



DROUGHT PREPAREDNESS FOR COW/CALF PRODUCERS

Brought to you by:

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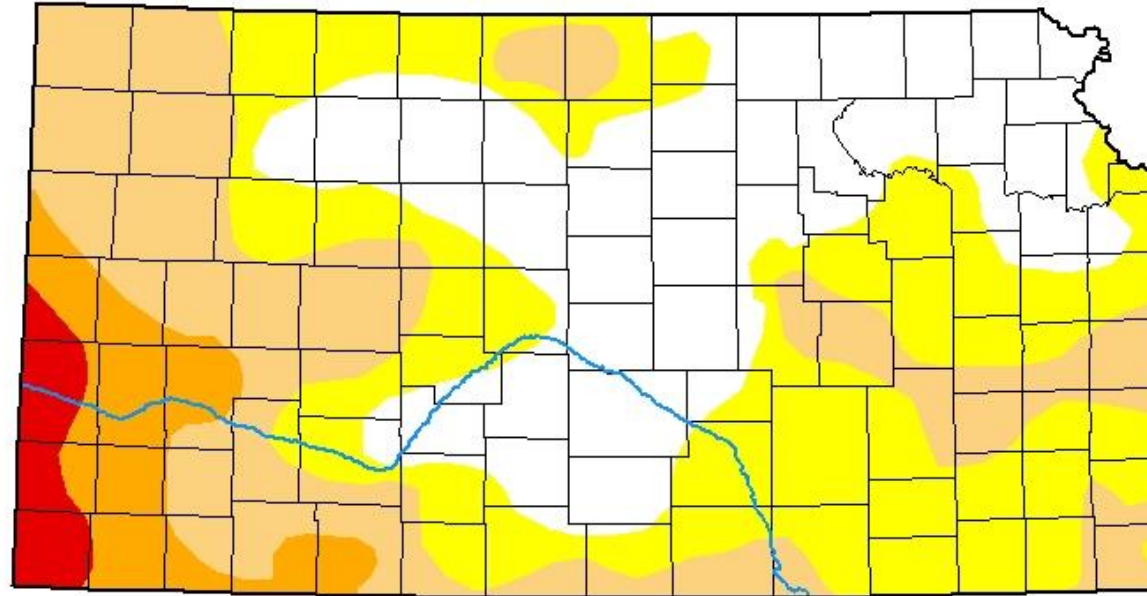
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U.S. Drought Monitor Kansas

July 7, 2020
(Released Thursday, Jul. 9, 2020)
Valid 8 a.m. EDT



Intensity:

-  None
-  D0 Abnormally Dry
-  D1 Moderate Drought
-  D2 Severe Drought
-  D3 Extreme Drought
-  D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

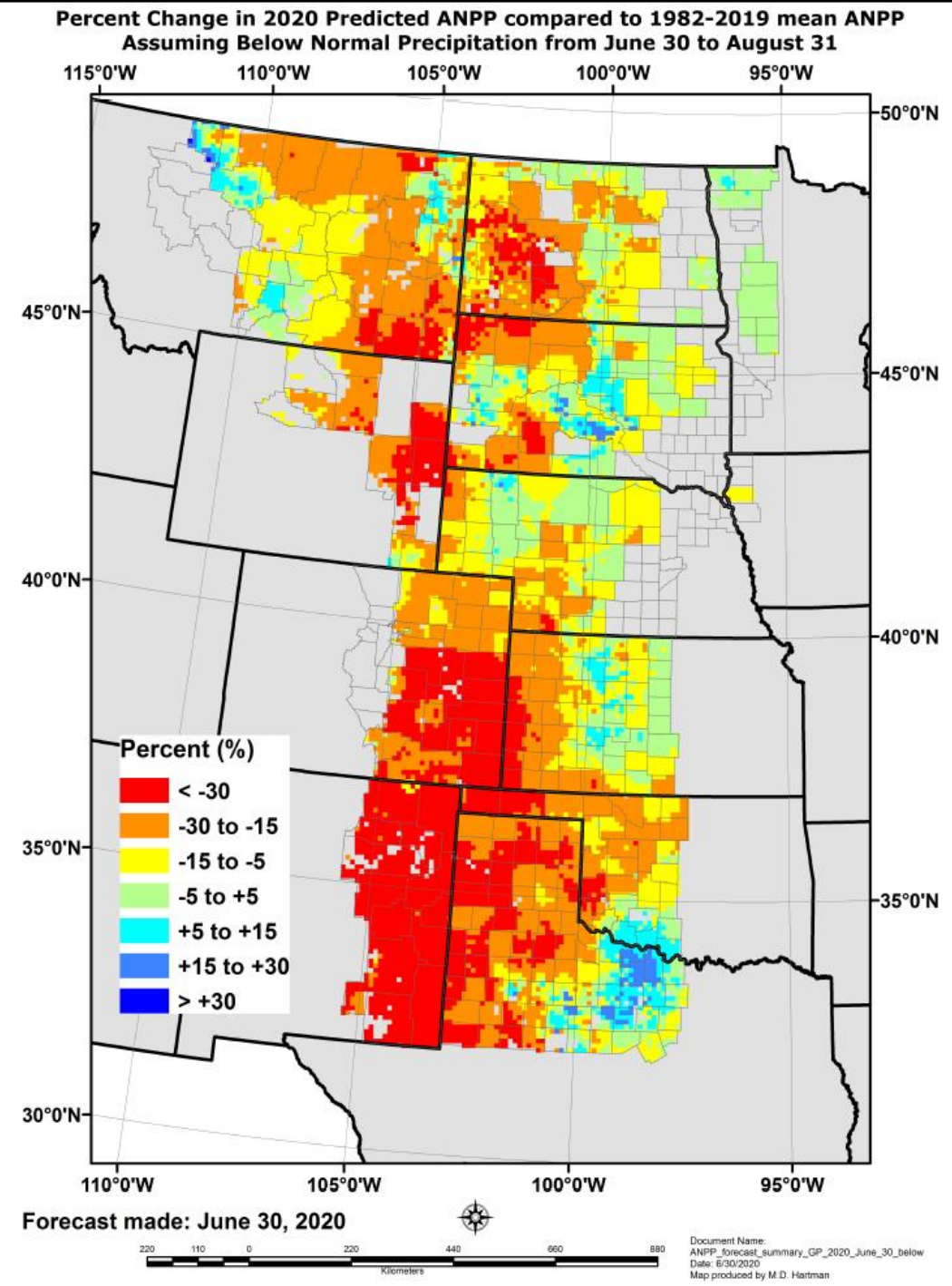
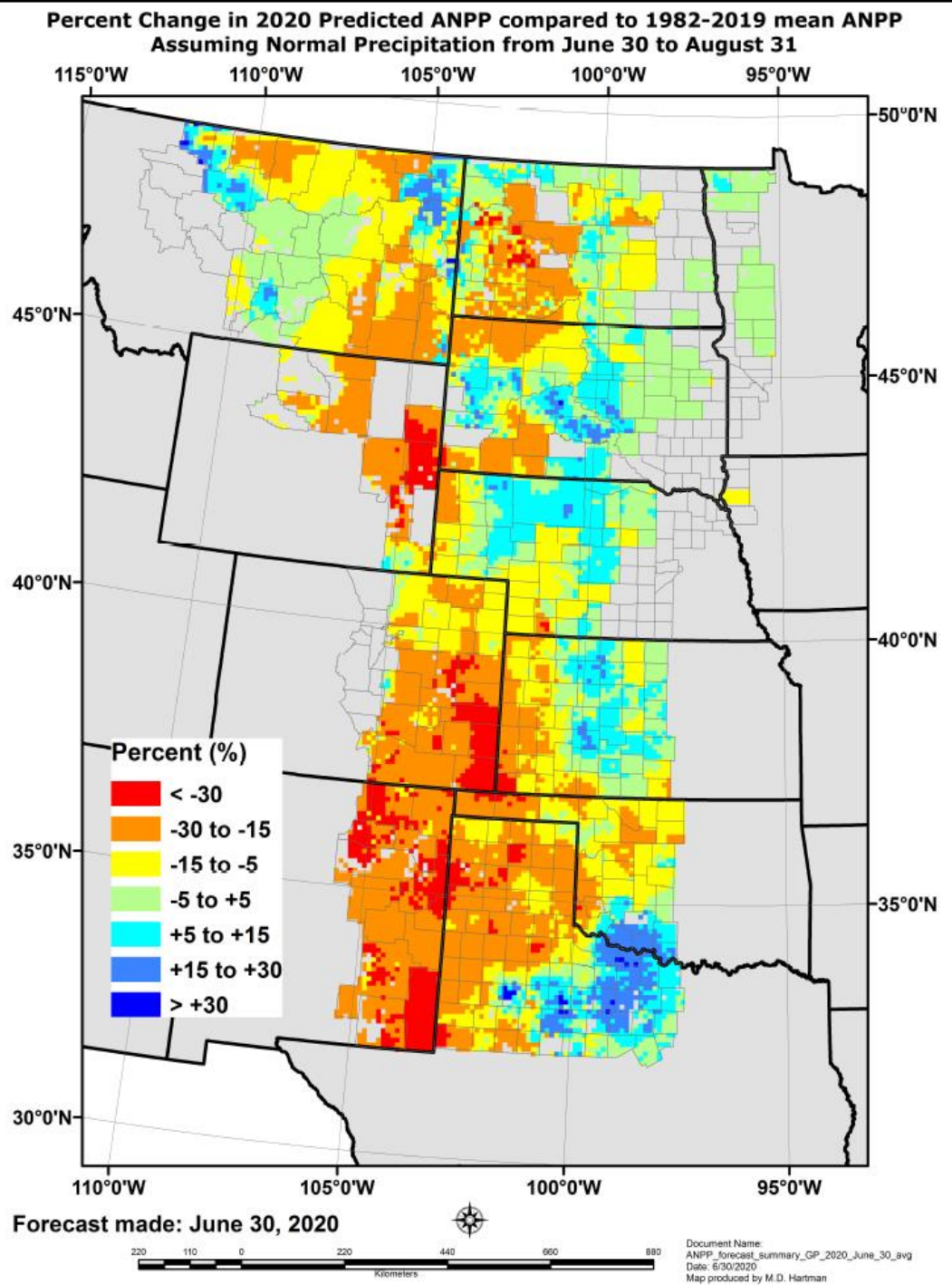
Author:

David Miskus
NOAA/NWS/NCEP/CPC



droughtmonitor.unl.edu







DROUGHT PREPAREDNESS FOR COW/CALF PRODUCERS

- Strategic reduction of grazing pressure
 - Dr. Sandy Johnson, Professor, NWREC, Colby
- Supplementation & Early-Weaned Calf Nutrition
 - Dr. Justin Waggoner, Professor, SWREC, Garden City
- Early Weaning Calf Health Considerations
 - Dr. AJ Tarpoff, Asst. Professor, Dept. of Animal Sciences & Industry

Please use the Question and Answer window in Zoom to post questions to our panelists.



STRATEGIC REDUCTION IN GRAZING PRESSURE

Sandy Johnson

**Department of Animal Sciences & Industry
Northwest Research & Extension Center, Colby, KS
Kansas State University**

METHODS TO REDUCE GRAZING PRESSURE

- Fewer animals
- Fewer days
- Reduce requirements
- Combination of the above

Long-term –
range
condition

Short term -
cash flow /
expenses



WHAT ANIMALS TO DE-STOCK

- Have feed resources for alternative management or can market sooner
- Planned to sell anyway – yearlings, old (cows & bulls), failed convenience traits
- Least value to you – (open, late bred, don't fit genetic goals)
- Need information to make decisions

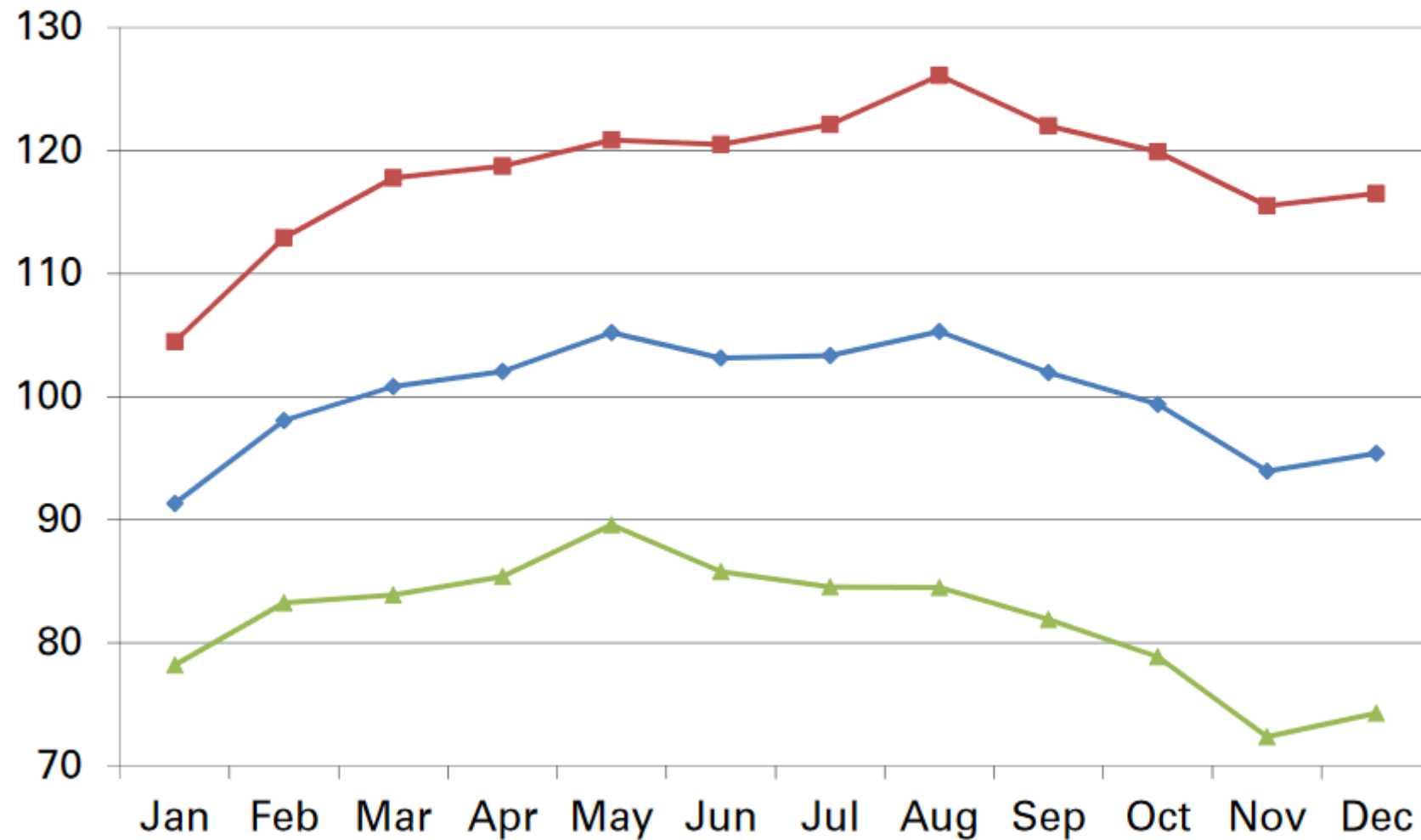
AGE AND VALUE OF CALF

Item	Day of Calving Season				
	1	21	42	63	Open
Weaning Wt	625	583	541	500	0
Weaning Value (\$151.74 -164.89)	948	907	866	824	0
Total Variable Costs*	753	753	753	753	753
Net	195	154	131	71	-753

