

Transition Cow Tips to Win the Game



**Margaret Quaassdorff, MS
Dairy Management Specialist**

CCE NWNYS Dairy, Livestock and Field Crops Team

Your Presenter Today:



Margaret Quaassdorff, MS
CCE NWNYS Dairy Specialist

maq27@cornell.edu

Treat transition cows like the metabolic athletes they are:

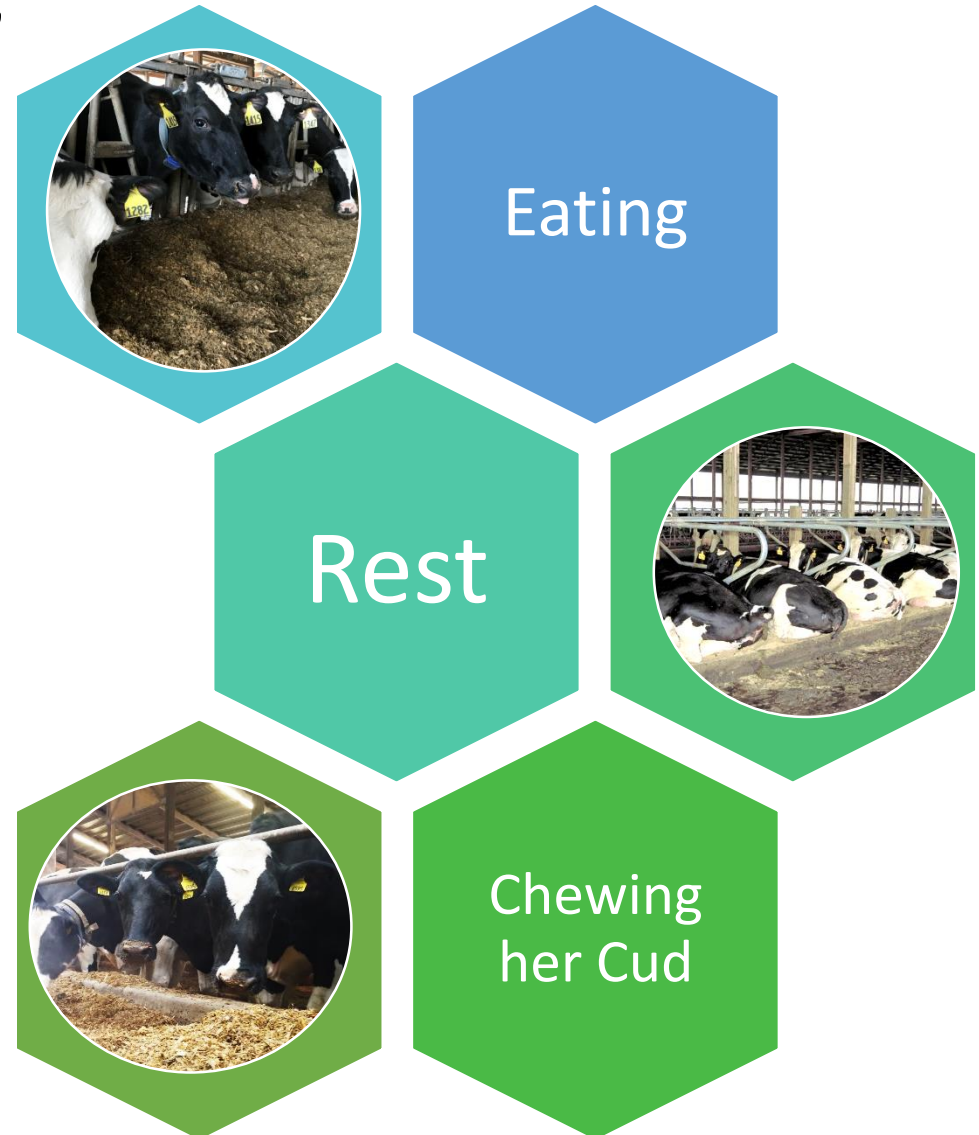


<https://www.shutterstock.com/search/cow+sport>

The Cow's "Dining Experience"

