MANAGERIAL TOOLS AND TIPS IN AN UNCERTAIN CLIMATE AND MARKET

Brought to you by: K-State Beef Extension Team



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MANAGERIAL TOOLS AND TIPS IN AN UNCERTAIN CLIMATE AND MARKET

- Current Weather Situation and Forecast
 - Mary Knapp, Kansas State Climatologist
- Preparing for Heat Stress Events
 - Dr. AJ Tarpoff, Asst. Professor, Dept. of Animal Sciences & Industry
- Use of BeefBasis.com for Making Calf Management and Market Decisions
 - Dr. Dale Blasi, Professor, Dept. of Animal Sciences and Industry
 - Dr. Glynn Tonsor, Professor, Dept. of Agricultural Economics

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



WEATHER PREVIOUS CONDITIONS AND OUTLOOKS

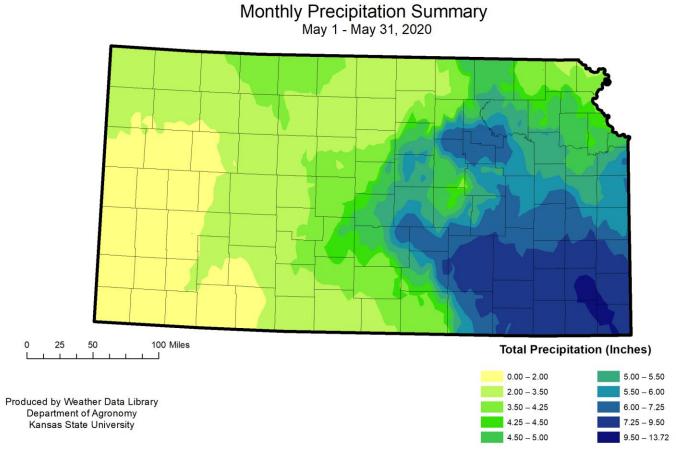
Mary Knapp Kansas State Climatologist





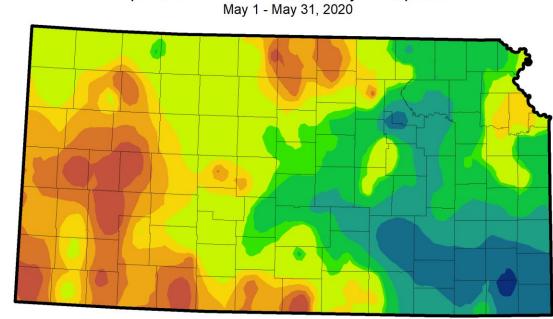
MAY PRECIPITATION

0





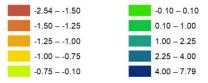
DEPARTURE FROM NORMAL



Departure from Normal Monthly Precipitation

0 25 50 100 Miles

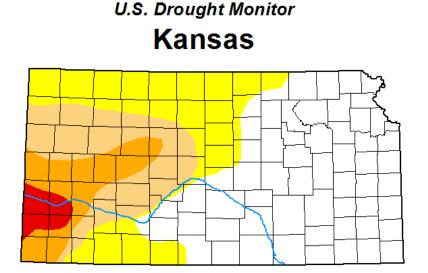
Produced by Weather Data Library Department of Agronomy Kansas State University **Departure from Normal Precipitation (Inches)**





CURRENT DROUGHT STATUS





<u>Author:</u> Curtis Riganti National Drought Mitigation Center



droughtmonitor.unl.edu

June 2, 2020 (Released Thursday, Jun. 4, 2020) Valid 8 a.m. EDT

	Drought Conditions (Percent Area)						
	None	one D0 D1		D2	D3	D4	
Current	49.84	22.70	15.83	9.03	2.60	0.00	
Last Week 05-26-2020	49.84	22.70	15.83	<mark>9.15</mark>	2.49	0.00	
3 Month s Ago 03-03-2020	85.54	8.43	4.01	2.02	0.00	0.00	
Start of Calendar Year 12-31-2019	67.13	22.98	5.67	4.22	0.00	0.00	
Start of Water Year 10-01-2019	81.26	13.82	4.91	0.00	0.00	0.00	
One Year Ago 06-04-2019	100.00	0.00	0.00	0.00	0.00	0.00	