* 2014 -2018 KFMA Spring Cow/Calf Enterprise – State wide



Figure 4. Boning Utility Cows, Sioux Falls: Seasonal Price Index, 2005-2014



Schulz, Iowa Beef Center, 2014

(<https://www.extension.iastate.edu/agdm/livestock/pdf/b2-19.pdf>)



PREGNANCY DETECTION METHODS

Palpation

- Precision declines as pregnancy advances

Ultrasound

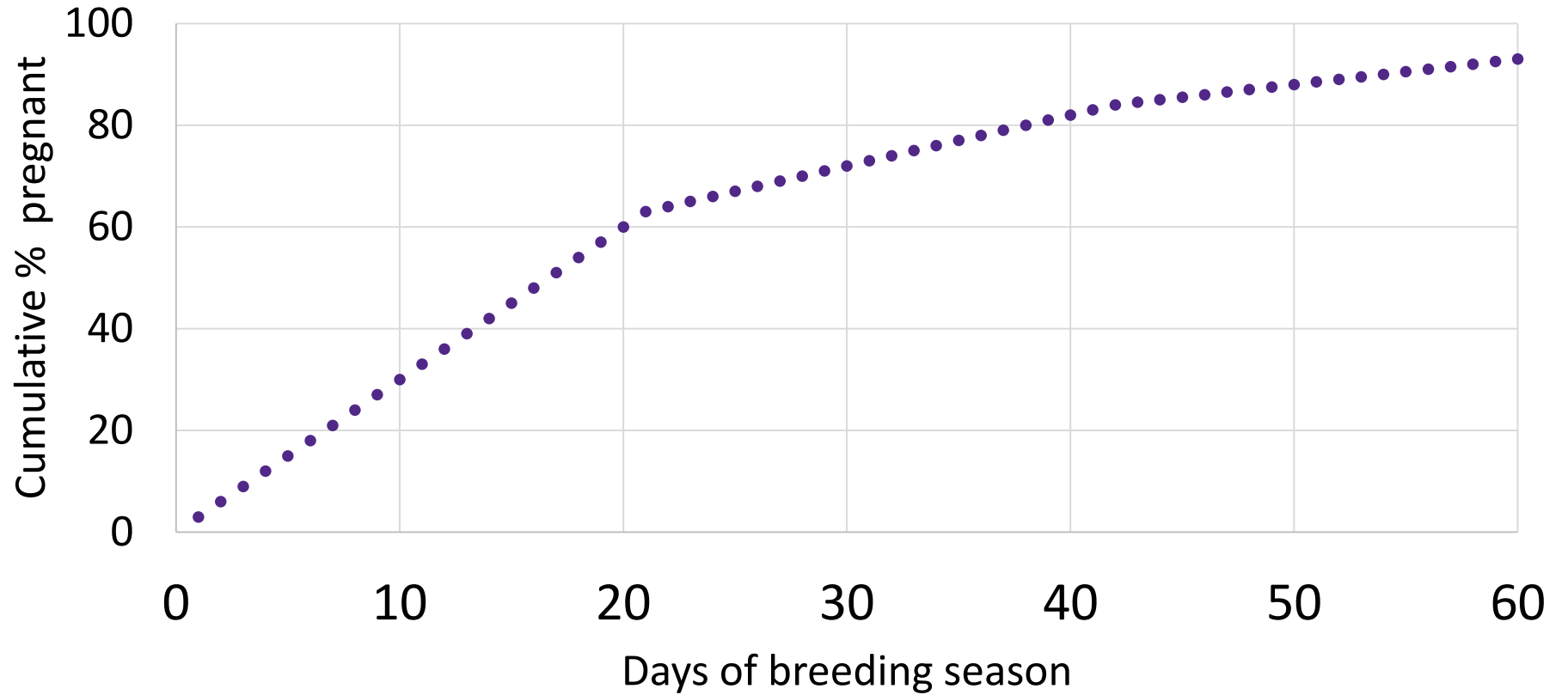
- Best for staging 28 to 100 days

Blood Test

- 25-29 d post mating, repeated samples to stage

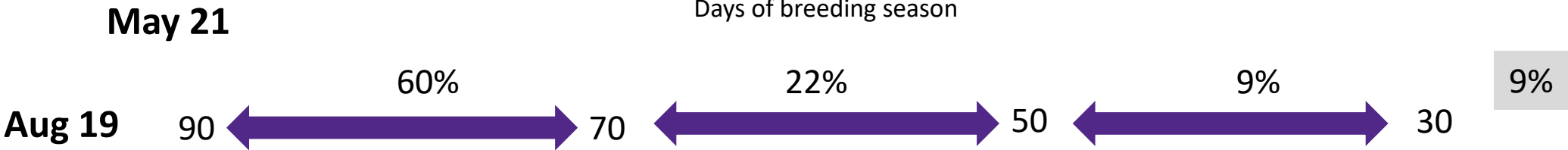
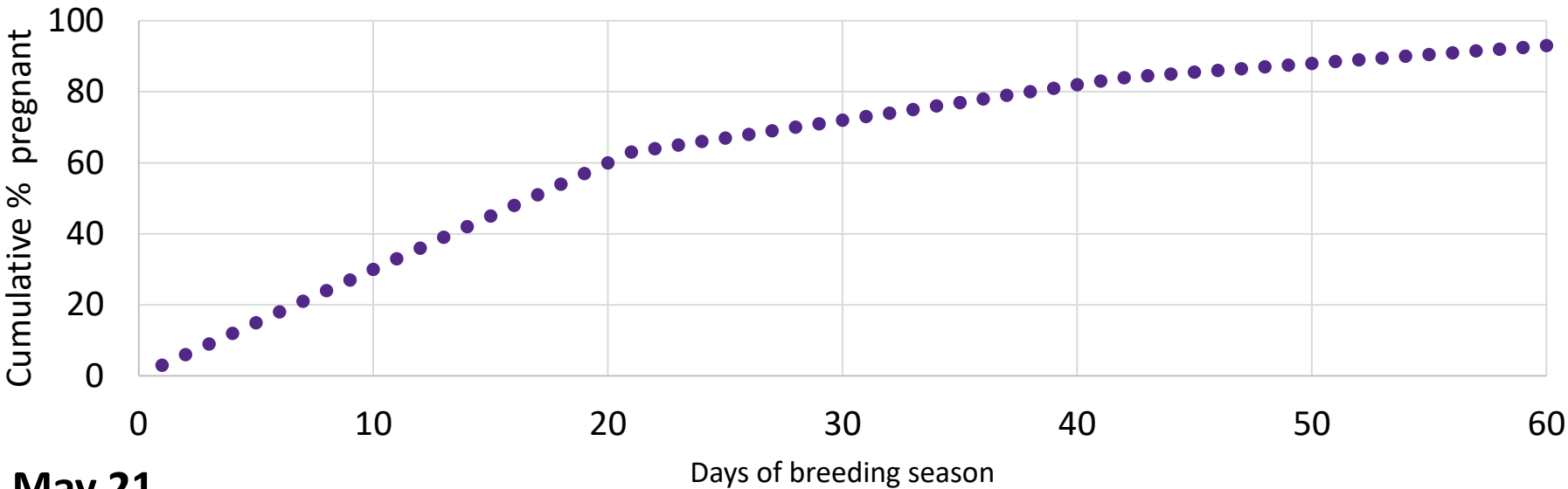


CUMULATIVE PERCENT PREGNANT



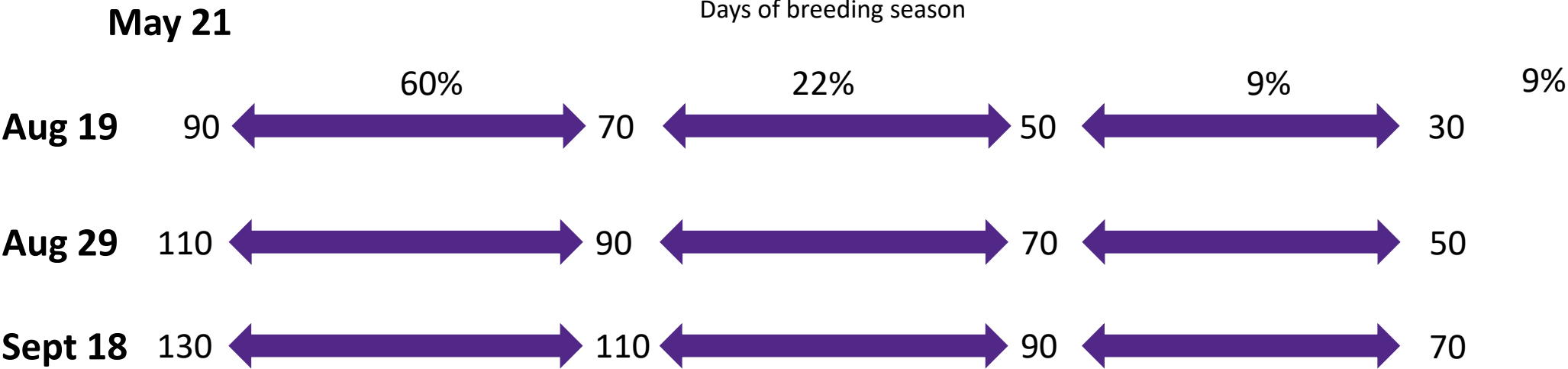
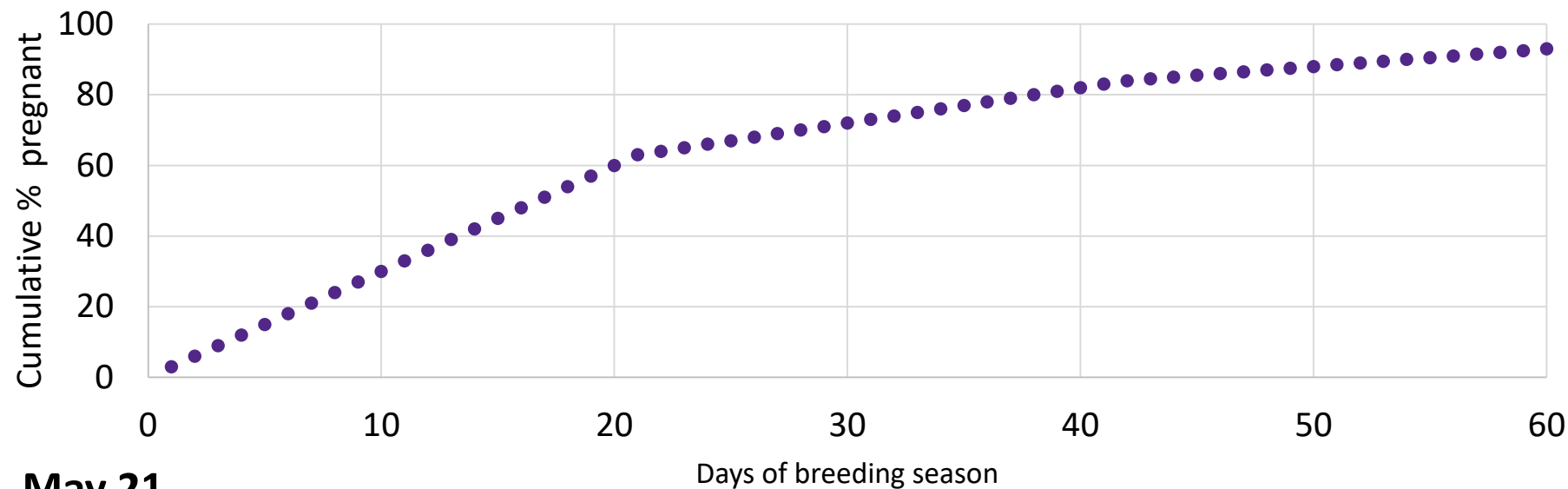


