

# Ranchers' Thursday Lunchtime Series

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DEPARTMENT OF  
**ANIMAL AND FOOD SCIENCES**

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# Nutritional Management Options

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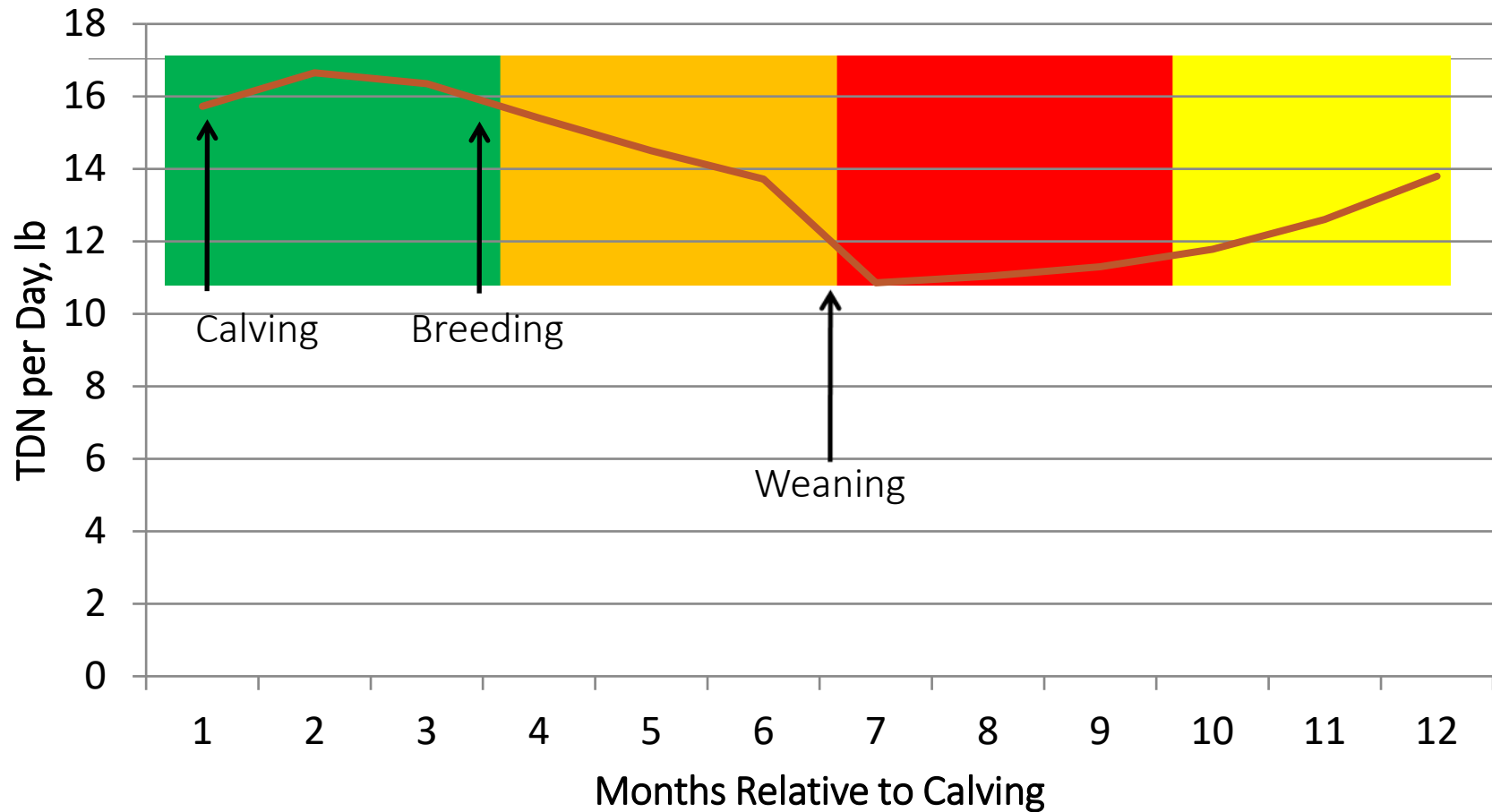


# Some things to consider...

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- Early weaning
- Protein is expensive
  - 20% cubes \$372
  - 16% cubes \$340
  - What to expect with lower protein cubes
- Limit feeding a total mixed ration to beef cows
- Use an efficient hay feeder
- Limit access to hay