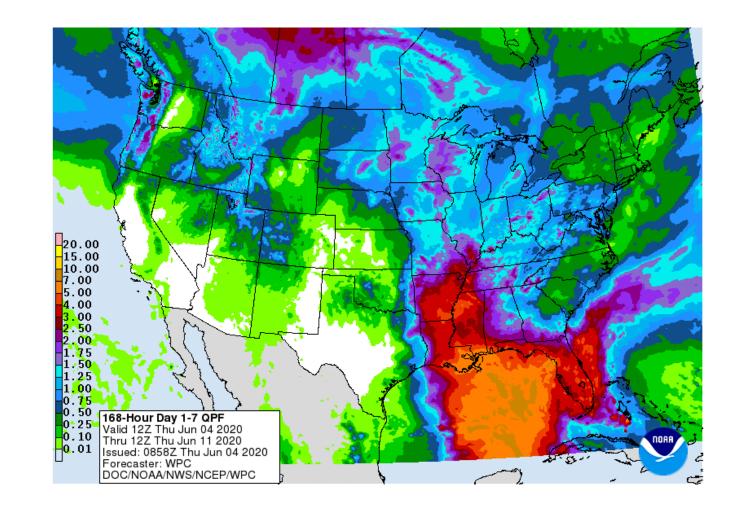
Intensity:



