

NUTRITION FOR WEANING CALVES



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Rules for water intake

- ⦿ Cattle drink approximately
 - 3 times DMI in the Fall, Winter and Spring
- ⦿ Cattle drink approximately
 - 5 times DMI in the Summer
- ⦿ Toxicity problems in the water occur in the Summer

How do you identify problems with the water source?

- First, the cattle quit eating
- They will be huddled around the water tank

Common problems with the water source

- Too tall for small cattle
- Cattle can't identify source
- Not enough water pressure
- Not enough linear space
- Stray voltage



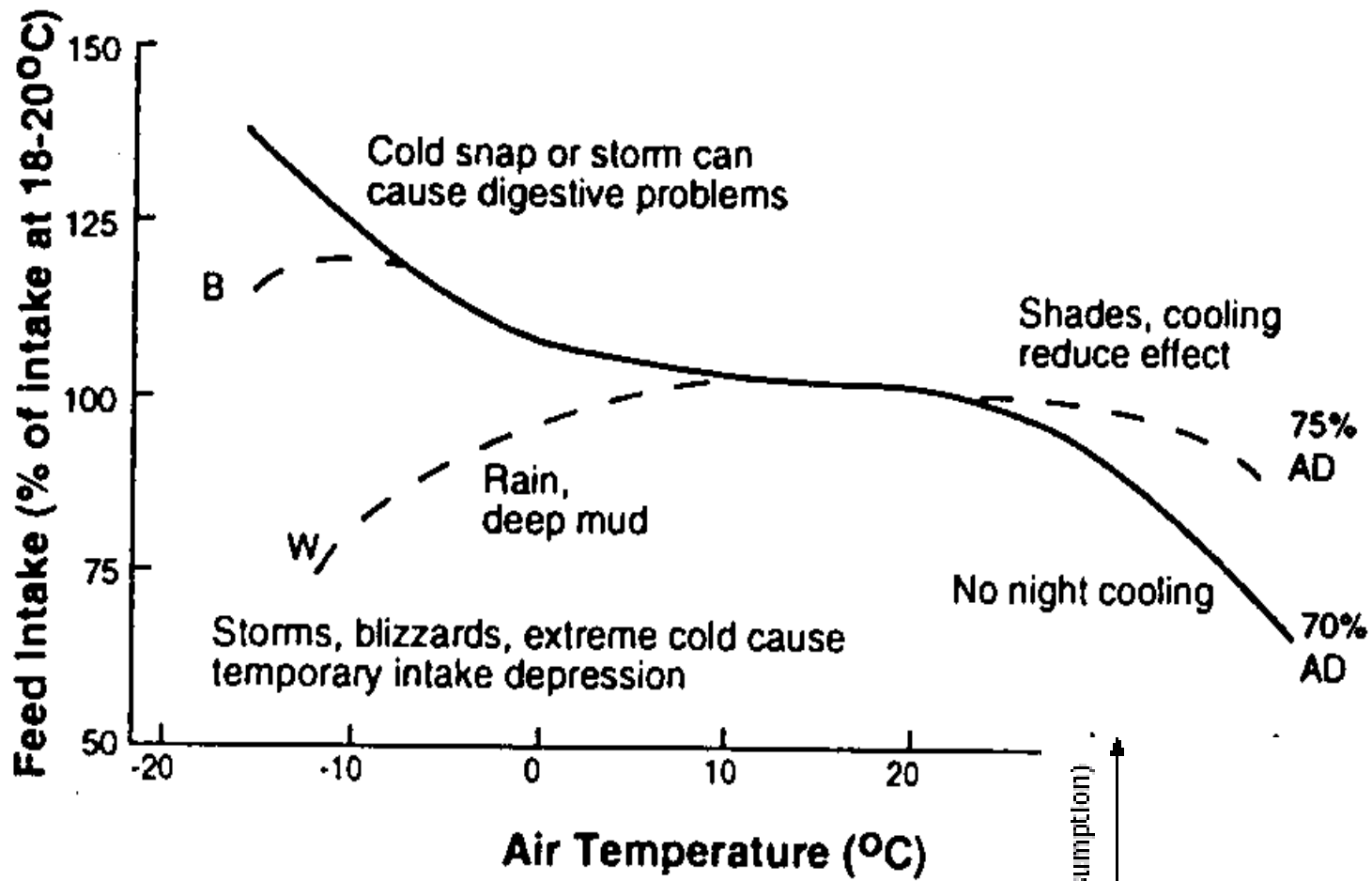
STRESS AND ENVIRONMENT

Receiving Cattle

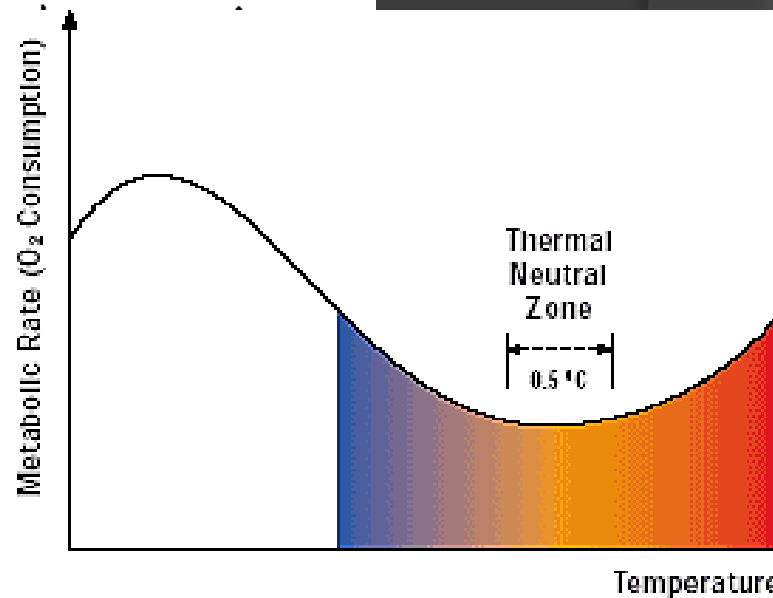
- Generally speaking the requirements of receiving cattle are not different
- Decrease in feed intake due to stress
- We need to increase the concentration of nutrients in the starting diet to fortify the animal

Newly received calves...

- Stressed
- Don't know where to eat
- Sick
- We want them eating 1.5% of body weight by 1.5 weeks on feed.