In a *perfect world*, the cow can

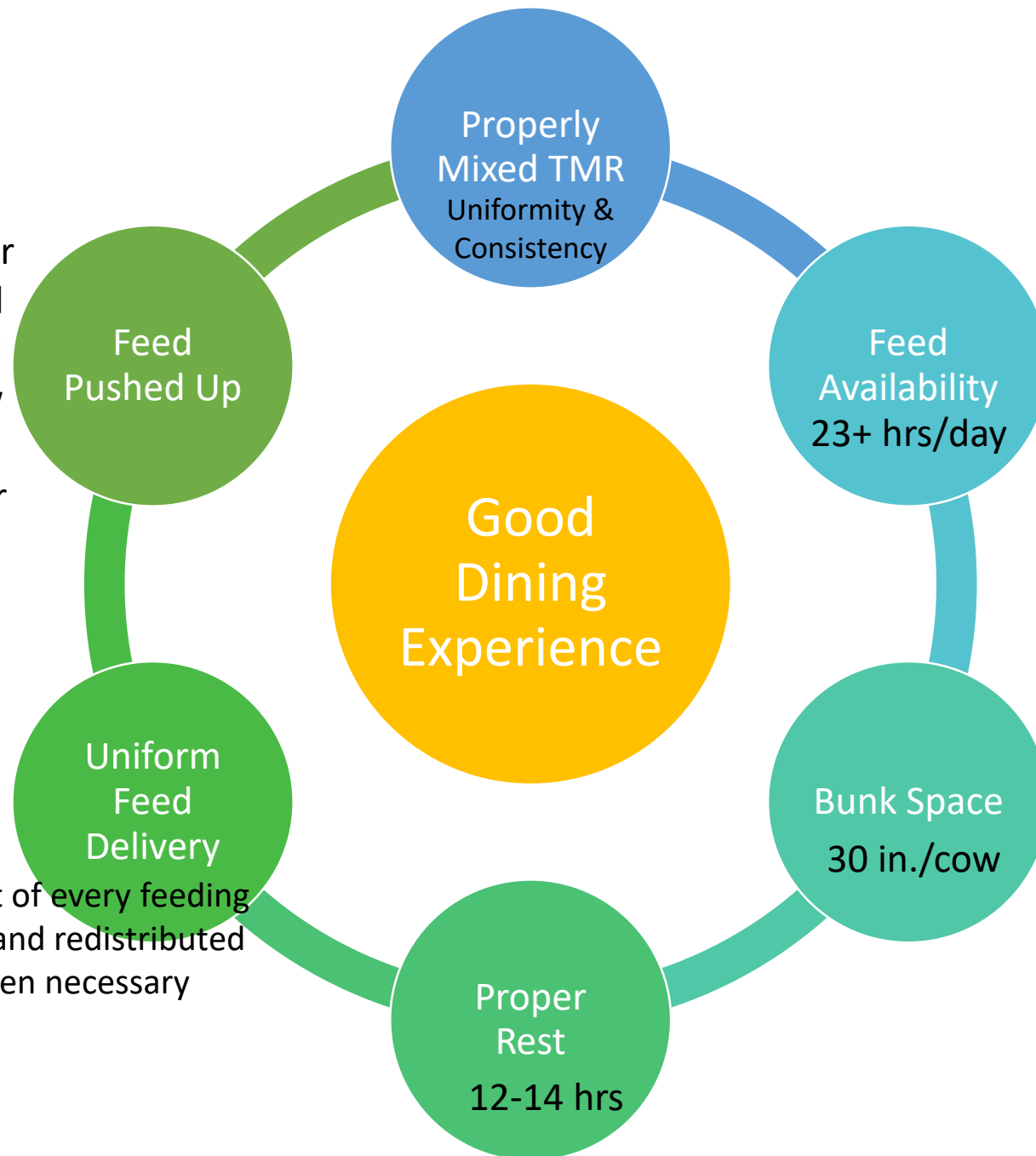
- Eat when she wants
- Eat without competition
- Lie down comfortably after she eats