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

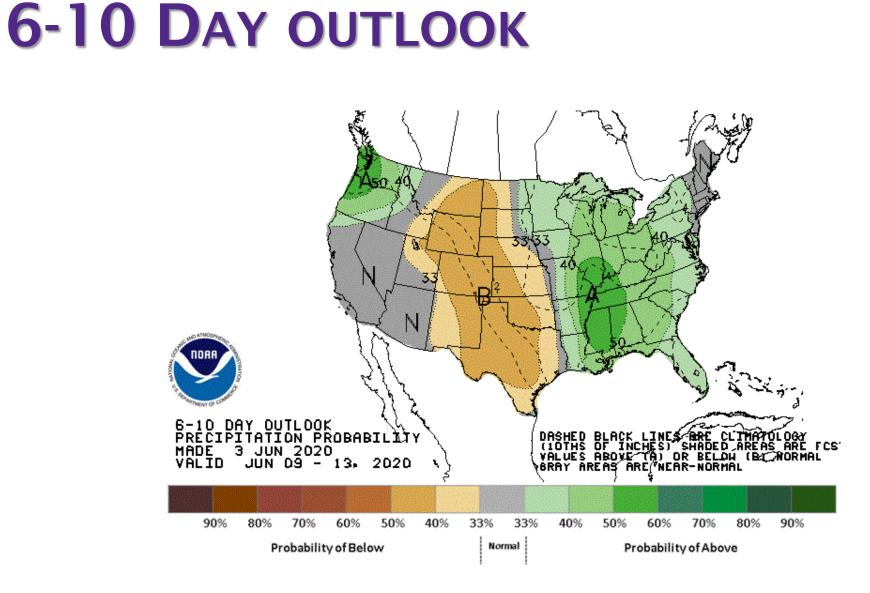


7 DAY PRECIPITATION OUTLOOK



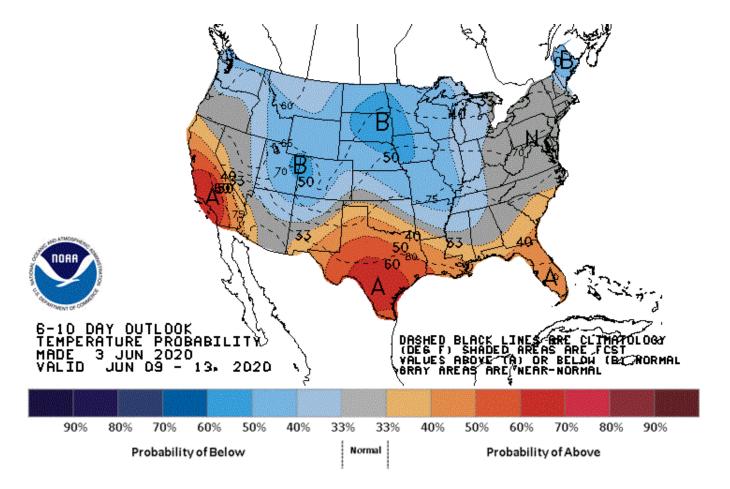








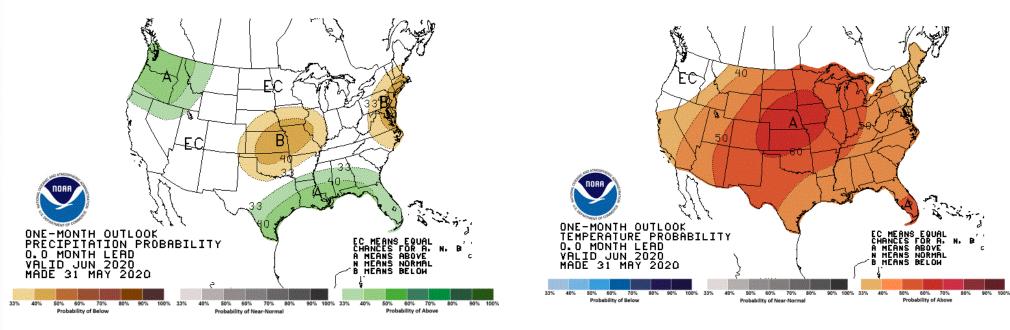






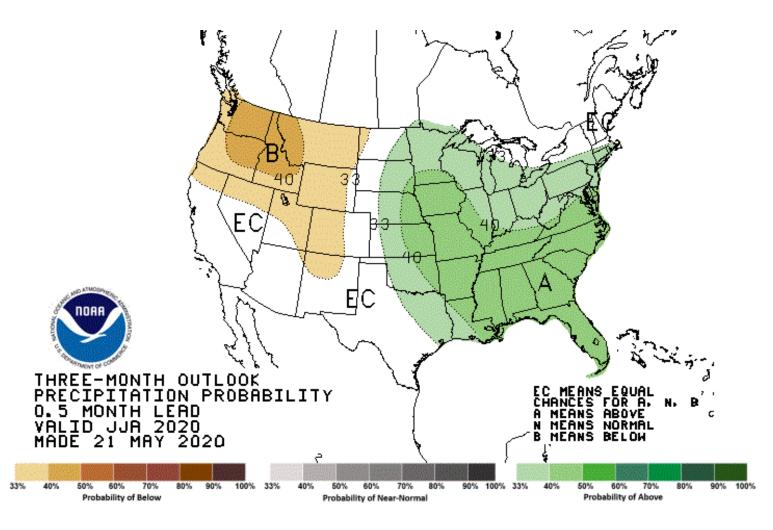


JUNE OUTLOOKS





SUMMER OUTLOOK



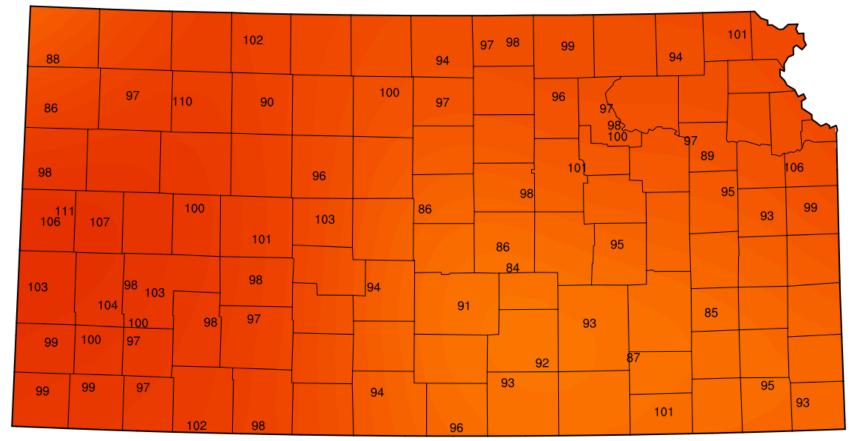


TOOLS

- Animal Comfort Index
 - <u>http://mesonet.k-state.edu/agriculture/animal/</u>
- GrassCast
 - https://grasscast.unl.edu/