B = behavioral change; W = weather conditions



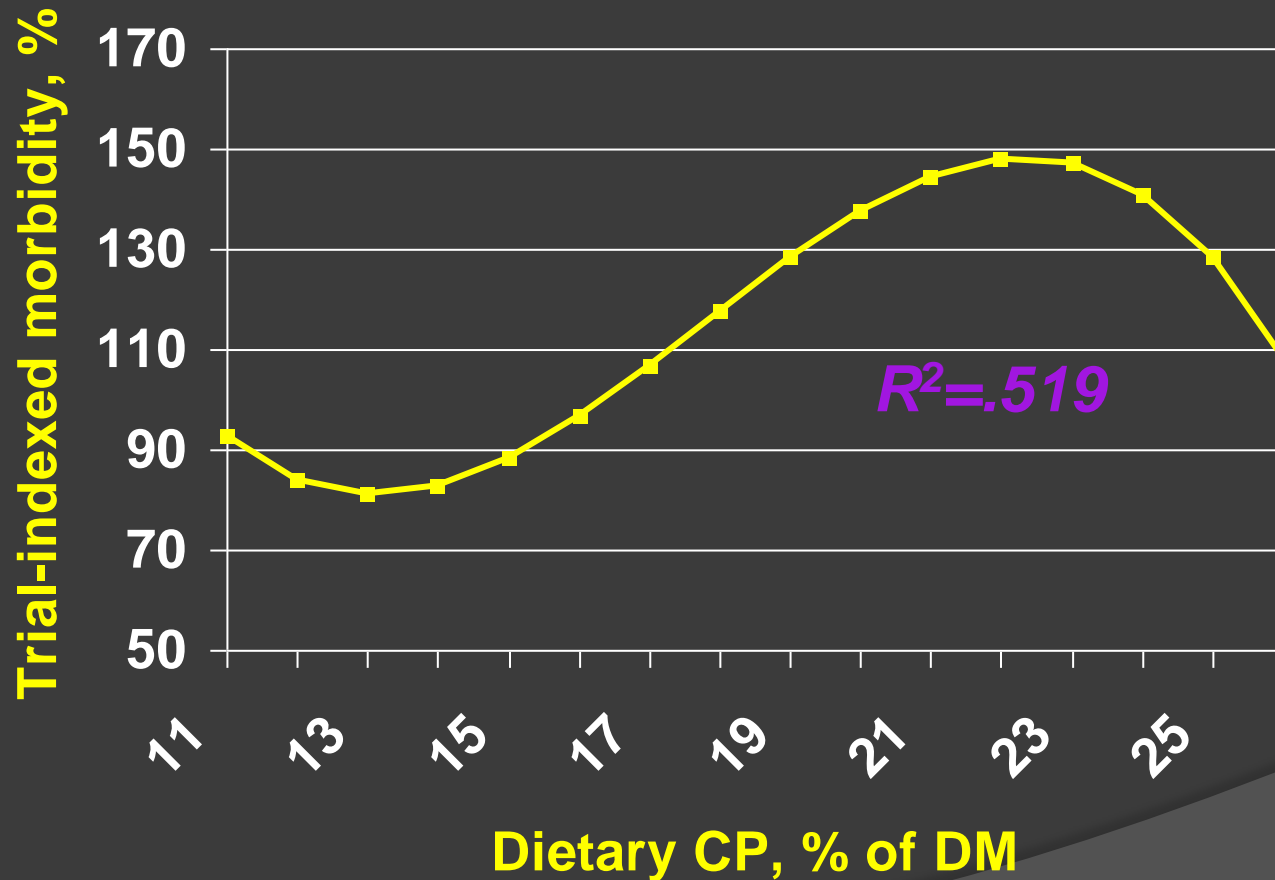
Effects of protein concentration on receiving calf performance for the first 42 days.

Galyean et al., 1993, JAS

Item	CP concentration (% , DM basis)		
	12	14	16
ADG, kg	1.14	1.38	1.45
DMI, kg	4.47	4.56	4.83
Feed:gain	3.95	3.32	3.35
Pulls, %	37.5	22.5	47.5
Mortality	2	1	0

Effects of CP Level in Receiving Diets on Morbidity

Four-Trial Summary - 28- to 42-d periods



Effects of protein source on receiving calf performance

Eck et al., 1988 JAS

- Two trials were to examine the effects of protein source on ADG, DMI and feed:gain in receiving calves (Urea, Cottonseed meal and a Blood meal/Corn gluten meal mix)
- 28-day trials
- Conducted at Texas Tech University

Effects of protein sources on receiving calf performance

Item	Protein source		
	Urea	CSM	BM/CGM
ADG, kg	.56 ^a	.64 ^b	.77 ^c
DMI, kg/d	6.33	6.52	6.30
Feed:gain	11.30 ^a	10.19 ^b	8.18 ^c

Eck et al., 1988

Protein suggestions

- Feed at least 12.5% CP (NRC, 1996)
- Optimum performance with decreased morbidity is achieved at 14 % CP in calves
- Natural protein sources (no more than 1% urea, DM basis)
- Increase the level of by-pass protein when starting calves