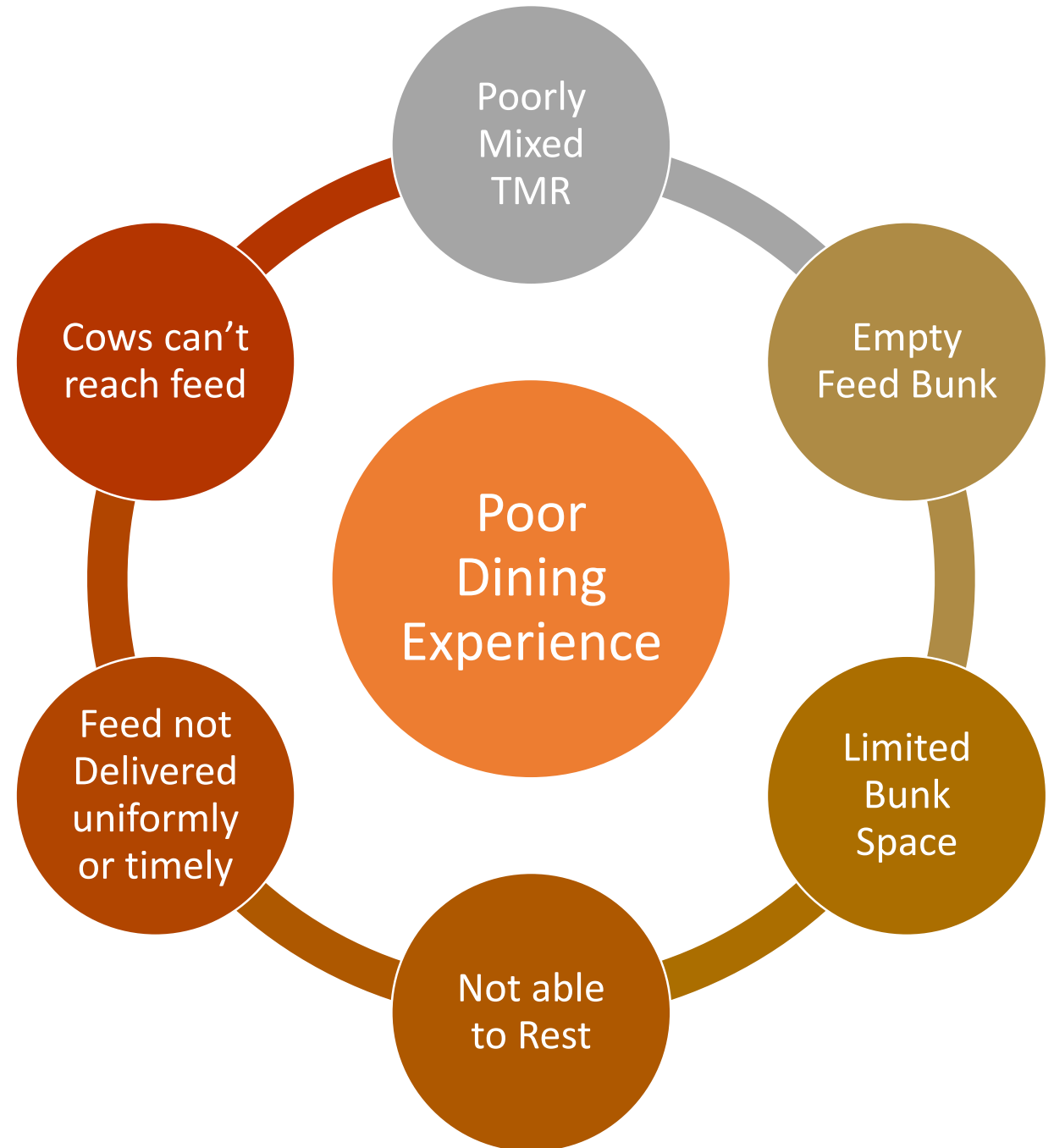
Ways to Improve the Dining Experience



A half hour after feed drop, and every few hours thereafter



Ways to Hurt the Dining Experience



Have separate JV and Varsity teams

- House heifers separately (Grant, 2018)
 - Eat slower
 - Take smaller bites
 - More timid
 - Takes up to 2 weeks to acclimate
- Weekly regrouping of prepartum cows increases competitive behavior
 - *But does not affect immune and metabolic responses, health and production, **as long as stocking density is not overwhelming AND heifers and mature cows are housed separately.**