STAGING PREGNANCIES 90 DAYS AFTER BULL TURN OUT



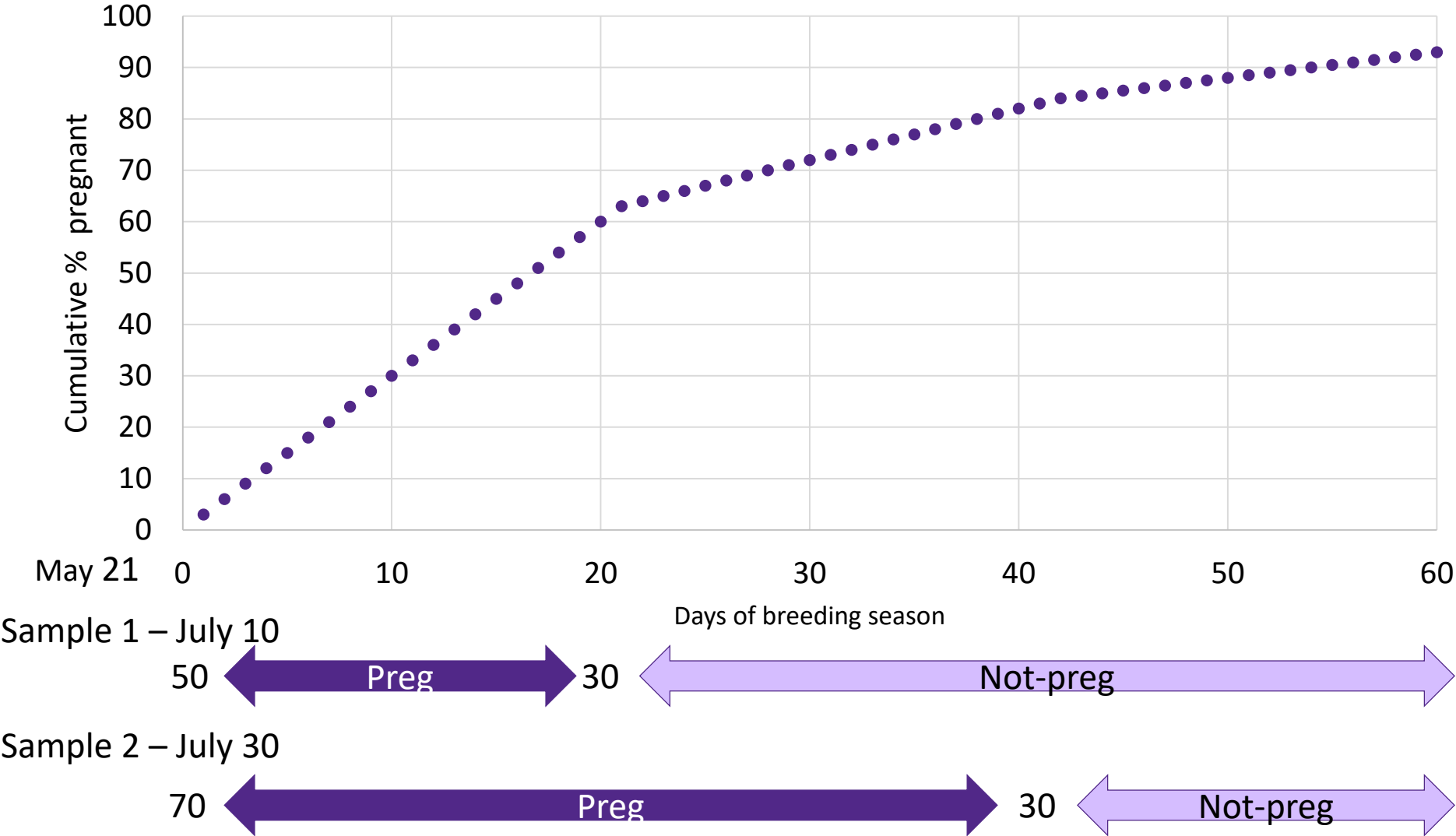


STAGING PREGNANCIES AFTER BULL TURN OUT



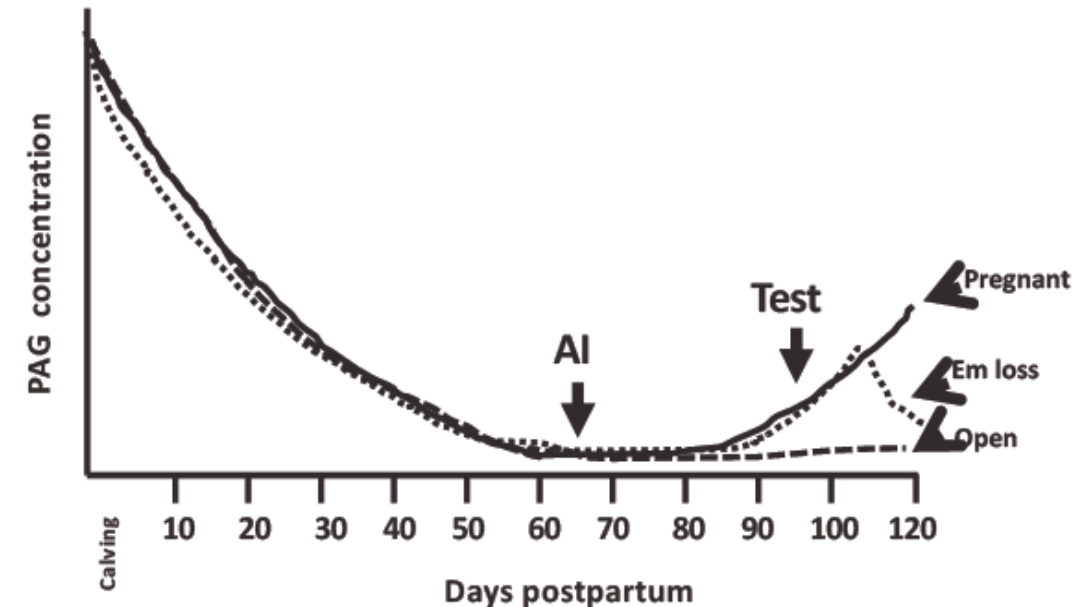


STAGING WITH MULTIPLE BLOOD SAMPLES



COMMERCIALLY AVAILABLE TESTS

- BioPRYN (BioTracking LLC, Moscow, ID)
- IDEXX (IDEXX laboratories Inc. Westbrook, ME)
- DG29 (Genex Cooperative, Shawano, WI)



ADDITIONAL VALUE OF STAGING PREGNANCIES

- Manage cows by stage
- Marketing options
 - AI-sired
 - Fetal sex
 - ? value of pregnant cows





CONSIDERATIONS IN CULLING COWS

- Take opportunity to identify and cull cows with weaknesses
- Early bred have greater value than later bred
- Seasonal changes in cow market
- Use timely pregnancy diagnosis to stage pregnancies



SUPPLEMENTATION & EARLY-WEANED CALF NUTRITION

Justin Waggoner

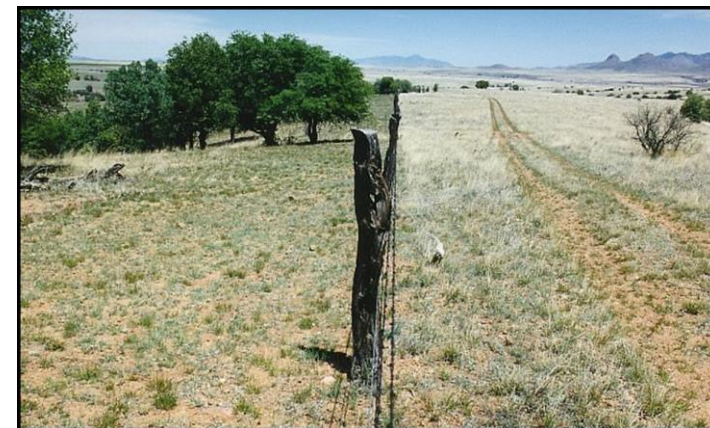
Department of Animal Sciences & Industry

Southwest Research & Extension Center, Garden City KS

Kansas State University

4 FORAGE SCENARIOS

- Abundant supply of high quality forage
- High quality forage, but limited supply
- Abundant supply of low quality forage
- Low quality forage, limited supply

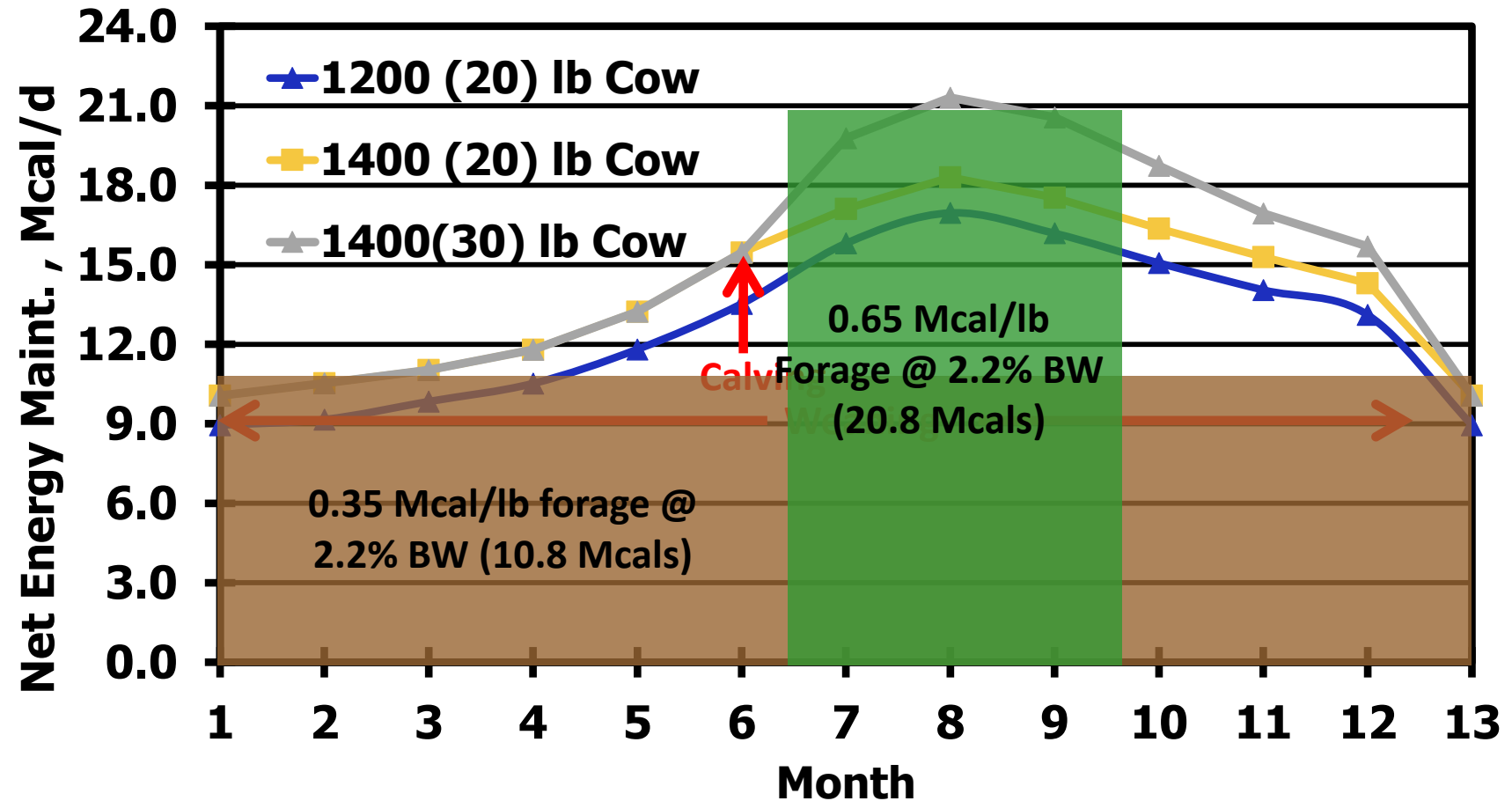




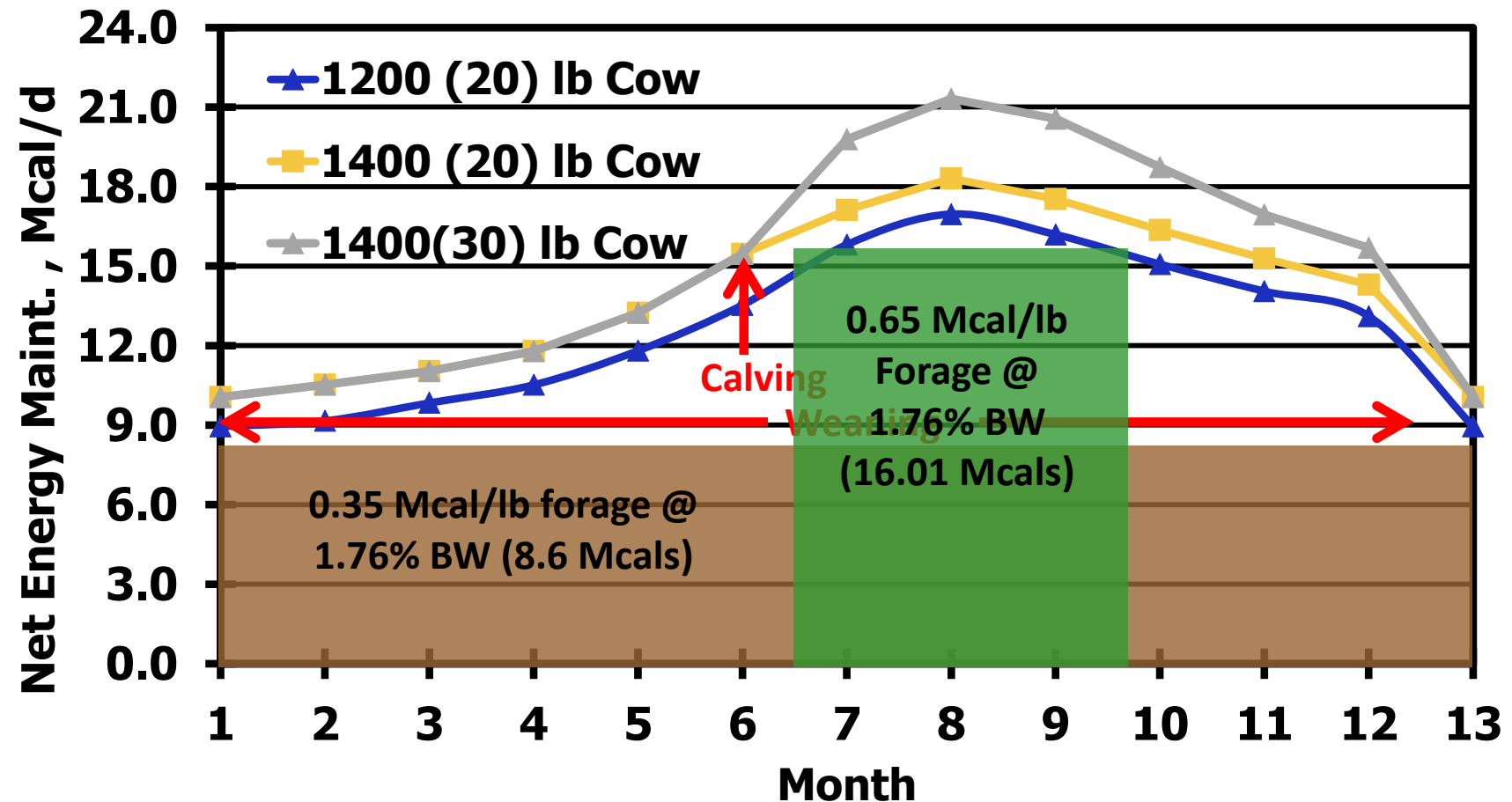
DROUGHT SUPPLEMENTATION IS NOT NORMAL

- Normal supplementation program
 - Adequate supply low/moderate forage
 - Less than 7% CP
 - Protein 1st limiting
- Drought situation or limited grazing
 - Energy 1st limiting nutrient followed by protein
 - Replace forage with hay or fiber-based supplement
 - Feed combination supplements that supply both energy and protein

ENERGY REQUIREMENT AND SUPPLY



ENERGY REQUIREMENT AND SUPPLY (20% REDUCTION IN FORAGE INTAKE)



SUPPLEMENT SELECTION



NUTRIENT COMPOSITION

Item	DM,%	CP,%	Ca,%	P,%	NEm, Mcal/lb
Corn	88	9.8	0.03	0.30	1.01
Corn Gluten Pellet	91	18-21	0.07	0.95	0.88
Wet Distillers Grain	35	31	0.07	0.81	0.97
Dried Distillers Grain	89	31	0.07	0.83	0.95
Alfalfa Hay	91	12	1.41	0.25	0.84
CRP Hay	89	3.5	0.34	0.09	0.20
Sorghum Silage	38.4	6.6	0.41	0.28	0.24
Liquid Suppl.	43	25	1.3	0.24	1.33



FREIGHT (HAULING CALORIES)

How many Mcals of energy are in a ton of ?