Energy considerations for the receiving calf

- Our goal is to get calves to eat
- Good quality hay top-dressed with a mill ration is excellent for calves that are not bunk broke (helps find the bunk and most cattle have been exposed to hay)
- Bunk-broke cattle or aggressive cattle can be started on a milled diet

Energy considerations

Galyean et al., 1999

- Cattle will select a concentrate diet over a lower energy diet – Lofgreen, 1983
- Decreasing the level of silage increased gains and gain:feed during the first 2 wks but was not different over 28 days – Fluharty and Loerch, 1995
- Receiving diets should be around 60% concentrate

Effects of free choice hay on receiving calf performance for the first 28 days.

Lofgreen et al., 1980

Item	No hay	Free choice
ADG, kg	.46 ^a	.82 ^b
DMI, kg/d	3.99 ^a	4.53 ^b
Feed:gain	8.67 ^a	5.52 ^b

Comparison of concentrate level and receiving calf performance during the first 28 days.

Lofgreen et al., 1980

	Concentrate, % dry matter basis		
Item	25	50	75
ADG, kg	.57 ^a	.64 ^b	.67 ^b
DMI, kg/d	4.21 ^b	4.49 ^c	4.08 ^a
Feed:gain	7.39	7.02	6.09

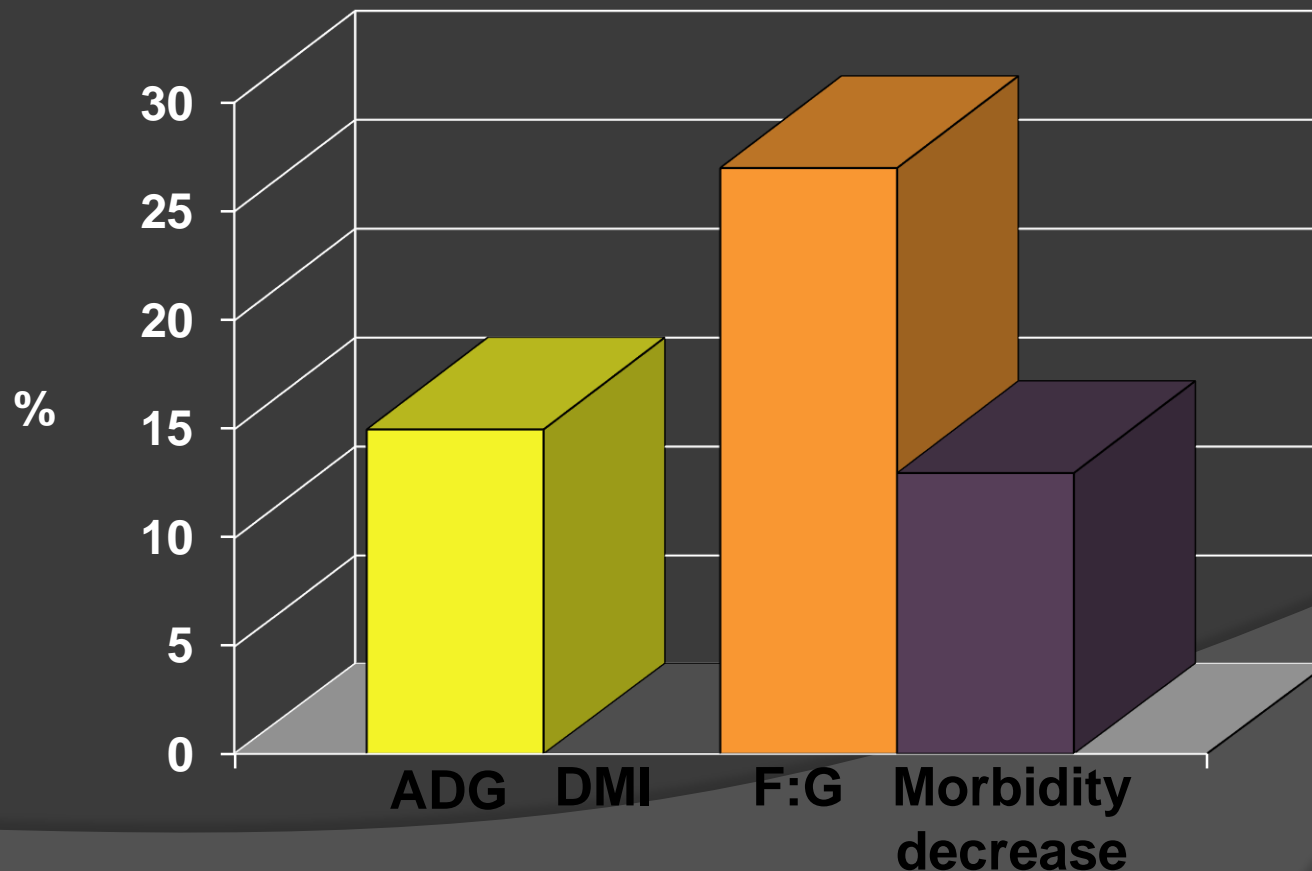
Energy considerations for stressed calves