Special considerations for robotic dairies

- Pre-training heifers decreases fetching after calving (Peiter et al., 2018)

	Trained	Untrained
First week visits	2.12x per day	1.82x per day
30 DIM visits	3.27x per day	2.16x per day

*The trend of 1 more visit per day carried through the trained heifer's lactation leading to increased milk production.



Special considerations for small dairies

One-group dry cow ration

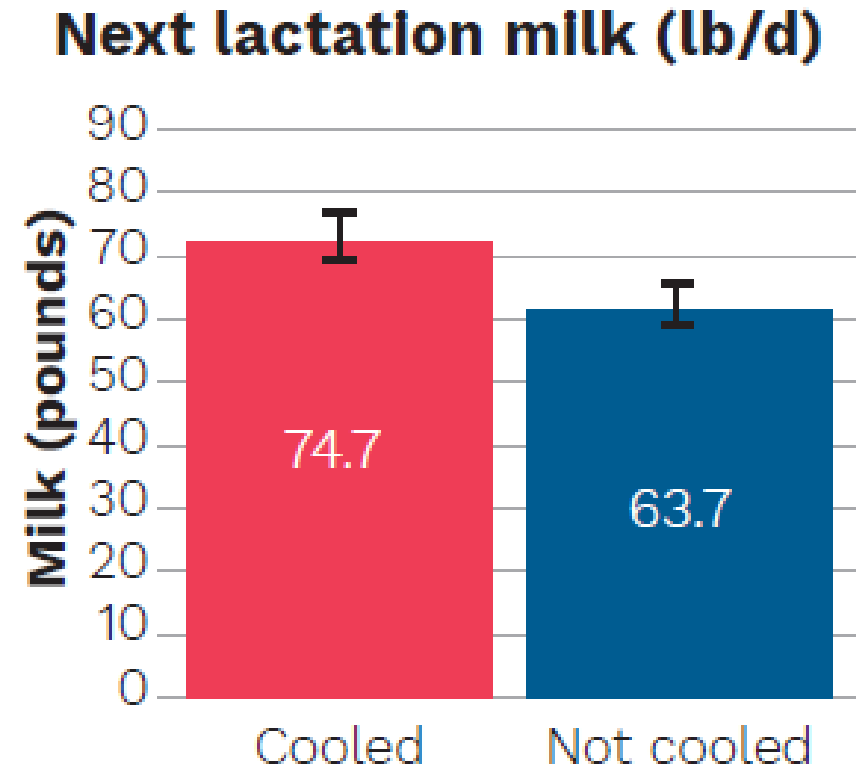
- Pros:
 - Fewer pen moves
 - Only mix one diet
- Cons:
 - Limited ability to customize
 - DCAD is expensive to feed the entire dry period
 - More activity within that pen



Time-out to cool off

Cows cooled during their dry period produced an additional 11 pounds of milk per day throughout the next lactation when compared to dry cows not provided supplemental cooling. (Tao, et al., 2011).

Effect of dry period heat stress on subsequent lactation daily milk production



Why Monitoring Is Important:

- Transition cows undergo physical and metabolic changes during calving
- Stress on immune system
- Higher risk for developing metabolic disorders
- Affects milk production, health and efficiency of cows

- Goal: Maximize overall performance and maintain health



Typical Fresh Cow Disorders

Ketosis

Displaced Abomasum

Metritis

Hypocalcemia/Milk fever

Mastitis

Economic Cost of Disease

Disease		1 st Lactation	2+ Lactations
LDA	left displaced abomasum	\$432 +/- 101.94	\$639 +/- \$114
MAST	mastitis	\$325 +/- \$71	\$426 +/- \$80
LAME	lameness	\$185 +/- \$64	\$333 +/- \$68
MET	metritis	\$171 +/- \$47	\$262 +/- \$56
MF	milk fever/hypocalcemia	N/A	\$246 +/- \$52
RP	retained placenta	\$150 +/- \$51	\$313 +/- \$64
KET	ketosis	\$77 +/- \$24	\$180 +/- \$63
PNEU	pneumonia	?	?