Corn 1.0 Mcal/lb

DDGs 0.95 Mcal/lb

Alfalfa 0.85 Mcal/lb

CRP hay 0.20 Mcal/lb



SUPPLEMENT SELECTION

- Fiber Vs. Starch
 - Fiber preferred....less substitution...negative effects of starch in the rumen
 - Feed up to 0.3% BW generally without negatively impacting forage intake of energy-based supplements
- Energy and Protein combination supplements
- *During a drought the bottom line is meeting cow requirements for energy and protein*



SUPPLEMENTATION PROGRAMS

- Based on the assumption that animals consume the supplement at the targeted amount....
 - Deliver Daily (supplying both energy and protein)
 - Delivery methods (hand feeding, bunks, etc.)
 - Social behaviors
 - Bunk space (20 inches/cow)
 - Sorting cows (group cows by condition)



SUPPLEMENTATION VS. FEEDING

- Replacing more than 50% of daily forage intake?
 - 1400 lb cow ~ 28 lbs dry forage/day
- May need to replace forage with concentrates
 - Energy density of concentrates greater/economical
- Limit-feeding
 - Restrict intake relative to predicted ad-libitum intake
 - Feed more energy dense diet at 1.8% BW opposed to forage at 2.5% BW, dry basis.

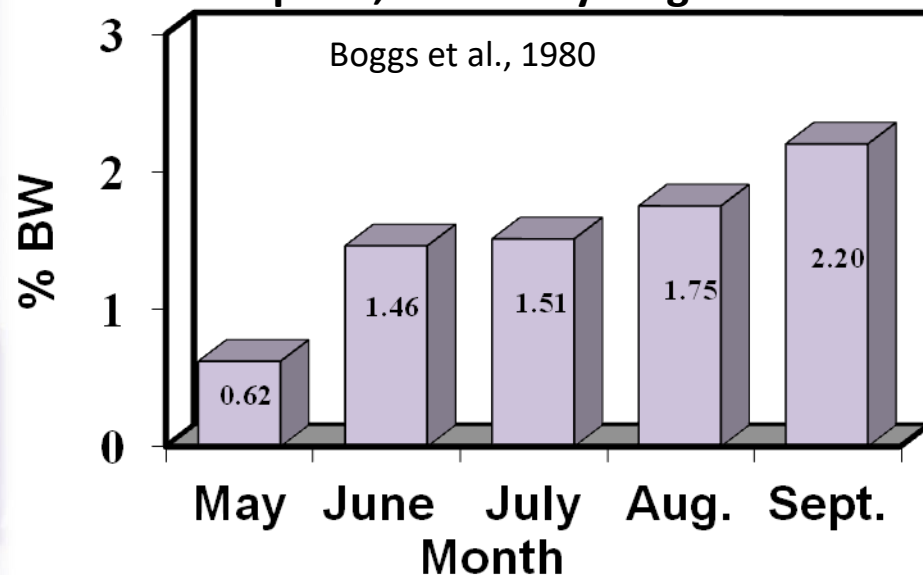
CONVENTIONAL/EARLY WEANING

- Weaning at less than 180 days of age
 - Conventional weaning 180-220 days of age
 - May be implemented as early as 45 days of age (Rasby 2007)
- Practical application
 - Weaning at 100 to 150 days of age
 - Average age ~120 days of age



EFFECT OF WEANING ON GRAZING PRESSURE

Dry forage intake of calves born March 15 to April 2, % of bodyweight



- 450 lb calf, 120 DOA
 - 6.8 lbs dry forage/d
- Lactating 1400 lb cow
 - 30.3 lbs dry forage/d
- Dry 1400 lb cow
 - 27.3 lbs dry forage/d

Every 4 days that a calf is not grazing = 1 grazing day for the cow
Weaning 30 days early ~ 1 week of grazing



BODY CONDITION SCORE OF COWS WEANED WHEN CALVES WERE 100-160 DAYS OF AGE

Item	Calf Age, d					SEM	<i>P</i> -value
	100	115	130	145	160		Unweaned vs. weaned
BCS ^a							
Initial ^b	5.46	5.50	5.48	5.41	5.46	0.091	0.87
Final ^c	5.90	5.99	5.85	5.67	5.48	0.091	0.01
BCS change	0.43	0.50	0.37	0.25	0.02	0.118	0.01

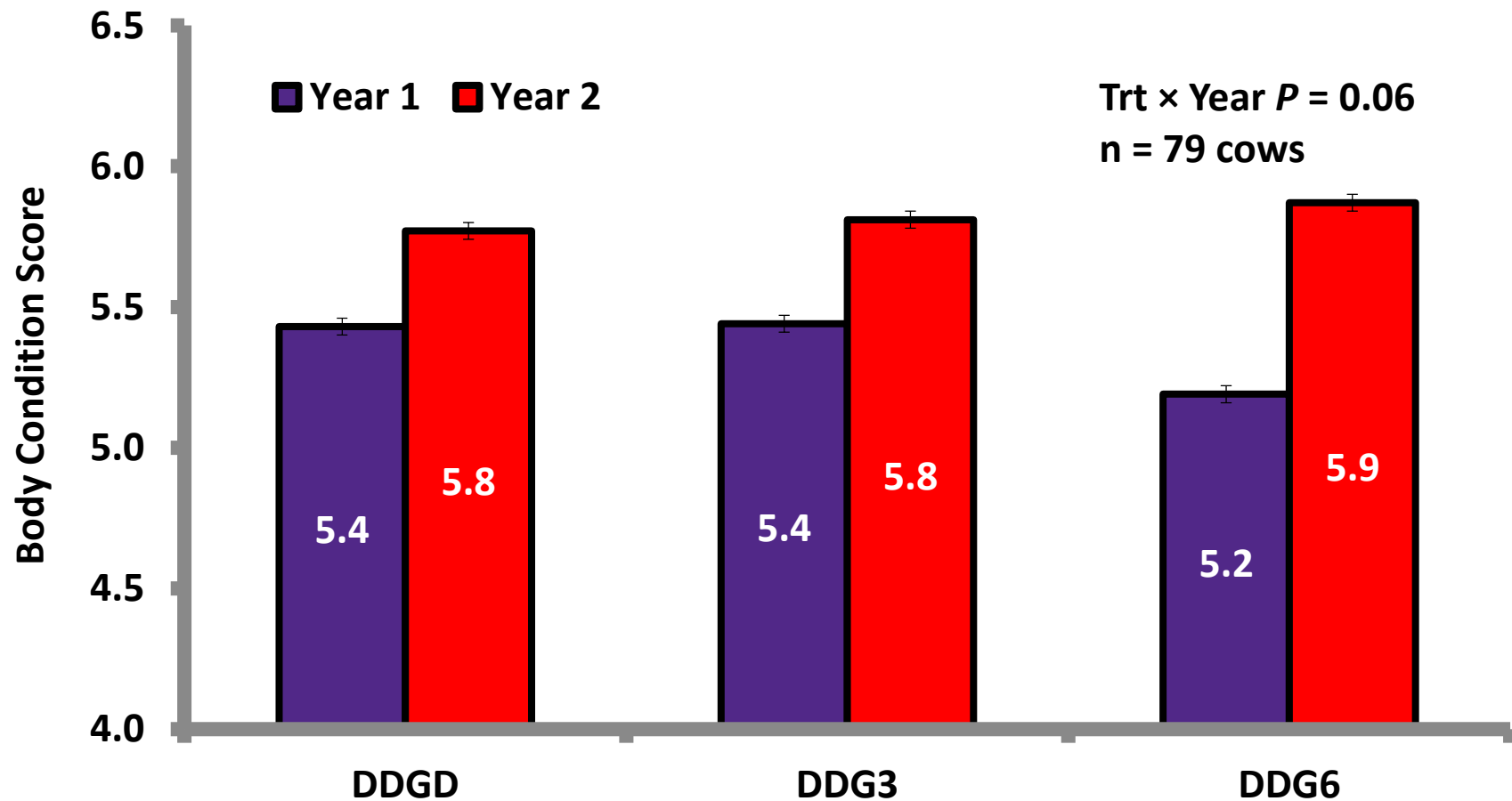
^aBody condition score (scale = 1 to 9; 1 = emaciated, 9 = obese)

^bInitial BCS measured at 100 days of calf age

^cFinal BCS measured at 220 days of calf age

Bolte et al., 2007

BODY CONDITION SCORES AT CALVING (CALVES WEANED AT 113 ± 17 DAYS IN YEAR 1)



Brad Bennett, M.S. Thesis, 2013

FEEDING MANAGEMENT

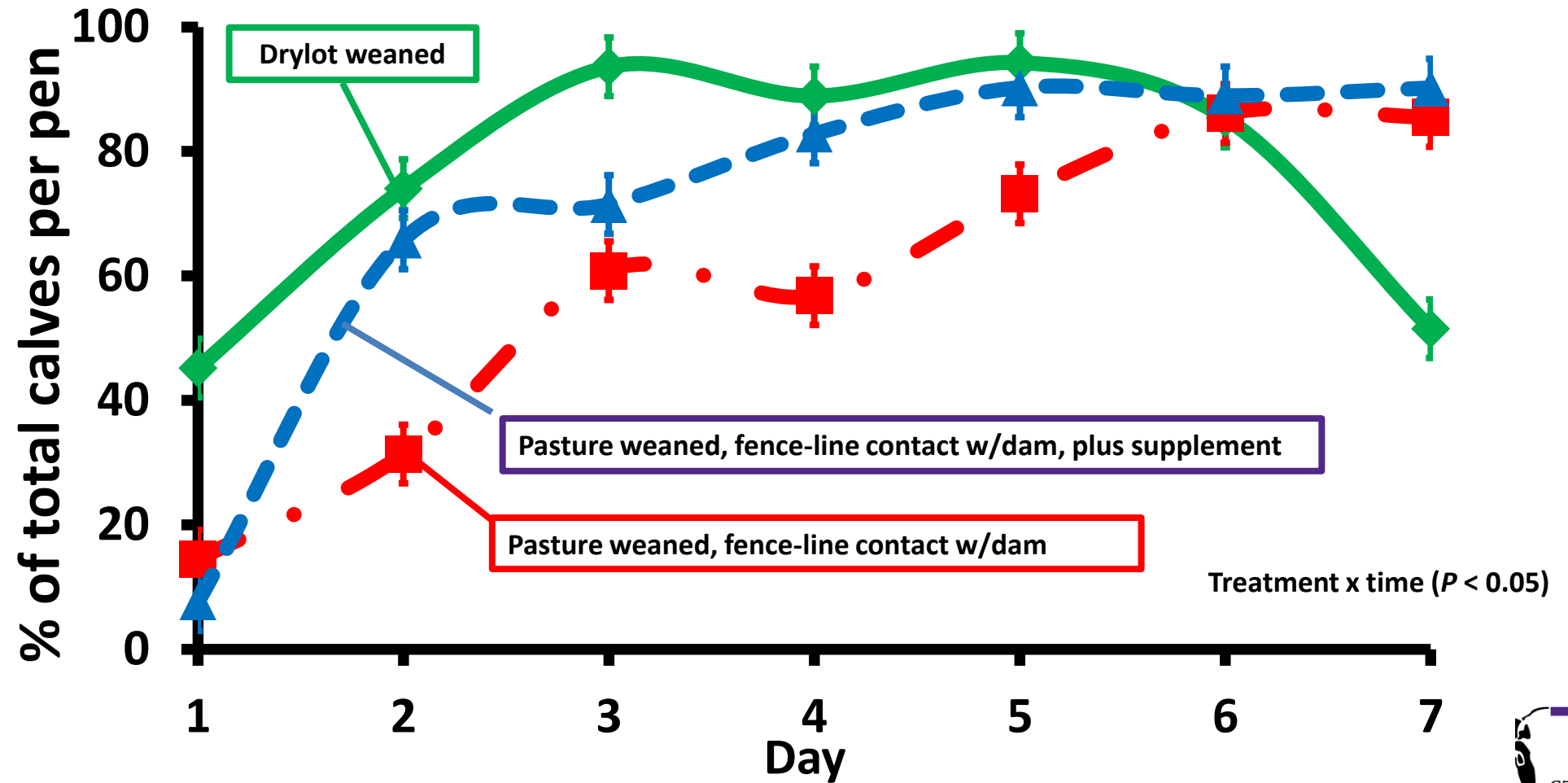
- Newly-weaned calves often reluctant to eat and subsequent DM intake is low (1-1.5% BW)

Weight	% of Body Weight				
	1.0	1.5	1.8	2.0	2.5
350	3.5	5.25	6.13	7.0	8.75
400	4.0	6.0	7.0	8.0	10.0
450	4.5	6.75	7.9	9.0	11.25
500	5.0	7.50	8.75	10.0	12.5

Day 1  Day 10-14



CALVES OBSERVED AT THE BUNK DURING FEEDLOT RECEIVING PERIOD



Bailey, 2013

K-STATE EARLY WEANING FEEDING MANAGEMENT PROGRAM

Feeding day*	Weaning Diet (75-85% Concentrate)	Premium grass hay	Feedstuff order
1	0.5% of BW	0.5% of BW	diet bottom/hay top
2	0.7% of BW	0.5% of BW	diet bottom/hay top
3	0.9% of BW	0.5% of BW	diet bottom/hay top
4	1.1% of BW	0.5% of BW	hay bottom/diet top
5	1.3% of BW	0.5% of BW	hay bottom/diet top
6	1.5% of BW	0.5% of BW	hay bottom/diet top
7	1.8% of BW	—	diet only
8 →	Increase diet by 0.25 to 0.50 lb per calf		

*Remove any uneaten feedstuffs before feeding current day's diet

DIET CHARACTERISTICS

- Nutrient density
 - Must be relatively high to offset low intakes
- Familiar feeds (grass hay) not necessarily nutrient dense
- Newly weaned calves may not readily consume novel feeds
 - Limit inclusion of silage, wet byproducts?