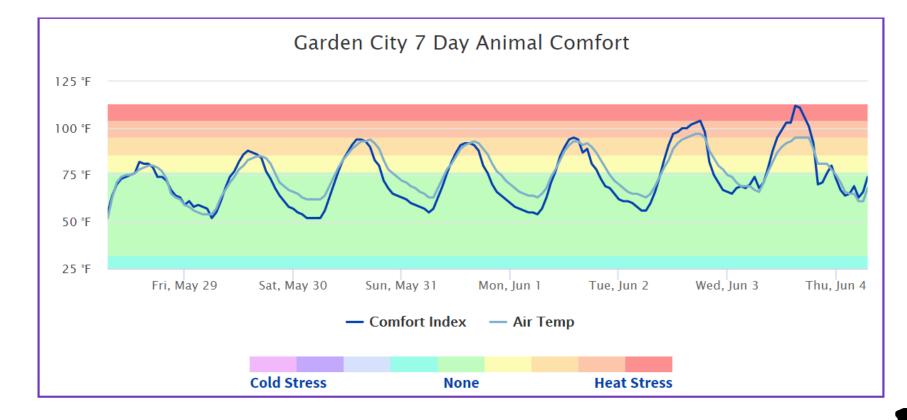
ANIMAL COMFORT INDEX



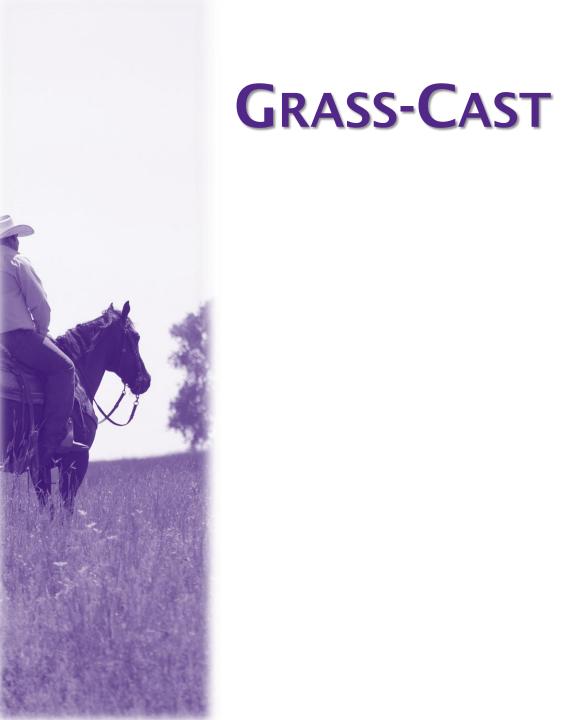
Kansas Mesonet - Comfort Index at 2020-06-02 14:32 (CST)