Estimating US Dairy Clinical Disease Costs with Stochastic Simulation Model. JDS, 2017

<https://doi.org/10.3168/jds.2016-11565>

NYSCHAP Transition Cow Guidelines Within 1st 60 DIM as a % of Calvings



Parameter	Achievable	Alarm
Displaced abomasum	3%	≥7%
Milk fever	<2%	≥5%
Retained placenta	<8%	≥15%
Metritis and ketosis	If the rate of displaced abomasums is over 6%, it is likely that metritis may also be a challenge in fresh cows. At this point ketosis should be investigated by chemical analysis.	
Ketosis between 3-21 DIM	clinical	>8%
	subclinical	>25%
Mastitis (goal of BTSCC of 200,000) All cows 1 st test LS>4 All heifers 1 st test LS>4	<10%	≥14%
	<7%	≥10%

Take special note if:

- Difficult calving/Dystocia
- Stillbirth
- Twins
- Retained placenta
- Lameness
- Known mastitis
- Fat cows
- Old cows (3+ lactations)



Overweight cow

Daily Check: Tools

- Carrying pouch
- Digital Thermometer
- Ketone strips
- Sleeves
- Stethoscope
- Chalk/paint
- Clipboard/pen
 - List of fresh cows



What are her stats?

Daily Check: Milk Weights and Days in Milk

Command: SHOW ID MDEV DIM MILK LACT PEN FOR FDAT>-30 MDEV <0 BY MDEV

ID	MDEV	DIM	MILK	LACT	PEN	ID	MDEV	DIM	MILK	LACT	PEN
	-30	10	0	2	18		-4	18	56	2	18
	-20	23	74	3	12		-3	29	107	2	12
	-17	13	0	2	18		-3	11	0	3	18
	-13	19	58	3	12		-1	24	97	3	12
	-11	4	0	4	5		-1	18	69	5	18
	-10	24	81	3	12		-1	18	71	2	5
	-10	17	59	2	18		-1	27	112	2	12
	-9	24	87	2	12		-1	20	58	7	12
	-8	19	73	2	12		-1	20	46	4	12
	-8	16	56	6	18		-1	20	86	2	12
	-6	20	55	4	12		-1	18	74	2	18
	-6	13	0	3	18		0	27	98	2	12
	-5	28	89	2	12		0	24	72	1	15
	-4	29	66	1	16		0	20	69	1	16
	-4	15	0	4	18		0	26	94	3	10
	-4	17	66	3	18						
	-4	23	77	2	12	Total:	32				

Daily Check: Observations

- Is she Eating?
 - Or ruminating?
- Attitude
- Ears
- Eyes



Healthy cows eating at the feedbunk

Daily Check: Observations -attitude



Cow exhibiting signs of extreme clinical milk fever.



Ears down, eyes slightly sunken.
Not chewing cud.



Cow that is bright with alert eyes and ears, and eating up at the bunk. Signs of a healthy cow.

Daily Check: Observations – Manure Consistency



Hutjens, M. 1996. Manurology 101

https://www.youtube.com/watch?v=NA_pJh77wmk

Basics to Monitor: Rumen Fill



Deep indentation. Cow has not been eating well.



Slight indentation. Many fresh cows look like this in the first week after calving.



Still see some definition. Indicates a cow is eating well. More typical for cow several weeks into lactation.

Always look on the left-hand side when judging rumen fill.

Basics to Monitor: Rumen Fill



Deep indentation. Cow has not been eating well.



Slight indentation. Many fresh cows look like this in the first week after calving.



Still see some definition. Indicates a cow is eating well. More typical for cow several weeks into lactation.

Always look on the left-hand side when judging rumen fill.