DIET CHARACTERISTICS

- Palatability
- Moisture content (20-30% optimum)
 - Wet byproduct inclusion level
- Calves will sort diet ingredients
 - Stressed cattle more likely to consume concentrates (Lofgreen, 1983)
 - Particle size and ingredient aggregation of the diet

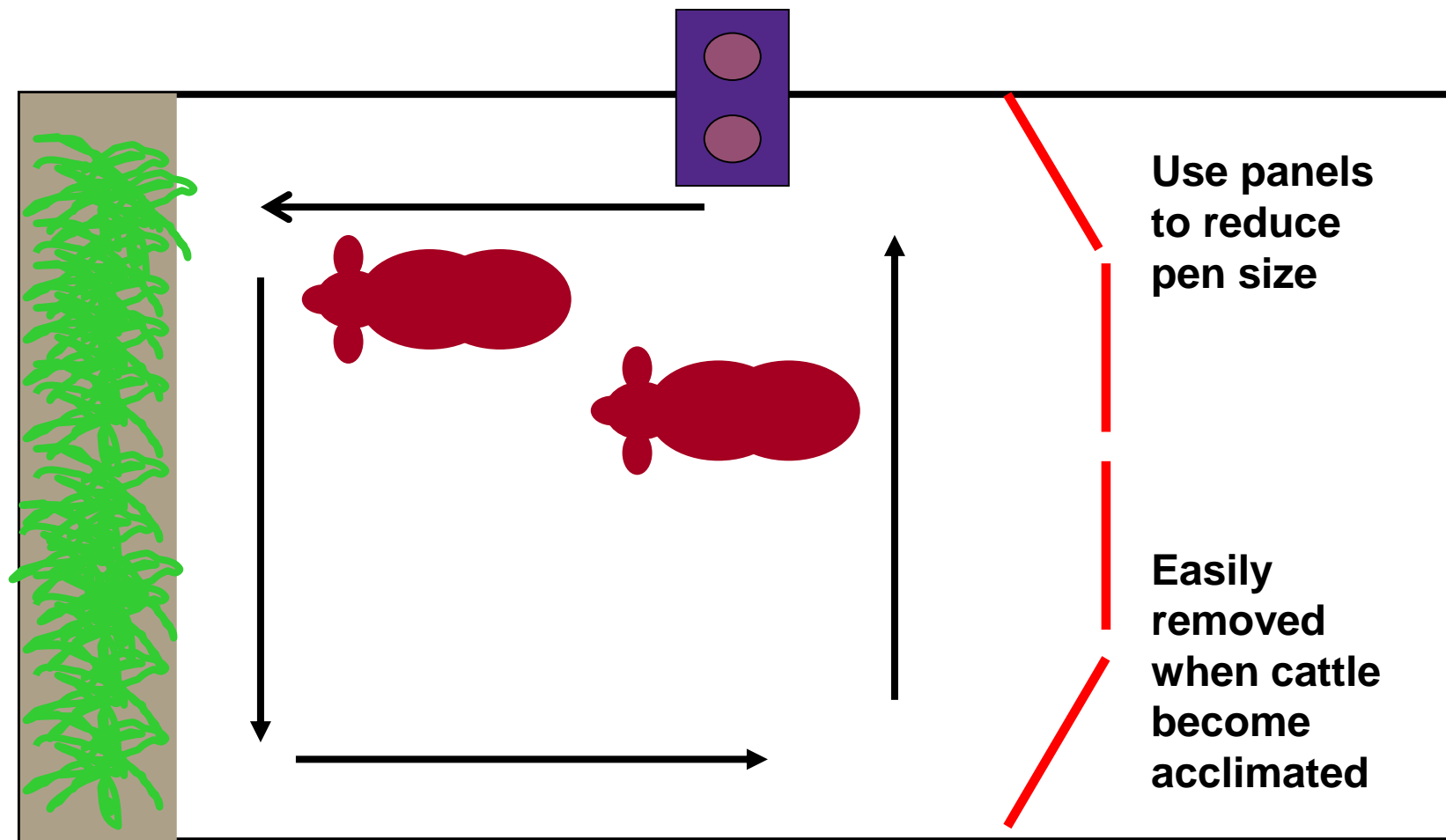




FACILITIES

- Calves should be penned based on body size
 - Limit weight range within pen to ± 50 lbs
- Linear bunk space of at least 12 inches/calf
- Consider bunk and water tank height
- Pen maintenance (holes, dust etc.)
- Consider air-flow and shade
 - Too little shade promotes crowding

PEN ENVIRONMENT



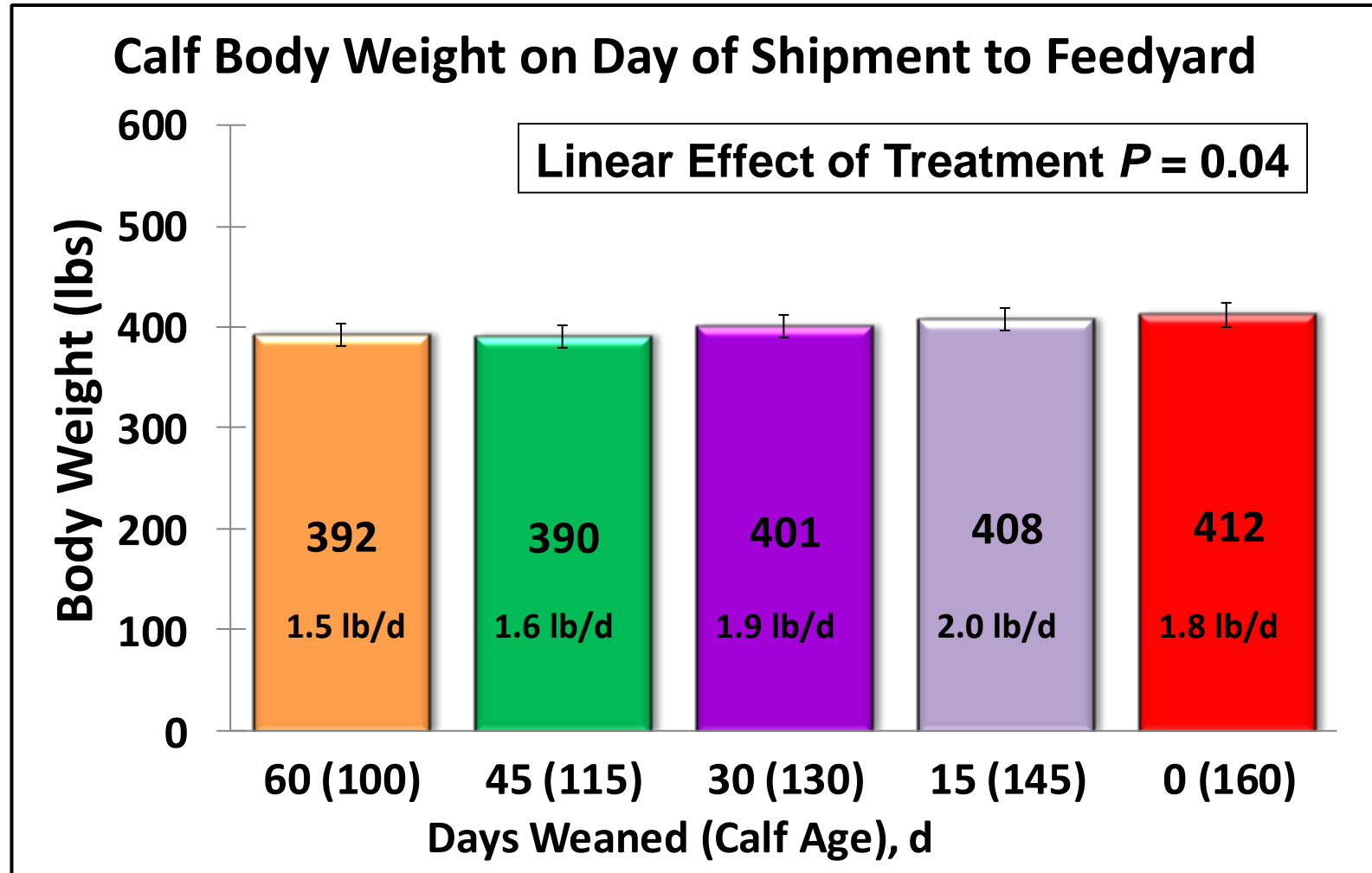
Adapted from KC Olson



PERFORMANCE OF EARLY WEANED CALVES

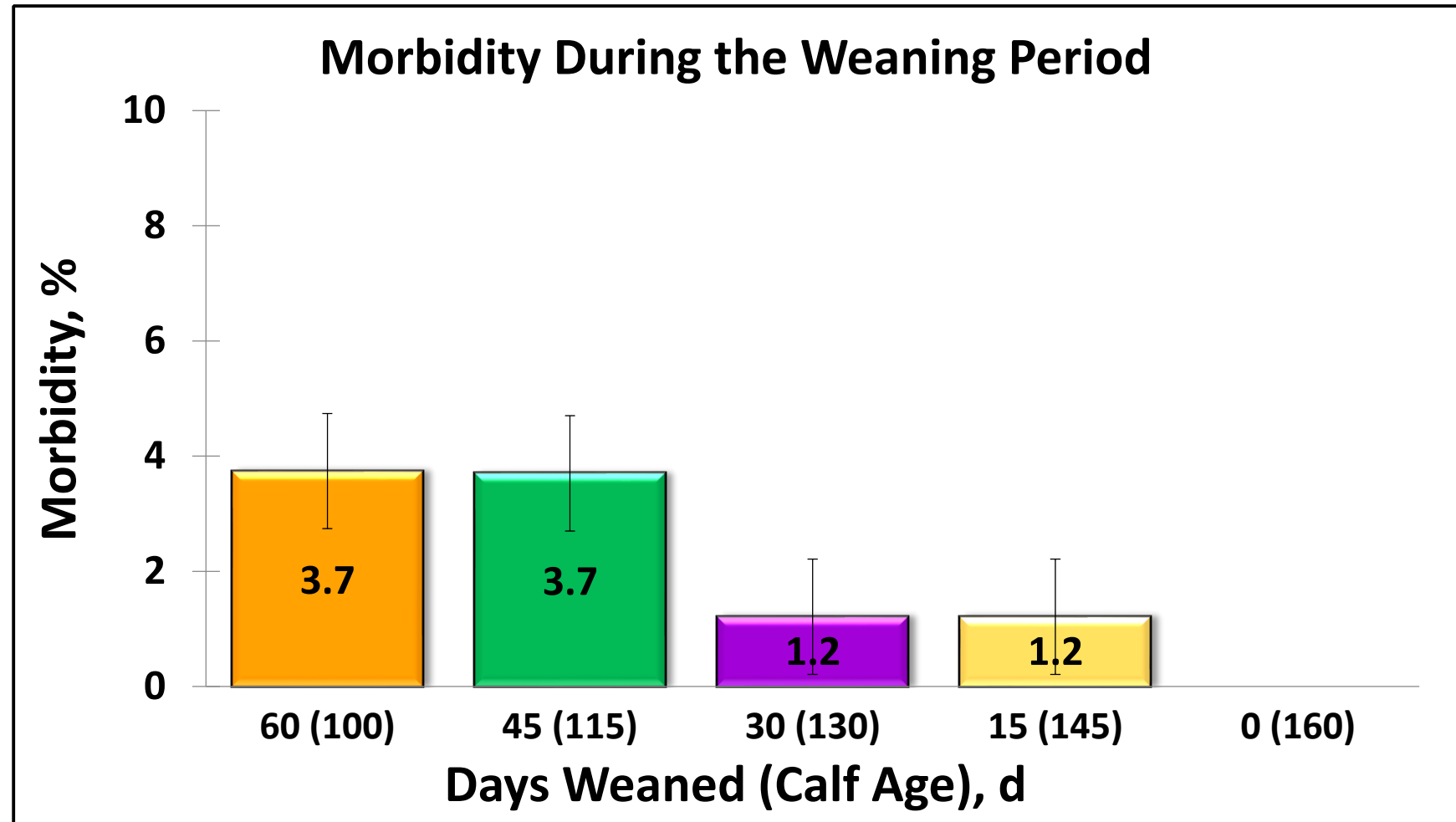
- Producers often assume that early-weaned calves are lightweight, high-risk calves
 - Low performance potential
- Early weaned calves
 - Utilize concentrate feeds well
 - Similar treatment/pull rates with good management
 - Excellent Feed:Gain

KSU Preconditioning Study: Weaning 100-160 Days of Age



Bolte et al., 2007

KSU Preconditioning Study: Weaning 100-160 Days of Age



Bolte et al., 2007

KSU EARLY WEANING STUDY, 2013

- Angus x Hereford steer calves
 - KSU CCU (113 ± 13 d of age) and WKARC(144 ± 15 d of age)
 - Weaned August 7, 2013
- Drylot weaned
 - Transported to WKARC feedlot (Hays)
 - Fed to achieve 2.2 lbs ADG at a dry matter intake of 2.2% of bodyweight
- Pasture weaned
 - Transported to KSU CCU (Manhattan)
 - Allowed to graze previously ungrazed, native-tallgrass pastures (240 ± 99 acres)

Sampling Date	CP*	NDF*	ADF*
08/07/2013	6.7	60.6	41.0
09/04/2013	6.1	61.1	40.3
10/02/2013	4.8	66.3	46.3

*DM basis

Preedy et al., 2014

WEANING DIET COMPOSITION

Ingredient composition	DM, %
Ground sorghum grain	57.4
Dried distillers grains	20.1
Sorghum silage	13.1
Soybean meal	5.1
Supplement*	4.3
Nutrient composition	Amount
CP, % of DM	18.7
NE _m , Mcal/lb	0.85
NE _g , Mcal/lb	0.52