# Stage of Production vs. Protein and Energy Requirements



1,200 lb cow, 20 lb peak milk yield

Response to Protein is Relative

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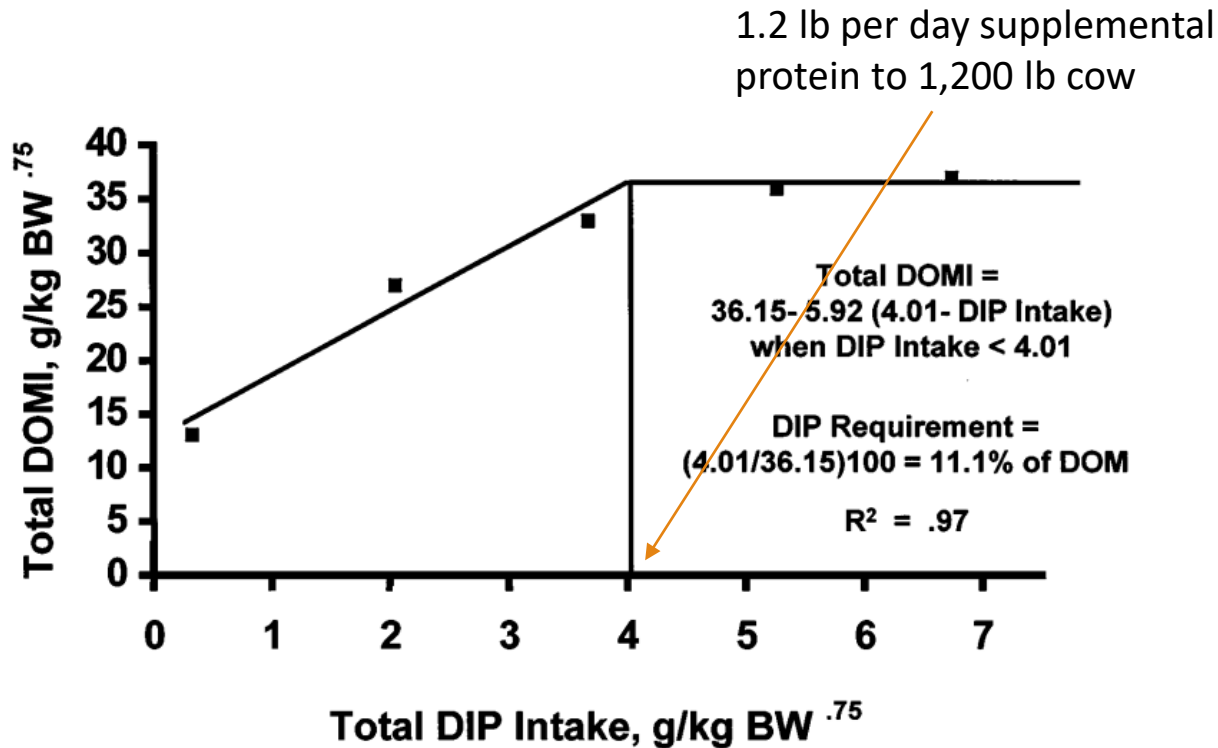
# Protein Supply vs Forage Utilization

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Item	Supplemental Protein, lb/day				
	0	0.4	.80	1.2	1.6
Forage Intake	7.3	12	14.3	16.1	15.3
Microbial Efficiency, g/kg TDN	12.2	15.2	17.0	19.1	20.0
Digestibility, %	44.6	54.3	54.2	51.3	53.8

1,200 lb beef cow  
Prairie hay; 2% CP, 76.6% NDF  
Koster et al., 1996

# Total Digestible Energy Intake





# Minimize Hay Waste





# Materials and Methods

## Feeder Treatments

- Open bottom steel ring (OBSR)
- \$250.00
- 100 lb
- Open bottom
- 6 Feeding stations



# Materials and Methods

## Feeder Treatments

- Polyethylene Pipe (POLY)
- \$350.00
- 100 lb
- Open bottom
- 6 Feeding stations



# Materials and Methods

## Feeder Treatments

- Sheeted bottom steel ring (RING)
- \$550.00
- 222 lb
- Metal apron
- 16 feeding stations



# Materials and Methods

## Feeder Treatments

- Modified Cone (MCONE)
- \$825.00
- 300 lb
- Metal apron
- 9 feeding stations



# Effect of Feeder Design on Waste

Item	Feeder				SEM	P-value
	MCONE	OBSR	POLY	RING		
<b>Total waste, lb</b>	71 <sup>a</sup>	283 <sup>b</sup>	294 <sup>b</sup>	170 <sup>c</sup>	22	< 0.01
<b>Waste, % bale wt</b>	5.3 <sup>a</sup>	20.5 <sup>b</sup>	21.0 <sup>b</sup>	13.0 <sup>c</sup>	1.6	< 0.01

<sup>a,b,c</sup>Means within a row with uncommon superscript differ (P <0.05)





**BEXT**

$h = 0$





**BEXT**

$h = 24$



**BEXT**

$h = 48$





**BEXT**

$h = 72$



**BEXT**

$h = 96$





**OBSR**

$h = 0$



**OBSR**

$h = 24$





**OBSR**

$h = 48$



**OBSR**

$h = 72$





**OBSR**

$h = 96$



# Limit Access to Hay

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# Access Time Impacts Hay Use Efficiency

Item	Access Time per Day			<i>P</i>
	6 h	14 h	24 h	
Hay DM intake, lb	21.2	24.4	27.4	< 0.01
Cow BW change, lb	27.3	36.5	51.2	> 0.10

Jaderborg et al., 2011 University of Minnesota

# “Standard” vs “Technology” Management on Cow Performance and Hay Disappearance

- “Standard”
  - 24 hour access to hay
  - “Typical” hay feeder (yellow RING)
  - No feed additive
- “Technology”
  - 7 hour access to hay
  - Basket plus sheeted bottom feeder





Standard





Technology

# “Standard” vs “Technology” Management on Cow Performance and Hay Disappearance

Item	Management		SEM	<i>P</i> -value
	Standard	Technology		
Final wt, lb	1223	1226	23	0.93
Weight change (84 days)	11	24	9.6	0.33
Hay waste, %	25	12	3	0.01
Net disappearance, lb	2,230	1,845	114	0.03
Difference		-17%		





# “Standard” vs “4-Technology” Management on Cow Performance and Hay Disappearance

- “Standard”
  - 24 hour access to hay
  - “Typical” hay feeder (yellow RING)
  - No feed additive
- “Technology”
  - 6 hour access to ammoniated hay
  - Modified cone (BEXTRA)
  - 200 mg Rumensin per cow per day in supplement

# “Standard” vs “4-Technology” Management on Cow Performance and Hay Disappearance

Item	Management		SEM	<i>P</i> -value
	Standard	4-Technology		
Final wt, lb	1223	1226	23	0.93
Weight change (84 days)	-72	-86	9.7	0.14
Hay waste, %	22	7	1.8	0.01
Net disappearance, lb	2,690	1,867	18	0.01
Difference		-31%		