Basics to Monitor: Rumen Fill



Deep indentation. Cow has not been eating well.



Slight indentation. Many fresh cows look like this in the first week after calving.



Still see some definition. Indicates a cow is eating well. More typical for cow several weeks into lactation.

Always look on the left-hand side when judging rumen fill.

Basics to Monitor: Uterine Discharge



Figure 1. Vaginal discharge scoring system for postpartum dairy cows. (A) Clear discharge; (B) Cloudy discharge with speck of pus; (C) Purulent discharge; (D) Bloody purulent discharge; (E) Reddish-brownish watery fetid discharge. Images courtesy of Jessica Prim, Segundo Casaro, and Klíbs Galvao.

Lima FS. Recent advances and future directions for uterine diseases diagnosis, pathogenesis, and management in dairy cows. *Anim Reprod.* 2020;17(3):e20200063. <https://doi.org/10.1590/1984-3143-AR2020-0063>

Basics to Monitor: Physical Exam



- Body Temperature
 - 100.5-102.5°F
 - Higher could indicate infection
 - Lower could indicate milk fever
- Respiratory rate
 - 26-50 breaths per minute
- Heart rate
 - Normal range 48-84 bpm

Basics to Monitor: Physical Exam



- Rumen motility
 - 1-3 thunderous contractions per minute

Basics to Monitor: Physical Exam

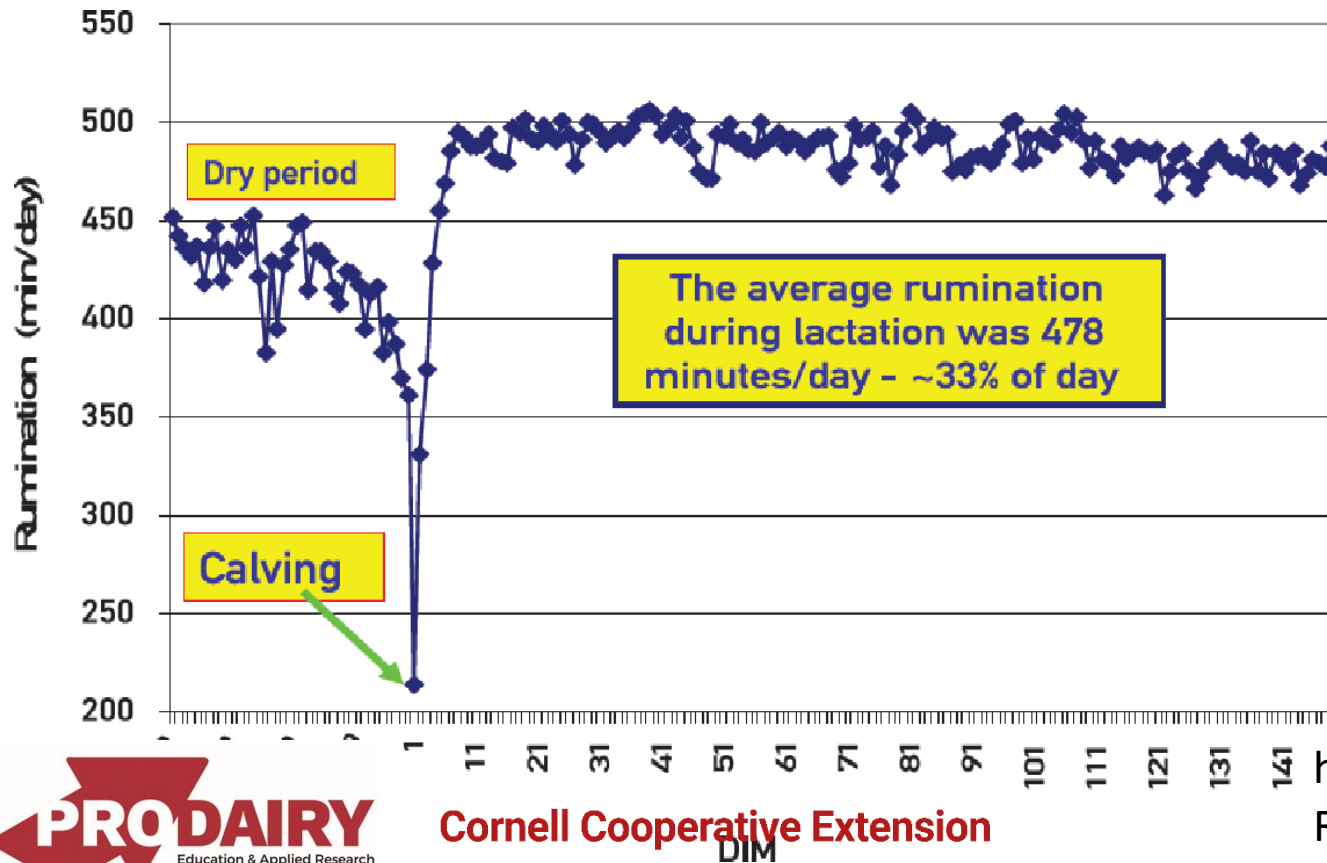


- Displaced Abomasum
 - Press stethoscope against body, and with your fingers, “flick” firmly around the area
 - Check **both** sides for a “pinging noise”



Use technology to help you make better decisions sooner...

- Ruminations/ Activity



	Cow Number	Group	Lactation Status	Days in Lactation	Days from Last Breeding	Activity Peak	Ruminati on Peak	Daily Ruminati on	Amount Of Evaluatio	Health Index for Non
1	20600	7	Before	6		-15	-40	0	-132	20.00
2	10856	7	Before	5		-40	-44	13	-464	32.60
3	9473	7	Before	44		-75	-100	38	-561	55.00
4	11558	11	No Heat	85		-39	-40	0	-462	66.30
5	9362	7	Colostrum	3		-37	-98	86	-136	67.20
6	12451	1	Before	8		-7	11	310	-1	72.00
7	12645	9	Before	27		-25	-40	0	0	73.00