- Grain type used does not affect performance (Smith et al., 1988)
- Grain processing does influence performance – Owens et al., 1995
 - The only interaction between grain processing and source is due to unprocessed grains
 - Corn is the best unprocessed grain choice

Vitamin E and Health/Immunity

Secrist et al. (1997; Prof. Anim. Sci. 13:47)

Five-study summary - Change with 400 to 1,600 IU/animal daily relative to no added vitamin E



Recommended K levels in receiving diets (NRC, 1996)

- ⦿ Optimum concentration
 - 1.2 to 1.4 %
- ⦿ Responses in performance to supplemental potassium levels are increased with increasing shrink
- ⦿ Intakes will be depressed if too much NaCl is included in the diet and the potassium added to the diet is in the form of KCl

Trace minerals

- Diets need to have increased concentrations of these minerals in starter diets if intakes are low (NRC, 1996):
 - Copper = 10 to 15 ppm
 - Selenium = .1 to .2 ppm
 - Zinc = 75 to 100 ppm

BUNK MANAGEMENT



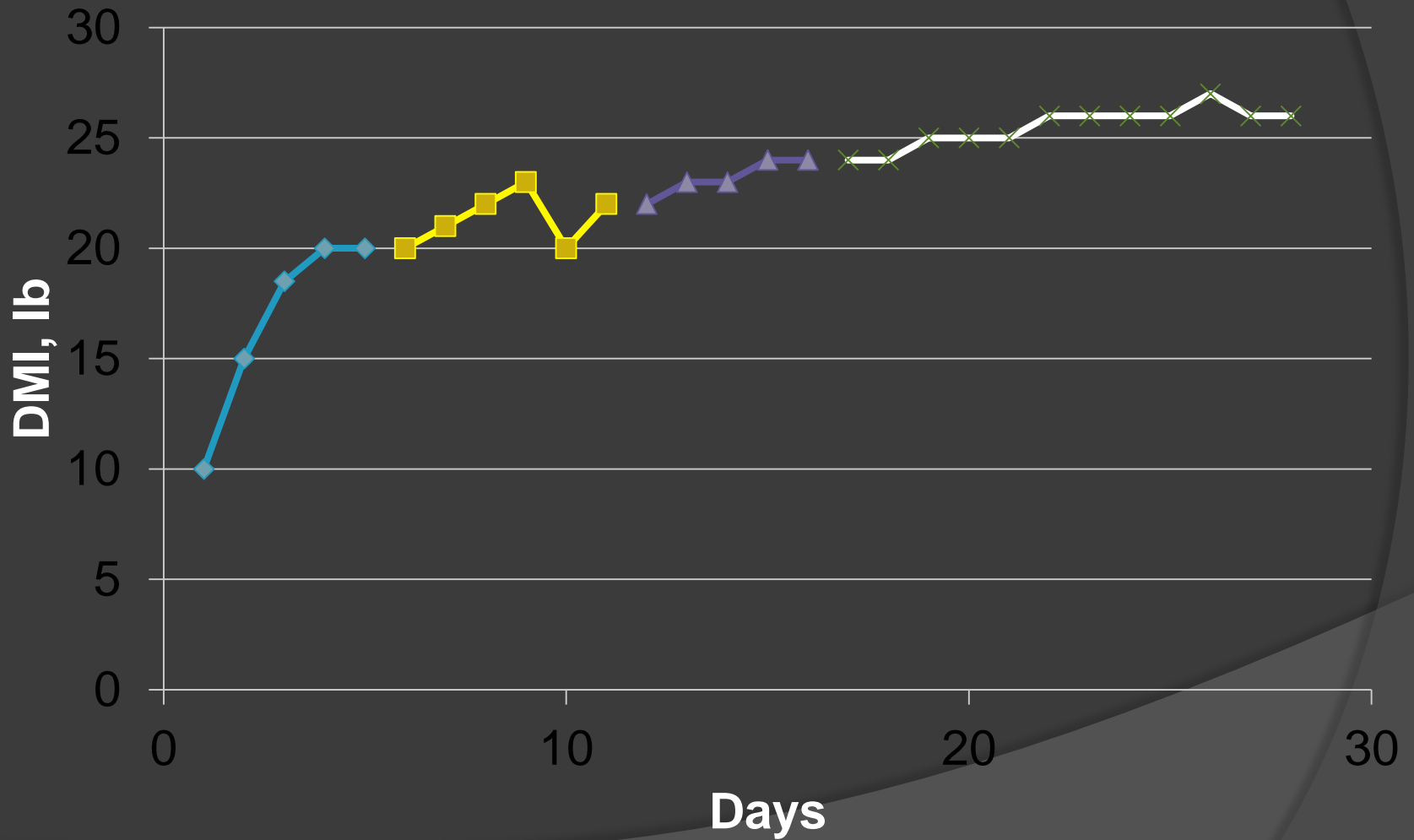
Transition

- ⦿ Too fast of transition:
 - Acidosis
 - Founder
 - Death

Conventional step up

- ⦿ Typical starter diet is 55 to 65% concentrate
- ⦿ Conventional method
 - 65% - 75% - 85% - 92%
- ⦿ Usually, wait 7 to 10 days on each ration before a change