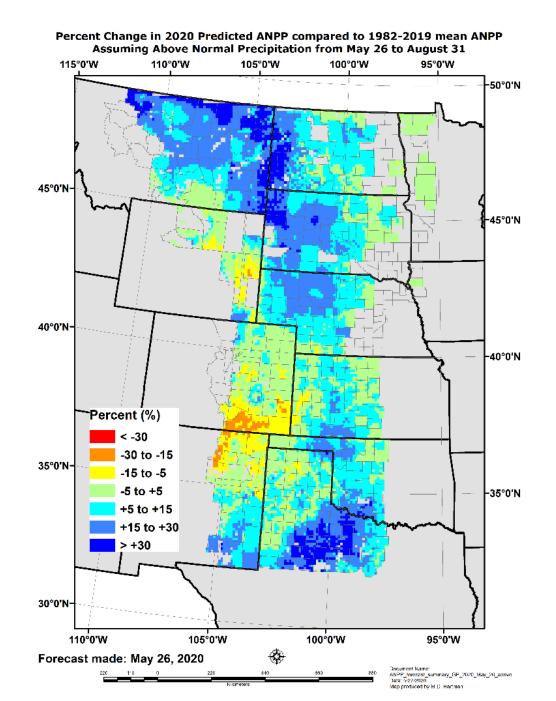


ANIMAL COMFORT INDEX

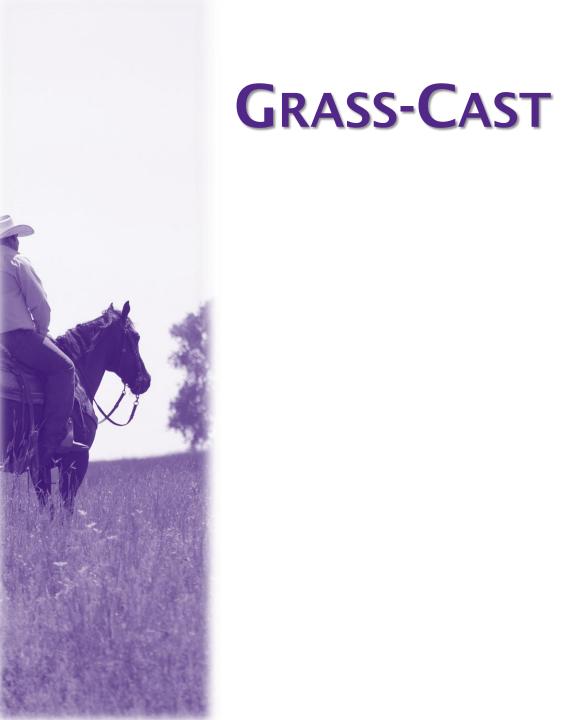


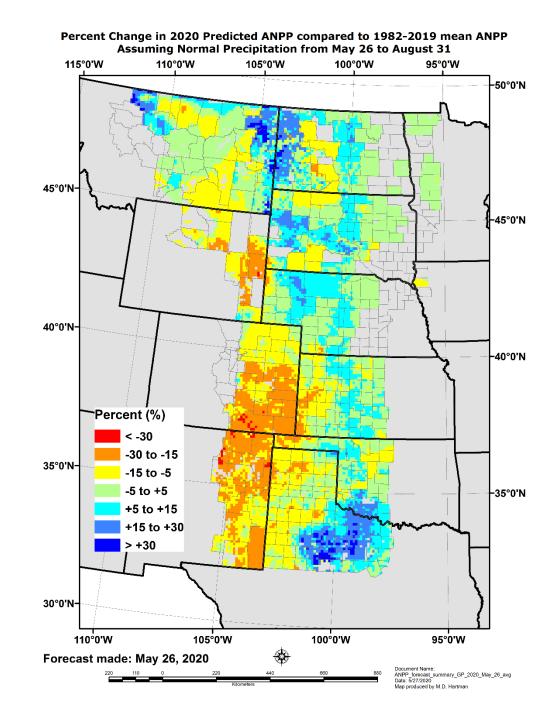




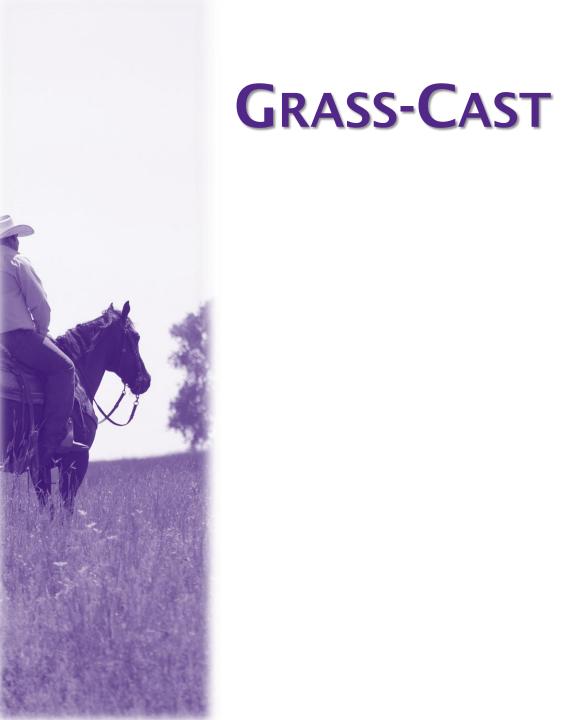


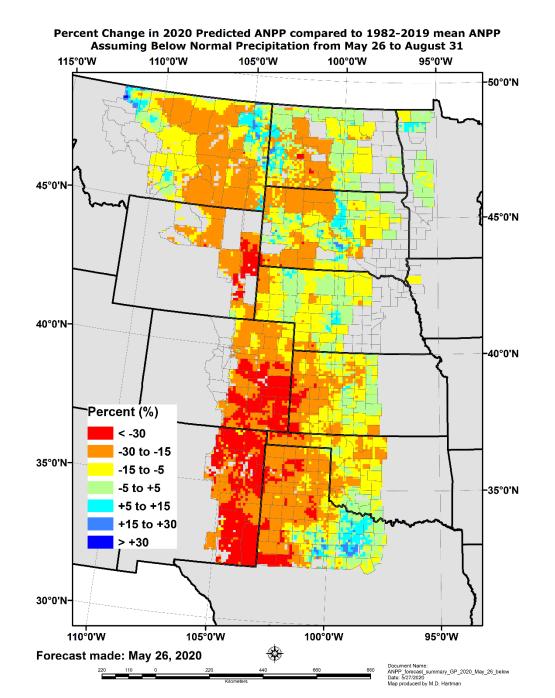
















Links

- Weather Outlooks
 - https://www.cpc.ncep.noaa.gov/
- Kansas Mesonet
 - <u>http://mesonet.k-state.edu/</u> (main page)
 - <u>http://mesonet.k-state.edu/agriculture/animal/</u> (comfort index)
- Grass-Cast
 - https://grasscast.unl.edu/



CONTACT INFORMATION

- Mary Knapp
- Weather Data Library/Kansas Mesonet
- 2004 Throckmorton Hall
 - Email: <u>Mknapp@ksu.edu</u>
 - Office: 785-532-7019
 - Cell: 785-313-1562

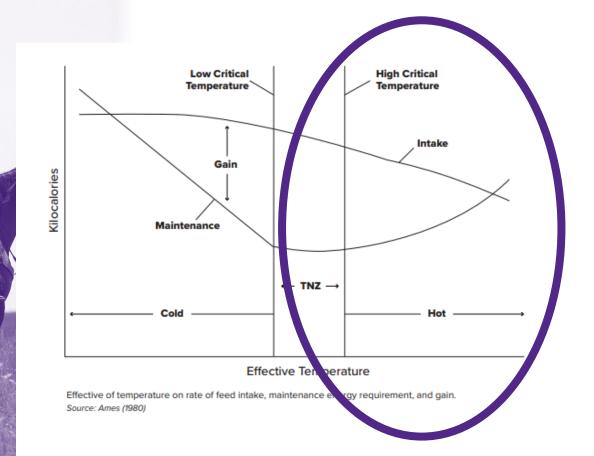


PREPARING FOR HEAT STRESS EVENTS

A.J. Tarpoff Beef Extension Veterinarian Kansas State University Animal Sciences and Industry



HEAT STRESS IMPACT ON CATTLE



- ~\$369 Million/year in losses to the Beef Industry (St. Pierre et al 2003 study)
- Decrease Intake
- Increase Maintenance
- Potential for Mortality