8	4980200	7	Colostrum	3		-22	-27	145	-290	79.00
9	2152200	1	No Heat	91		-13	-23	133	-23	81.50
10	950600	7	Ready	80		8	-40	2	2	82.00
11	8662200	1	Before	43		-15	-20	181	-35	83.00
12	8062200	1	Before	57		-7	-21	135	15	83.70
13	508600	1	Ready	68		-29	-52	328	-206	83.80
14	9251200	1	Ready	72		-17	-34	318	-133	84.70
15	12561	1	Before	46		-5	-15	186	5	85.50
	15									



Cornell Cooperative Extension

<https://www.semanticscholar.org/paper/Activity-and-Rumination-Monitoring-for-Calving-Weststeyn/e8244286cd9769595415b9a82386a701a594ef0d>

Cow-side BHBA Monitoring (Subclinical Ketosis)

- Estimate Herd Level Prevalence
 - Sample 20 cows 3-14 DIM
 - $>1.2\text{mM/L} = +$



$\leq 15\%$



- Monitor herd level prevalence EOW
- 20 cows 3-14 DIM

15-40%



- Test All Fresh Cows 3-9 DIM 2X/Week
- PG SID for 5 Days all + Cows

$>40\%$



- Stop testing individual cows
- PG All Fresh Cows SID for 5 Days
- Investigate ketosis problem
- Recheck prevalence in 2 weeks



Live-action

- Camera technology
 - Monitors cow behavior and feedbunk 24/7
 - Takes data and compiles into stats and alerts
 - Help improve decision-making and efficiency
- Facial recognition and movement tracking
 - Help with sorting, lameness, etc.



<https://www.cainthus.com/technology>

Reducing inflammation

- Inflammation is necessary
 - Expulsion of fetal membranes
 - Uterine Involution (Sheldon et al., 2019)
- Excessive inflammation
 - Decreased DMI (Pascottini et al., 2019)
 - Negative effect on nutrient availability (Bradford and Swartz, 2020)
 - Negative energy balance and ketone body formation (Guzelbektes et al., 2010; El-Deeb and El-Bahr; 2017)
 - Higher incidence of metabolic and infectious diseases (Sordillo et al., 2009)
 - Uterine disease (Huzzey et al., 2009; Barragan et al., 2018b)



Reducing Inflammation

- Why do we care?
 - Impairs whole lactation productivity, health, and reproductive performance
 - Krause et al., 2014; Huzzey et al., 2015; Nightingale et al., 2015)
 - Welfare
- What can we do?



