

Calm Cow Handling

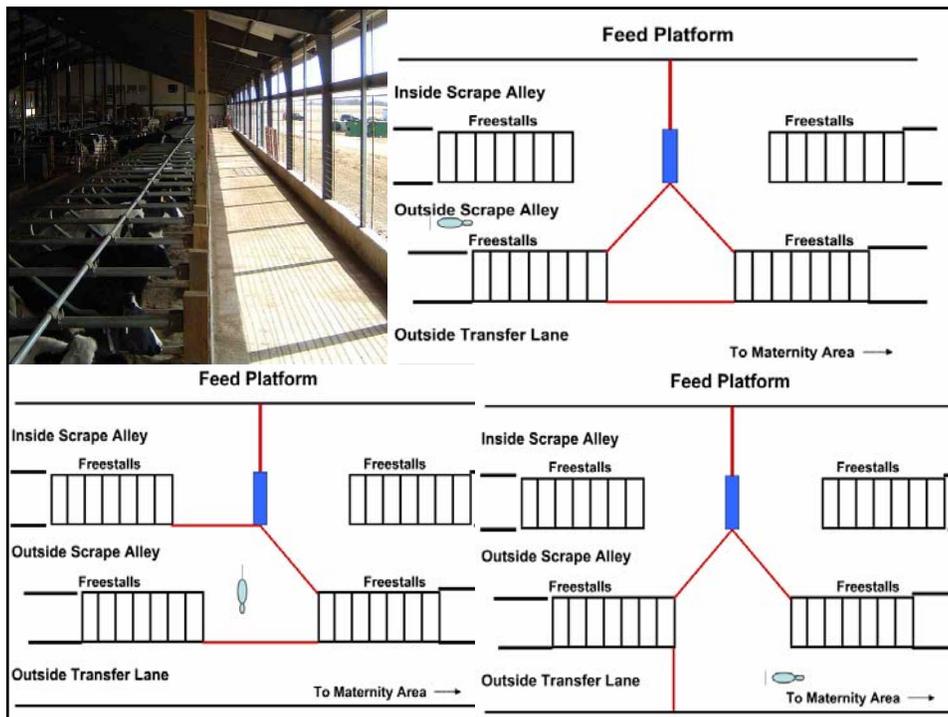


Transition management facility observations

- Personnel walking through cattle several times per day:
 - Heifers (especially purchased) become accustomed to humans and handling
 - Identify problems early
- Facilities design to allow cow movement by one person in a calm manner decreases frustration and increases productivity
- Walking heifers through parlor several times before calving improves adaptation to parlor

Stewart et al, 2004





Recommendations

- Calm handling (not speed) must be emphasized by management
- Design facilities to allow cow movement by one person in a calm manner

Comfortable Facilities

Comfortable facilities

Includes:

- Clean, dry, comfortable lying surface
- Stall design and maintenance
 - Designed to accommodate largest 25% of cows
 - Bedding depth
 - Bedding maintenance
- Calving area
- Walking surface
- Ventilation
- Heat abatement

Cow Management at Calving



Appropriate intervention at calving

Typical Problems:

- Too early intervention
- Too aggressive intervention
- Untrained personnel
- Lack of patience

Results:

- Increased calf death loss
- Increased cow injury



Appropriate intervention at calving

- Cows must be completely dilated before assistance
- Cleanliness is important
- Calm cow movement near calving reduces time to delivery
- Proper cow care after delivery will ensure a great start



Bottom Line

Many non-nutritional factors may affect transition cow health and performance
If too many cows are struggling through transition examine:

- Stocking density
- Movement around calving and grouping
- Cow handling
- Facilities
- Management at calving