- Decreased Fertility



and TE WN Correct DL Chans and SD Marrison 1070 Comparative effects of mud wind and rain on boof eattle performance

PREPARING FOR HEAT STRESS EVENTS

- Monitoring Tools
 - THI Index
 - Heat Stress Outlook
 - Kansas Mesonet
- Building and Implementing a Plan





TEMPERATURE HUMIDITY INDEX

Beef Cattle Temperature Humidity Index

		Relative Humidity (%)											
		30	35	40	45	50	55	60	65	70	75	80	85
	100	84	85	86	87	88	90	91	92	93	94	95	97
	98	83	84	85	86	87	88	89	90	91	93	94	95
	96	81	82	83	85	86	87	88	89	90	91	92	93
	94	80	81	82	83	84	85	86	87	88	89	90	91
°F)	92	79	80	81	82	83	84	85	85	86	87	88	89
)ei	90	78	79	79	80	81	82	83	84	85	86	86	87
ratı	88	76	77	78	79	80	81	81	82	83	84	85	86
Temperature(°F)	86	75	76	77	78	78	79	80	81	81	82	83	84
Ten	84	74	75	75	76	77	78	78	79	80	80	81	82
	82	73	73	74	75	75	76	77	77	78	79	79	80
	80	72	72	73	73	74	75	75	76	76	77	78	78
	78	70	71	71	72	73	73	74	74	75	75	76	76
	76	69	70	70	71	71	72	72	73	73	74	74	75
Temperature Humidity Index (THI)													