*Supplement contained Ca, urea, ammonium sulfate, Na, Rumensin® 90, and Tylan® 40

2013 PERFORMANCE AND HEALTH OF EARLY-WEANED CALVES

Item	Drylot	Pasture	SEM
Weaning BW, lbs	360.7	359.0	5.07
Final BW, lbs (56 d)	490.8 ^a	364.9 ^b	5.75
ADG, lb/d	2.04 ^a	0.09 ^b	0.042
Dry Matter Intake, %BW/d	2.20	-	-
Feed:Gain	4.06	-	-
Incidence of fever, %	6.7 ^c	0.0 ^d	2.71
Conjunctivitis, %	0.0 ^a	40.2 ^b	3.17

^{a, b} Means within rows without common superscripts differ ($P < 0.05$)

^{c, d} Means within rows without common superscripts tend to differ ($P = 0.10$)

Preedy et al., 2014

MARKETING EARLY-WEANED CALVES

- Calf value is a function of weight gain post weaning
- Early-weaned calves fit a variety of marketing programs
- Develop a marketing plan
 - <https://beefbasis.com/>
 - Value of gain/Cost of gain
 - Time of marketing





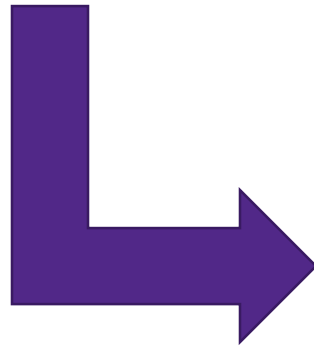
EARLY WEANING CALF HEALTH CONSIDERATIONS

A.J. Tarpoff

Beef Extension Veterinarian

Kansas State University

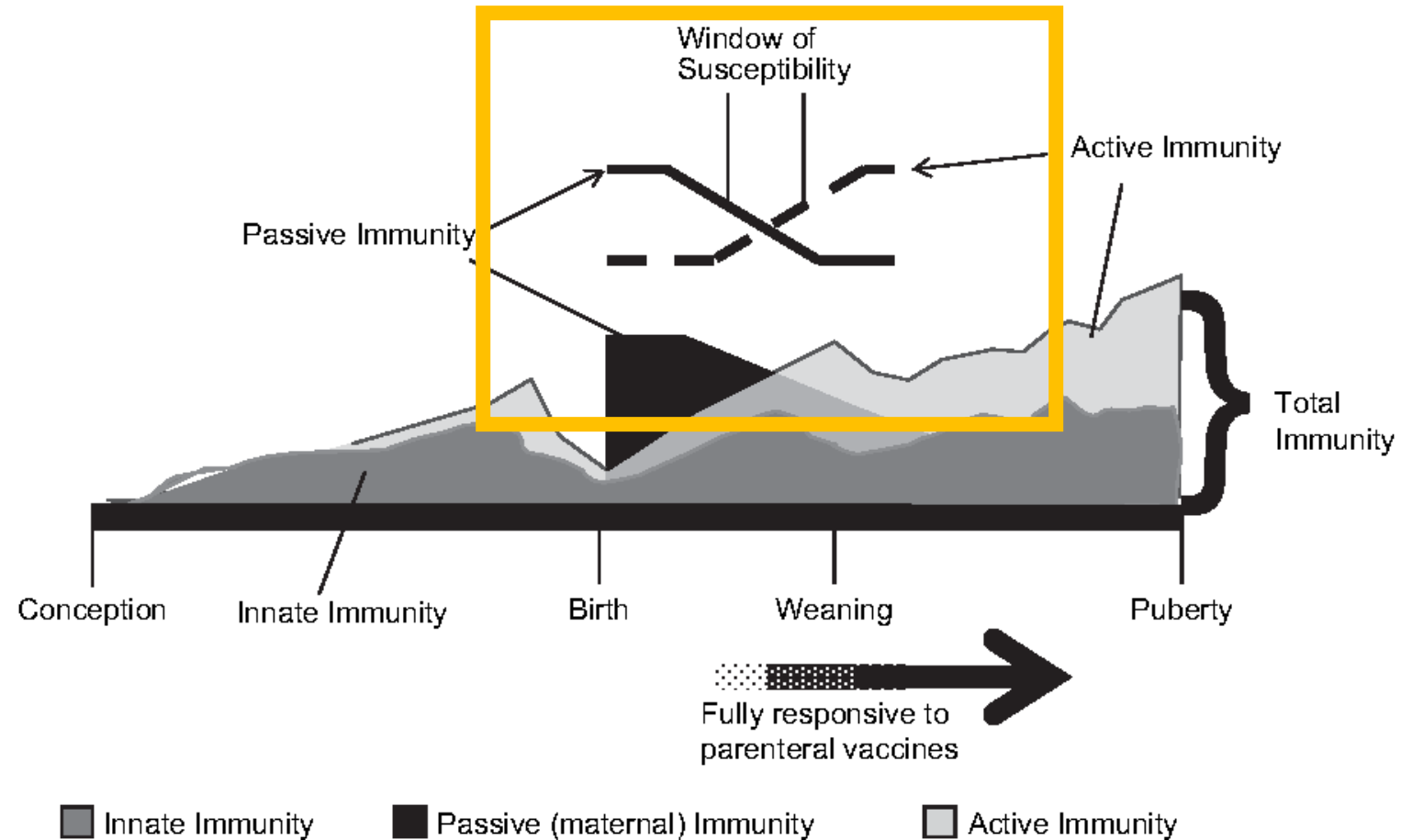
WHAT IS THE GOAL?



WHERE IS THE CALF'S IMMUNE SYSTEM?

88

CHASE et al





CALF IMMUNE FUNCTION

- Calf completely naïve at birth
- Absorption of Colostrum antibodies
- Calf's own immune system begins to take over
- Calf begins to have full immune function by 5-8 months of age
- Maternal Antibody declining by branding time 2-4 months of age



HOW EARLY CAN YOU VACCINATE??

- Reliable response to vaccine by 2-3 months old
- As early as 1 month with some products
 - Work with your veterinarian for recommendations



A SURVEY OF RECOMMENDED PRACTICES MADE BY VETERINARIAN PRACTITIONERS TO COW-CALF OPERATIONS IN THE UNITED STATES

Fike, G.*, J.C. Simroth[†], D.U. Thomson[†], R. Spare[‡], and A.J. Tarpoff^{§1}

*Red Angus Association of America, Denton, TX 76207

[†]Department of Diagnostic Medicine/Pathobiology, College of Veterinary Medicine, Kansas State University, Manhattan, KS, 66506

[‡]Ashland Veterinary Center, Inc., Ashland, KS 67831

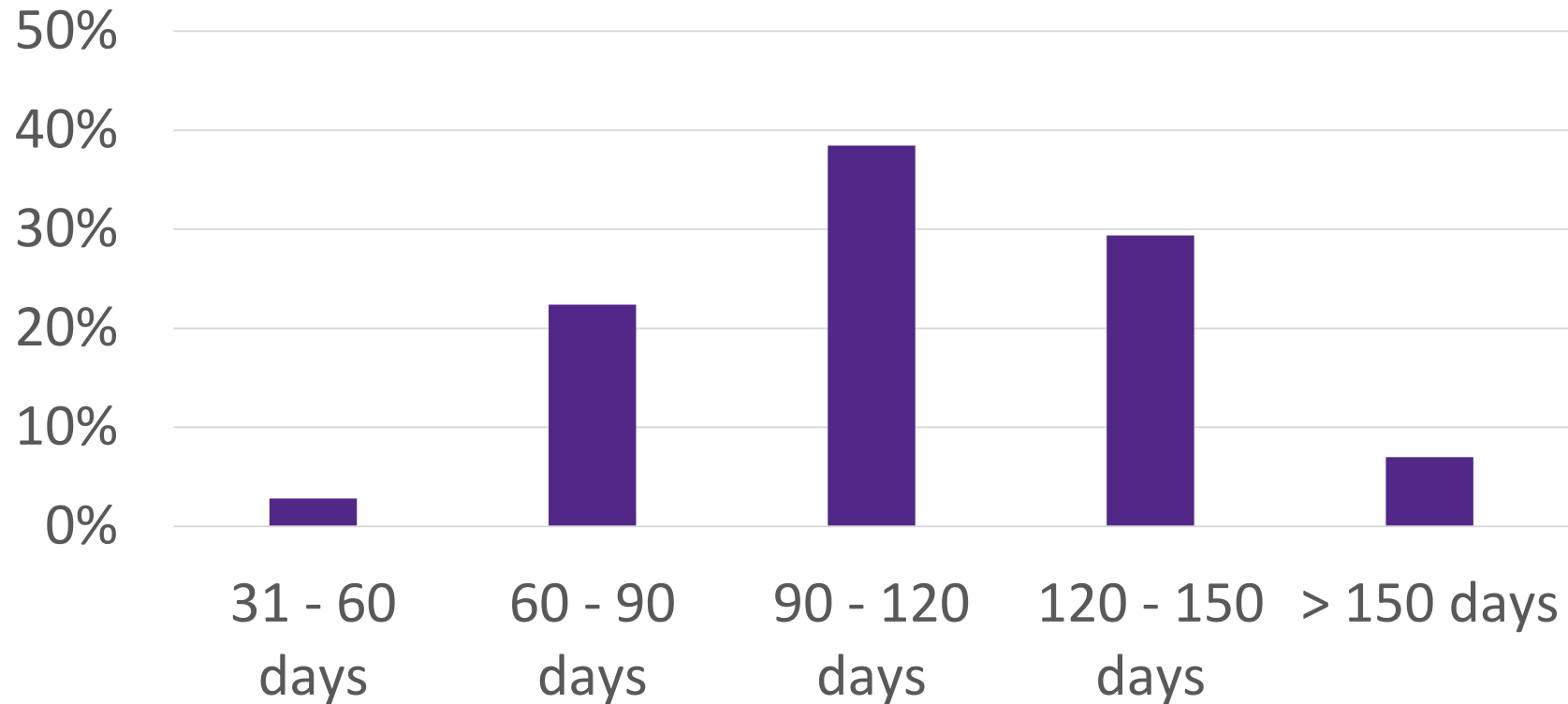
[§]Department of Animal Sciences and Industry, Kansas State University, Manhattan, KS, 66506

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EARLIEST AGE RECOMMENDED FOR WEANING CALVES





IMMUNE SYSTEM

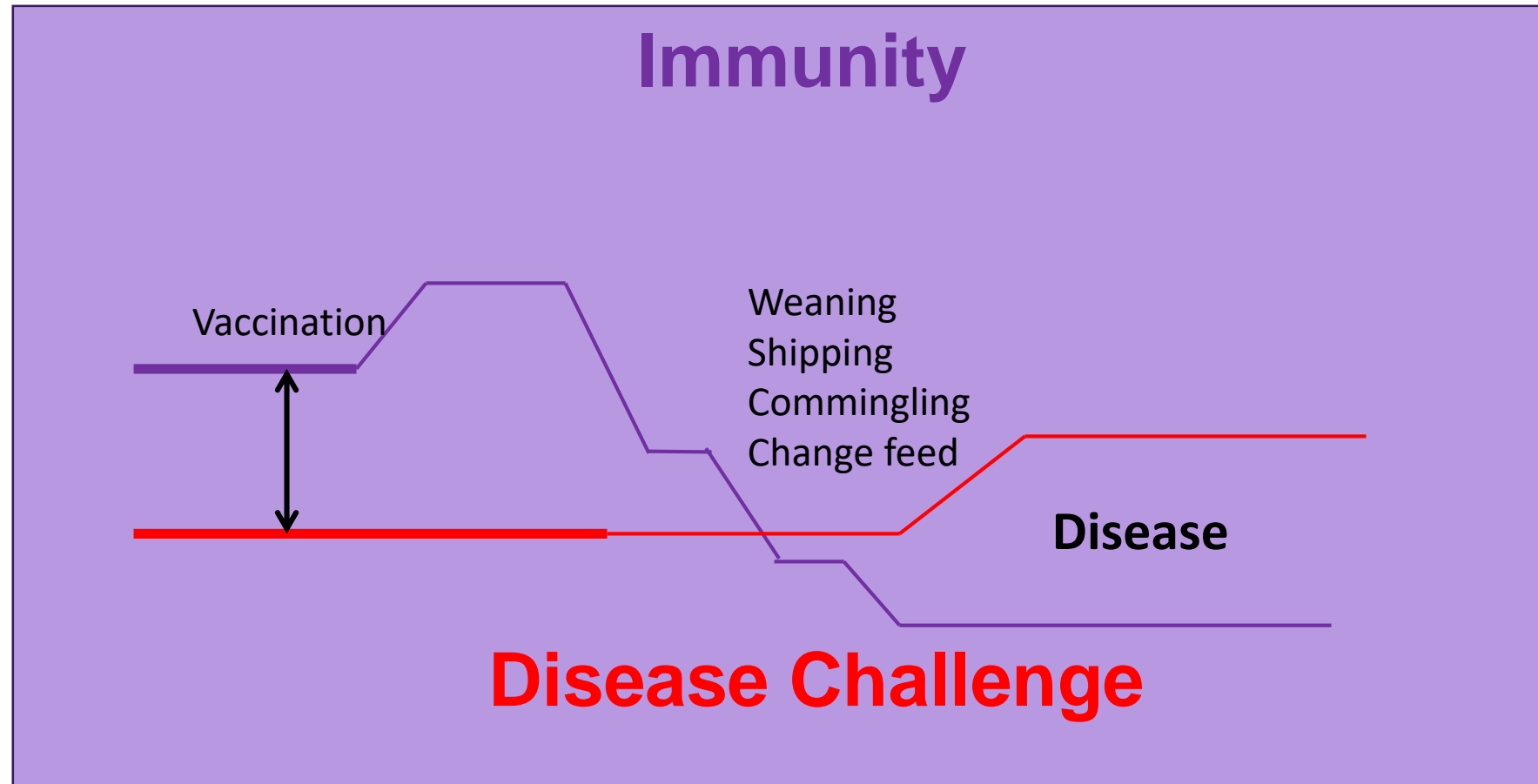
Helps

- Quality nutrition
- Clean environment
- Vaccination
- **Maturity**

Hurts

- Stress
 - **Weaning**
 - Most stressful time in the life of a bovine
 - Changes in feed
 - Extreme weather
 - Management practices
 - Castration
 - Dehorning
 - Transportation
 - Mixing groups of cattle

GOAL: REDUCE COMPOUNDING STRESSORS





GENERAL GUIDELINES CALVES

- Need a functional immune system to get adequate response
- **Biggest concern is BRD**
- When should be vaccinate?
 - **Branding time**
 - 3-4 months of age
 - **Maternal antibody decline, own immunity increasing**
 - **Pre-weaning**
 - This greatly increases the immunity against selected pathogens
 - **Weaning?**
 - Does a stressed animal's immune system function fully?