Reducing Inflammation

- Aspirin
 - 2 boluses at 12 hrs & 24 hrs after calving
 - Easy to administer
- Compared to untreated cows, cows that received aspirin had:
 - Lower metabolic stress two weeks after calving
 - Lower incidence of metritis
 - Lower BHBA (treated 1.16 mmol/L vs. untreated 1.23 mmol/L)
 - +3.6 lbs milk in first 60 days
 - Barragan et al., 2020
- Cost: \$1.60-\$2.08 per 4 boluses



3.6 lbs more milk

@ \$17/cwt = \$36.72

@ \$20/cwt = \$43.20

Reducing Inflammation

- Flunixin meglumine
 - 24-36 hours after calving
 - Pain relief, decreased inflammation, improved uterine health, reduced ketone body formation
 - (Schmitt et al., 2022)



J. Dairy Sci. 105

<https://doi.org/10.3168/jds.2021-20555>

© 2022, The Authors. Published by Elsevier Inc. and Fass Inc. on behalf of the American Dairy Science Association®. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

Effects of a single transdermal administration of flunixin meglumine in early postpartum Holstein Friesian dairy cows: Part 1. Inflammatory and metabolic markers, uterine health, and indicators of pain

R. Schmitt,^{1*} L. Pieper,² S. Borchardt,³ J. M. Swinkels,⁴ C.-C. Gelfert,⁵ and R. Staufenbiel¹

¹Ruminant and Swine Clinic, Free University of Berlin, Germany 14163

²Department of Farm Animal Surgery, Vetsuisse Faculty, University of Zürich, Switzerland 8057

³Clinic for Animal Reproduction, Free University of Berlin, Germany 14163

⁴Global Ruminants Business Unit, MSD Animal Health, Boxmeer, the Netherlands 5831

⁵Intervet GesmbH, MSD Animal Health, Vienna, Austria 1210

Reducing Inflammation

- Aspirin

Work with your vet to determine the best pain relief and inflammation reduction protocol for your dairy cows.

- (Schmitt et al., 2022)



<https://doi.org/10.6186/jds.2021-20000>

© 2022, The Authors. Published by Elsevier Inc. and FASS Inc. on behalf of the American Dairy Science Association®. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

Effects of a single transdermal administration of flunixin meglumine in early postpartum Holstein Friesian dairy cows: Part 1. Inflammatory and metabolic markers, uterine health, and indicators of pain

R. Schmitt,^{1*} L. Pieper,² S. Borchardt,³ J. M. Swinkels,⁴ C.-C. Gelfert,⁵ and R. Staufenbiel¹

¹Ruminant and Swine Clinic, Free University of Berlin, Germany 14163

²Department of Farm Animal Surgery, Vetsuisse Faculty, University of Zürich, Switzerland 8057

³Clinic for Animal Reproduction, Free University of Berlin, Germany 14163

⁴Global Ruminants Business Unit, MSD Animal Health, Boxmeer, the Netherlands 5831

⁵Intervet GesmbH, MSD Animal Health, Vienna, Austria 1210

Head Coach



Head Coach

- Who do you have as assistant coaches?
 - Those who support the team
 - Feeders, herdspeople, milkers, pushers
- Who are your coaching staff?
 - Those who help advise the coach and assistants
 - Your nutritionist should be on your list, along with your vet and your hoof trimmer. Need another set of eyes? Reach out to extension.
- Have protocols (plays) that you know work well. Work with your assistants to create new plays when the old ones aren't getting you the results you want.



Thank you!

Please type your questions into
the Q & A Box



Margaret Quaassdorff, MS
CCE NWNYS Dairy Specialist
maq27@cornell.edu