Normal <75 Alert 75-78 Danger 79-83 Emergency >84

- Snapshot in time
- Temperature/Humidity easily acquired from local weather forecast
- Charts found in the National BQA Manual



https://beef.unl.edu/handling-cattle-through-high-heat-humidity-indexes

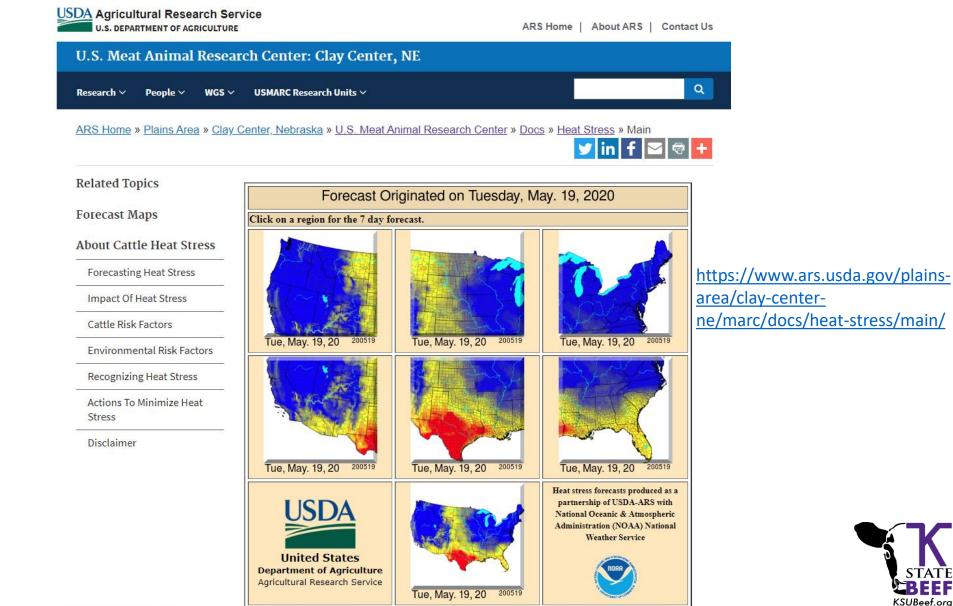
WHAT ABOUT OTHER FACTORS?

- Temperature
- Humidity
- Wind speed
- Solar radiation (cloud cover)
- Cumulative Heat Load
 - Night time cooling





USMARC FORECASTING TOOL



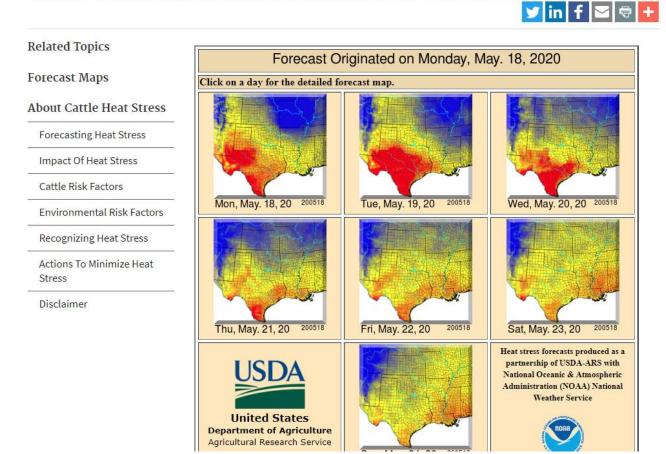
USMARC FORECASTING TOOL

USDA Agricultural Research Service

ARS Home | About ARS | Contact Us

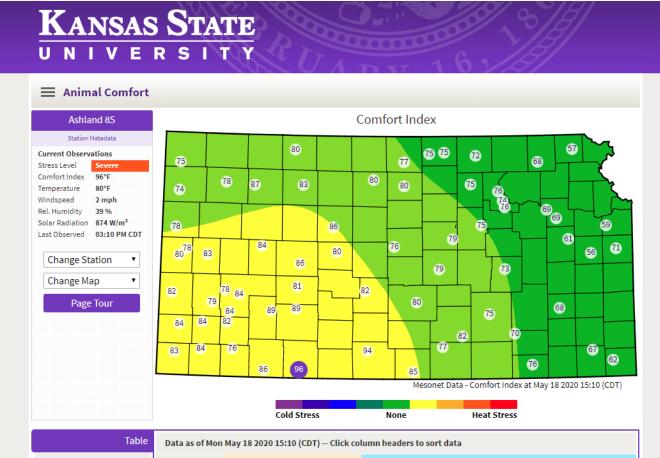
U.S. Mea	U.S. Meat Animal Research Center: Clay Center, NE							
Research 🗸	People 🗸	WGS 🗸	USMARC Research Units 🗸	٩				