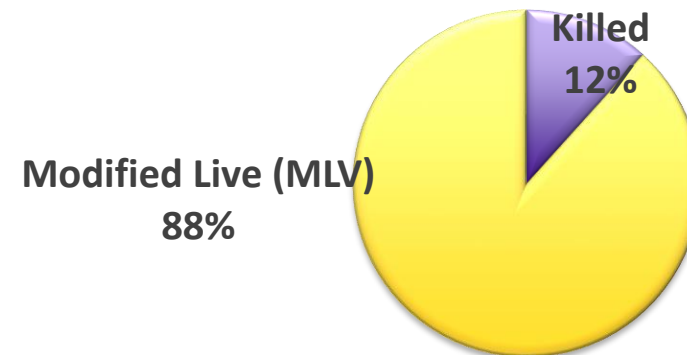
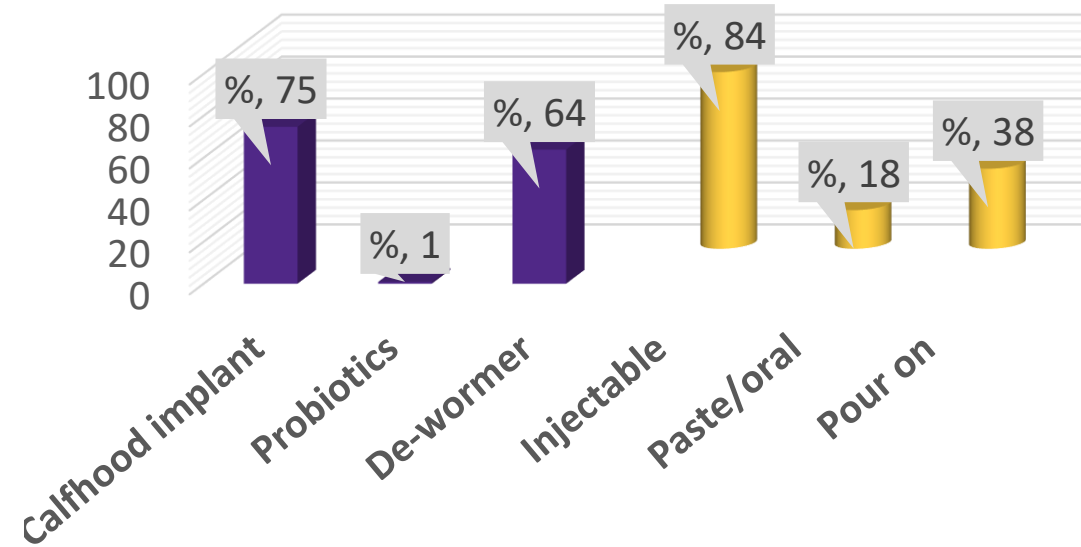


GENERAL GUIDELINES

- What do we vaccinate against?
 - Clostridial Diseases (7 or 8-way)
 - Don't forget about tetanus
 - Banding or de-horning
 - 5 way MLV viral
 - Respiratory viruses
 - Respiratory Bacterins
 - Mannheimia/Pasturella/Histophilus

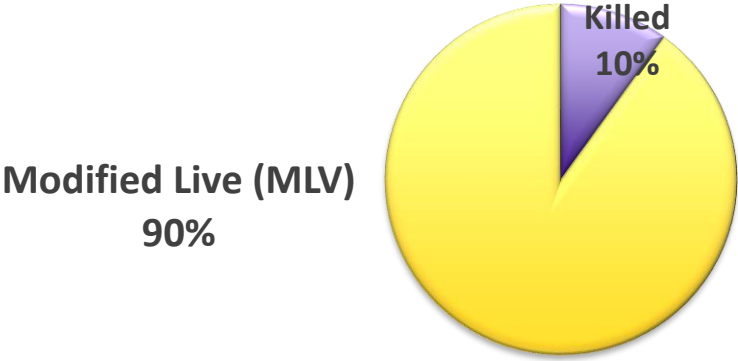
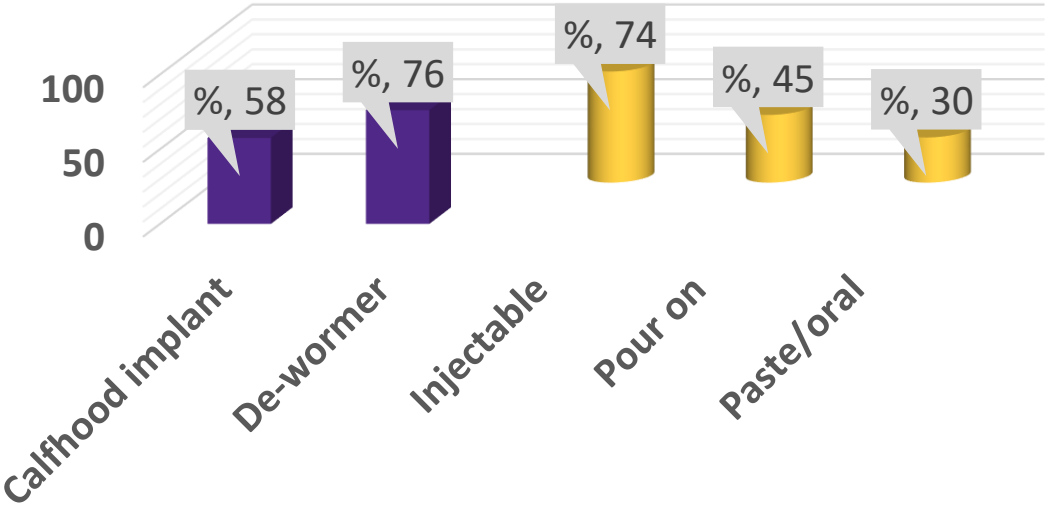
RECOMMENDED VACCINES AND PRACTICES FOR CALVES AT BRANDING

Vaccine	%
Clostridial	96
IBR	94
BRSV	91
PI3	90
Bovine Viral Diarrhea Type I	78
Bovine Viral Diarrhea Type II	77
Mannheimia haemolytica	45
Moraxella bovis	31
Pasturella multocida	26
Histophilus somni	18
Leptospirosis	5
Others not listed	5
Mycoplasma pneumonia	1.5
Vibriosis	0.7

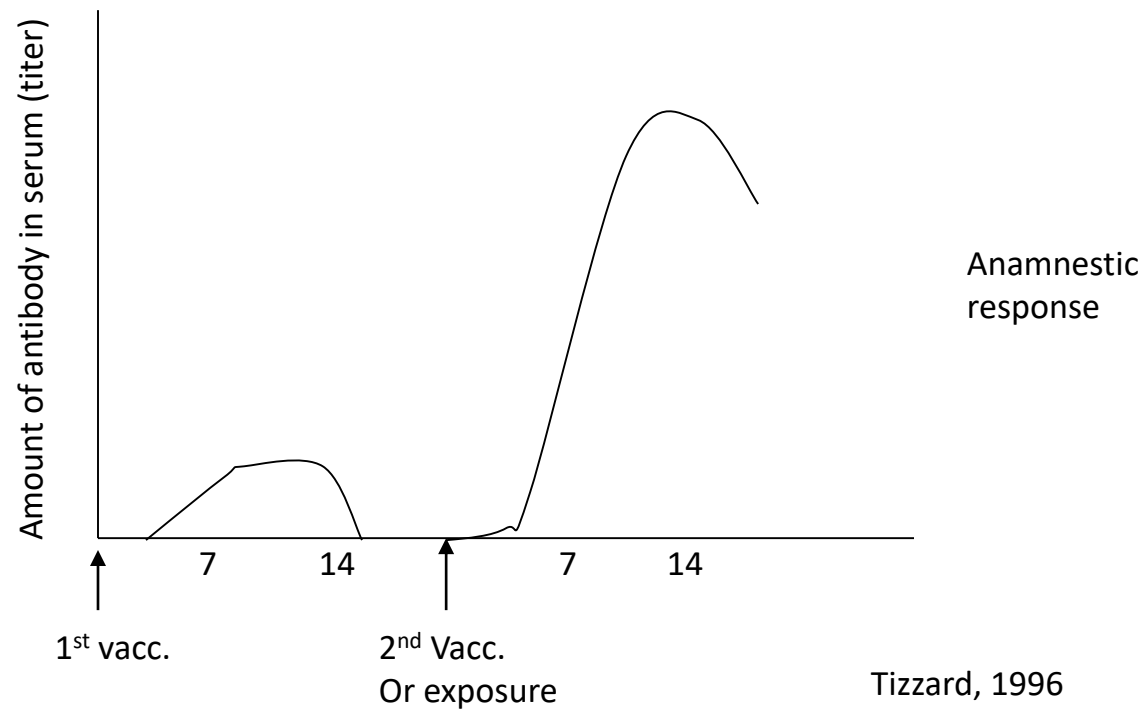


RECOMMENDED VACCINES AND PRACTICES FOR CALVES BEFORE WEANING

Vaccine	%
IBR	99
BRSV	98
Bovine Viral Diarrhea Type I	96
Bovine Viral Diarrhea Type II	96
PI3	93
Clostridial	88
Mannheimia haemolytica	77
Histophilus somni	45
Pasturella multocida	42
Leptospirosis	10
Moraxella bovis	9
Others not listed	4
Mycoplasma pneumonia	2

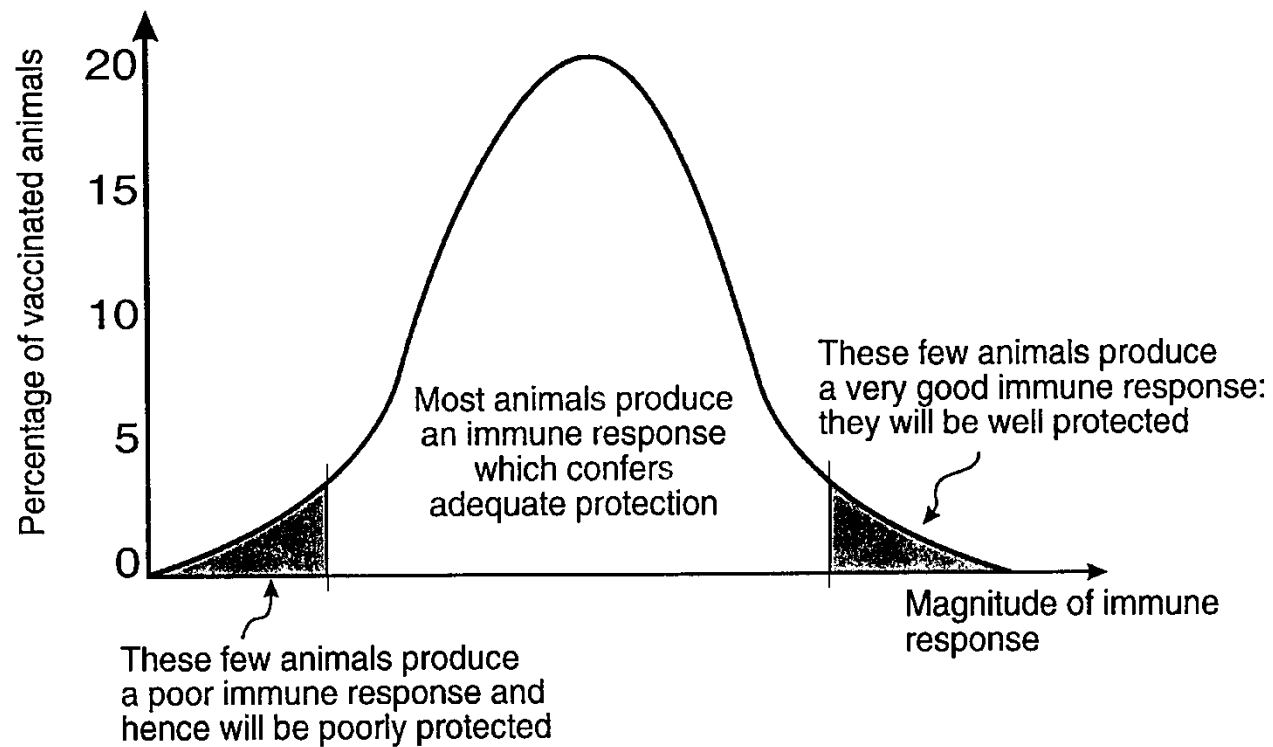


ANAMNESTIC RESPONSE?



VACCINE RESPONSE

Figure 11



ARTIST RENDITION



WEANING

- The most stressful period in the life of beef cattle
- Decrease the stress?????
 - Handle the cattle prior to weaning
 - Soft weaning
 - Fence-line/ 2-stage wean
 - Acclimate cattle to new environment
 - Water bowl/feed trough/new fence lines
 - Prior to weaning?