 - Make sure they are eating before you move them up

Transitions: 4-step, Yrlgs



Bunk management

- ◎ More consistent feed intake
 - reduces potential for feed wastage
 - generally improves performance
 - more pronounced in northern climates with higher rainfall (i.e., frequency of strong weather fronts)

Bunk management

- ⦿ How many times a day should I feed?
 - Bunk space
 - Bunk volume
 - Ration volume
- ⦿ What time a day should I feed?
 - Doesn't matter, just keep it similar based on the juxtaposition of sun



Bunk management

- Reading the bunk
- 10% of yesterday's offering
- Dusting
- Slick
- Double Slick









Slick Bunk



Raising or cutting feed

- ⦿ Rule of thumb no more than 10% raise or cut in a day
- ⦿ Dependent of diet type
 - Roughage based – 5 to 6 lb/head
 - Concentrate based – no more than 2 lb/head
- ⦿ Make them eat a raise for at least 2 days or make smaller raises.

Reading cattle

- ⦿ 1/3 Coming to bunk
- ⦿ 1/3 Standing up
- ⦿ 1/3 Not interested

- ⦿ Two or three deep at bunk – behind
- ⦿ Nobody interested - ahead

Bunk management

- ⦿ Watch weather patterns
 - Possible to switch to storm ration
 - Raise the roughage a point or two
- ⦿ When or if you reimplant, allow cattle to get their first feeding in the morning

Bad weather