TIMING IS EVERYTHING



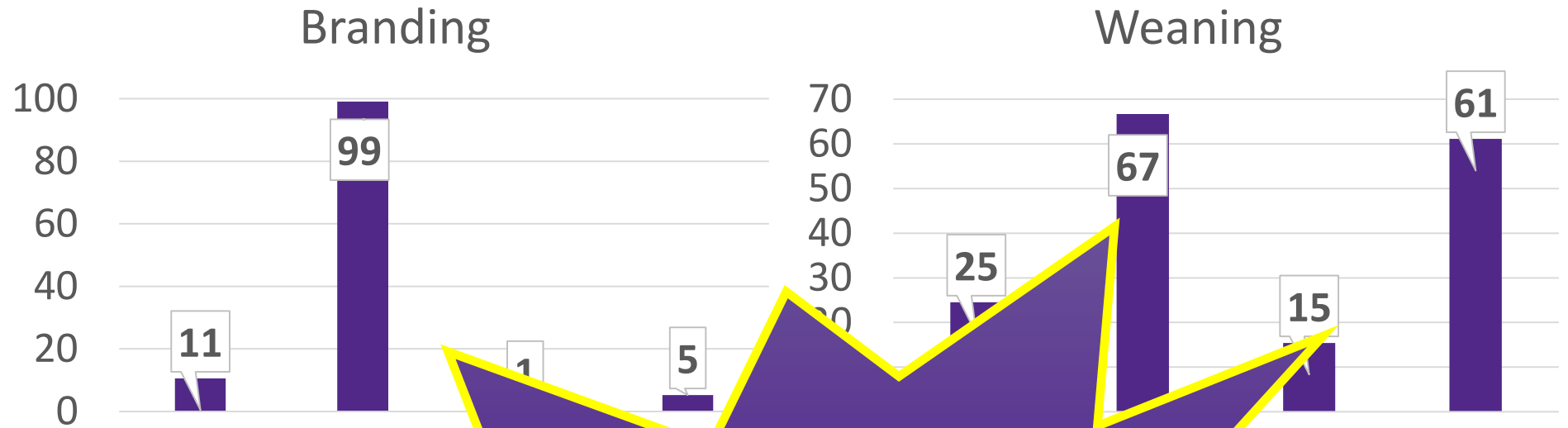


EFFECTS OF INTACT MALES ON ARRIVAL

- Bulls have 140% higher morbidity rates than steers
- Bulls have 142% higher mortality rates than steers
- Bulls have 163% higher railer rates than steers

Renfro et al., 2004

CASTRATION METHODS SELECTED AS BEST OPTION FOR CALVES AT:



97% veterinarians recommend that calves get a tetanus vaccine when banding is recommended as castration method

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PARASITE CONTROL

- GI Nematodes
 - Injectable/Pour-on/Oral deworming products
- Coccidiosis
 - Be prepared to combat this in weaned calves
 - Coccidiostats/Treatments
- External parasites
 - Flies/ticks



IS PRECONDITIONING FOR YOU

- Do you have the facilities?
- Do you have the time?
- Do you have the labor?
- Do you understand the costs/benefits?
- Have you found a specific marketing opportunity?

VARIOUS PRECONDITIONING PROGRAMS



**Superior Livestock Vaccination Programs
Designed for Your Management Practices**

Management requirements:

- Please consult your veterinarian or health advisor when selecting the vaccine that qualifies for these programs.
- Always read and follow vaccine label directions.
- Always use proper injection sites and techniques. Whenever possible, use Sub Q labeled products.
- Provide adequate nutrition and minerals to enhance immune system.
- Include other vaccines or management practices that are unique to your operation or are of value to the calf purchaser.

VAC 24

Calves vaccinated on cows at 2 to 4 months of age.

Vaccination requirements:

- 1 dose 7-way, 8-way or 9-way Clostridial.
- 1 dose viral 5-way (IBR, PI3, BRSV and BVD Type I & II). IBR and PI3 must be chemically altered modified live or modified live with veterinarian's approval. BVD and BRSV can be modified live or killed.
- 1 dose Pasteurella Haemolytica and/or Pasteurella Multocida.
- Internal and external parasite control recommended.

VAC 34

Calves vaccinated on cows at 2-4 weeks prior to shipping.

Vaccination requirements:

- 2 doses 7-way, 8-way or 9-way Clostridial @ branding and 2-4 weeks prior to shipping.
- 1 dose viral 5-way (IBR, PI3, BRSV and BVD Type I & II). IBR and PI3 must be chemically altered modified live or modified live with veterinarian's approval. BVD and BRSV can be modified live or killed.
- 1 dose Pasteurella Haemolytica and/or Pasteurella Multocida.
- Internal and external parasite control recommended.

VAC 34+

Calves vaccinated on cows at branding and 2-4 weeks prior to shipping.

Vaccination requirements:

- 2 doses 7-way, 8-way or 9-way Clostridial @ branding and 2-4 weeks prior to shipping.
- 2 doses viral 5-way (IBR, PI3, BRSV and BVD Type I & II). IBR and PI3 must be chemically altered modified live or modified live with veterinarian's approval. BVD and BRSV can be modified live or killed.
- 1 dose Pasteurella Haemolytica and/or Pasteurella Multocida 2-4 weeks prior to shipping.
- Internal and external parasite control recommended.

VAC 45

Calves vaccinated twice: 2-4 weeks prior to or at weaning and booster per label instructions. Calves must be home raised and weaned minimum of 45 days prior to delivery.

Vaccination requirements:

- 2 doses 7-way, 8-way or 9-way Clostridial.
- 2 doses viral 5-way (IBR, PI3, BRSV and BVD Type I & II). Booster per label instructions. IBR and PI3 must be chemically altered modified live or modified live with veterinarian's approval. BVD and BRSV can be modified live or killed.
- 1 dose Pasteurella Haemolytica and/or Pasteurella Multocida prior to or at weaning and booster per label instructions.
- Internal and external parasite control recommended.

VAC 45+

Calves vaccinated three times: At branding, 2-4 weeks prior to or at weaning and booster per label instructions. Calves must be home raised and weaned minimum of 45 days prior to delivery.

Vaccination requirements:

- 3 doses 7-way, 8-way or 9-way Clostridial.
- 3 doses viral 5-way (IBR, PI3, BRSV and BVD Type I & II). IBR and PI3 must be chemically altered modified live or modified live with veterinarian's approval. BVD and BRSV can be modified live or killed.
- 2 doses Pasteurella Haemolytica and/or Pasteurella Multocida @ branding, prior to or at weaning and booster per label instructions.
- Internal and external parasite control required.

VAC PRECON

Calves gathered from various sources and weaned at least 60 days prior to delivery. Vaccinated twice: At arrival and booster per label instructions. Last shot at least 14 days prior to delivery.

Vaccination requirements:

- 2 doses 7-way, 8-way or 9-way Clostridial on arrival and booster.
- 2 doses viral 5-way (IBR, PI3, BRSV and BVD Type I & II) on arrival and booster. IBR and PI3 must be chemically altered modified live or modified live. BVD and BRSV can be modified live or killed.
- 1 dose Pasteurella Haemolytica and/or Pasteurella Multocida.
- Internal and external parasite control recommended.

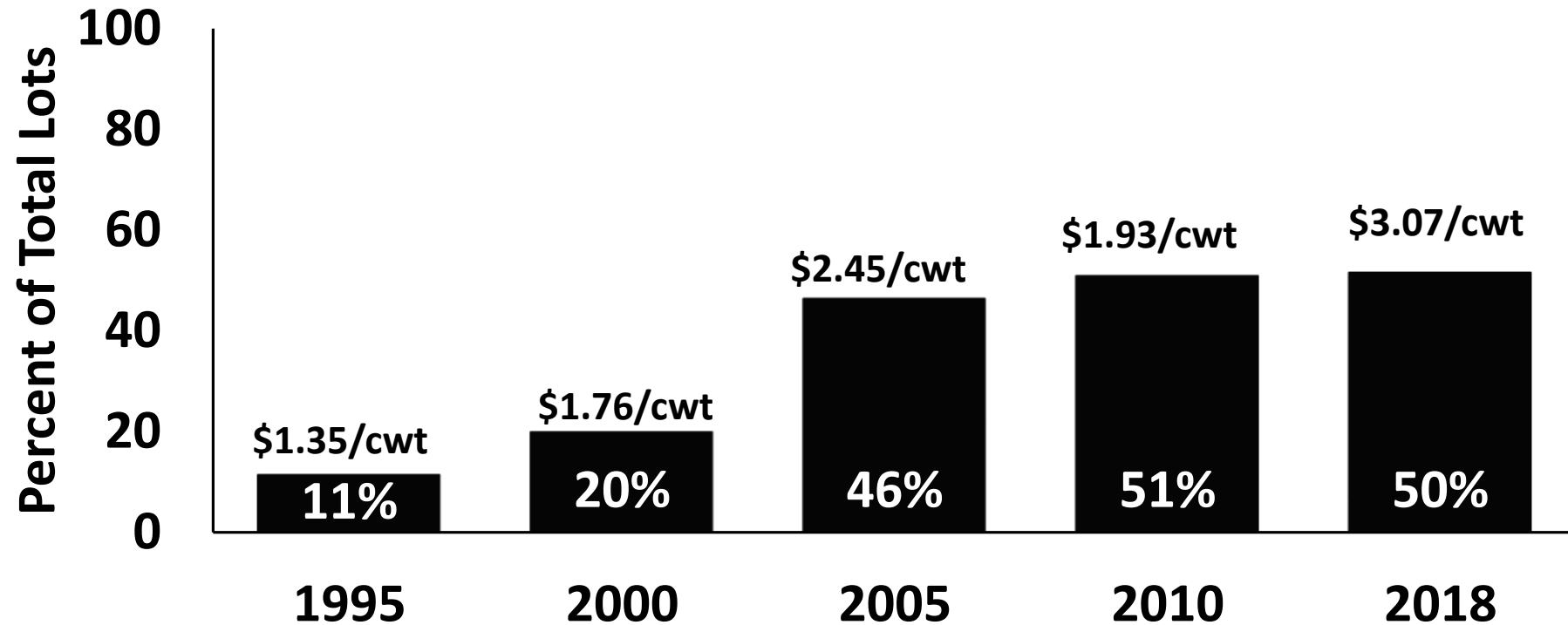
PrimeVAC™

BY MERCK ANIMAL HEALTH

CERTIFIED

SelectVAC®

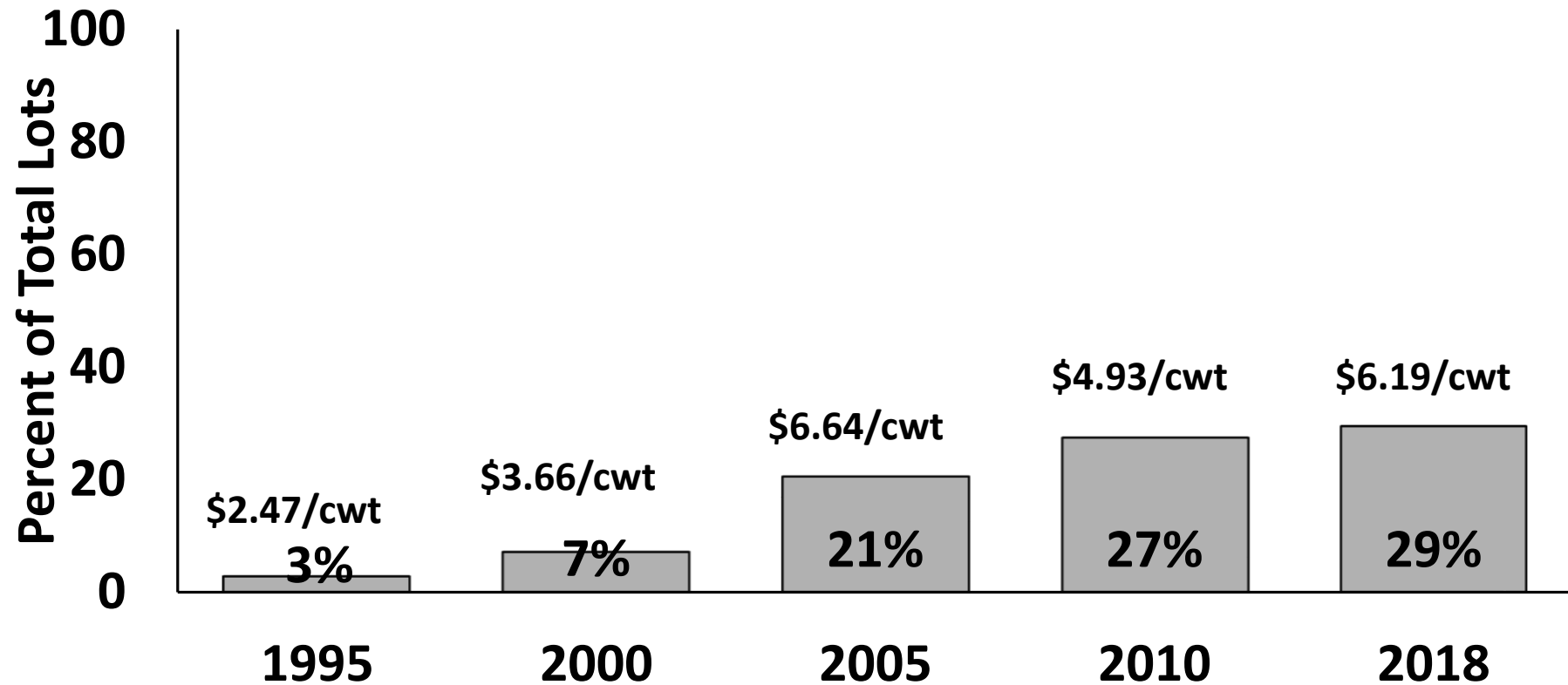
PREMIUM ASSOCIATED WITH LOTS QUALIFYING FOR VAC 34* IN SELECT YEARS



*Includes VAC 34 and VAC 34+

PREMIUM ASSOCIATED WITH LOTS QUALIFYING FOR VAC 45* IN SELECT YEARS

82,793 total lots



*Includes VAC 45 and VAC 45+



VALUE (INDIANA 11 YEAR STUDY)

- \$26.04 to \$116.48 profit return (\$80.70 average)
- Returns were primarily due to added weight sold (63% of return)
- Premium for lower health risk (37% of return)

Hilton and Olynk, 2011



VALUE

- 2011 review of Value-Added Management on Calf prices
- 2010 calf sales
 - Weaned steer calves with certified health program
 - \$7-\$10 per cwt premiums

Zimmerman et. al.



MARKETING

- Precon specific sales
 - Precon featured calves
 - Private treaty?
- Documented/verified
- Biggest mistake:
 - Sell animals without extra effort to ensure value is realized by the buyer



LINKS-RESOURCES

- Weather Outlooks
 - <https://www.cpc.ncep.noaa.gov/>
- Kansas Mesonet
 - <http://mesonet.k-state.edu/> (main page)
 - <http://mesonet.k-state.edu/agriculture/animal/> (comfort index)
- Drought Monitor and Grass-Cast
 - <https://droughtmonitor.unl.edu/> <https://grasscast.unl.edu/>
- KSU Beef Webinar Recordings (www.KSUNBeef.org)
 - Managerial Tools and Tips in an Uncertain Climate and Market
<https://youtu.be/IDdTfmYfoaY>
 - Troubleshooting Uncertain Times in the Beef Industry
<https://youtu.be/dEm24klWMiY>
- www.Beefbasis.com



THANK YOU!

QUESTIONS?

Please complete post event survey at:
<https://tinyurl.com/KSUSBeefDrought>

Please use the Question and Answer window in Zoom
to post questions to our panelists.

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