ARS Home » Plains Area » Clay Center, Nebraska » U.S. Meat Animal Research Center » Docs » Heat Stress » Main





Kansas Mesonet AnimalComfort Index



- <u>https://mesonet.k-</u> <u>state.edu/agriculture/animal/</u>
- 65 local observations
- Gives updated readings every hour



Chart		Comfor	t Index		Observa	ations		
Download	Station	Stress Level	Index (°F)	Air Temp (°F)	Wind (mph)	RH (96)	Solar (W/m²)	
	Ashland 8S	Severe	96	80	2	39	874	
Resources	Ashland Bottoms	No Stress	76	68	7	50	1013	
	Belleville 2W	No Stress	75	72	11	40	915	
	D. Alex	Min Ohmen	70	00	-	57	001	

ANIMAL COMFORT INDEX

Heat and cold stress level categories for the cattle comfort advisor:

Comfort level	Map indicator	Index Value, °F	General Interpretation
Heat Danger		> 105	Animal deaths may exceed 5%
Heat Caution		> 95 to 105	Decreased production, 20% or more Reduced conception , as low as 0%
Heat Caution		> 85 to 95	Decreased production, 20% or more Reduced conception , as low as 0%
Comfortable		77 to 85	
Comfortable		32 to 77	
Comfortable		15 to 32	
Cold Caution		< 15 to -20	18 to 36% increase in dry matter intake
Cold Danger		< -20 to -40	
Cold Danger		< -40	

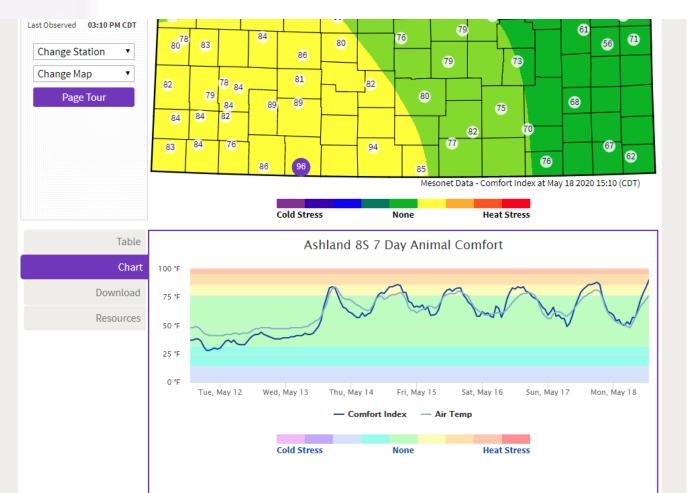
Adapted from:

https://www.mesonet.org/images/site/Using%20the%20Mesonet%20Cattle%20Comfort%20Advisor(1).pdf

- Values for Heat and Cold Stress
- Numerical Values different than THI



KANSAS MESONET ANIMAL COMFORT INDEX



- 7 Day Animal Comfort
- Able to monitor night time cooling time



FORECASTING HAS LIMITATIONS

- Individuals can be affected differently
- BCS
- Hair coat (winter/summer)
- Hair color
- Previous health insults (BRD)



HOW DO CATTLE DISSIPATE HEAT?

- Cattle much less efficient than other species
- Evaporative cooling****
 - Respiratory
 - Sweating (only sweat 10% of what people do)
 - Breed and color variation
- Cattle internal temp peaks 2 hours after environmental peak
- Takes at least 6 hours to dissipate the heat load
 - Accumulative heat load
 - Multiple days of heat stress
 - Not able to dissipate the heat load over night



FORMULATING A PLAN

- Develop a protocol
- Educate the crew
- Implement when Forecast Tools dictate
 - 2 consecutive days of emergency daytime heat indexes or,
 - No nighttime cooling for 2 days



MANAGEMENT CONSIDERATIONS

- Cattle Handling
 - Never process, handle, or load during heat of day
 - Finish up by 10:00am
- Feeding
 - Rumen is a massive heat vat!
 - 70% of daily feed offering delivered as late in the afternoon as possible
 - Reduces feeding activity during peak thermal period
 - Allows max heat of digestion to occur overnight
 - Occurs 4-6 hours after feeding



RATION COMPOSITION AND HEAT PRODUCTION







- High
- High fiber roughages
 - low quality hay or straw
 - Grains/highly digestible roughages
- silage Mod
 - Fats
- Oils Low



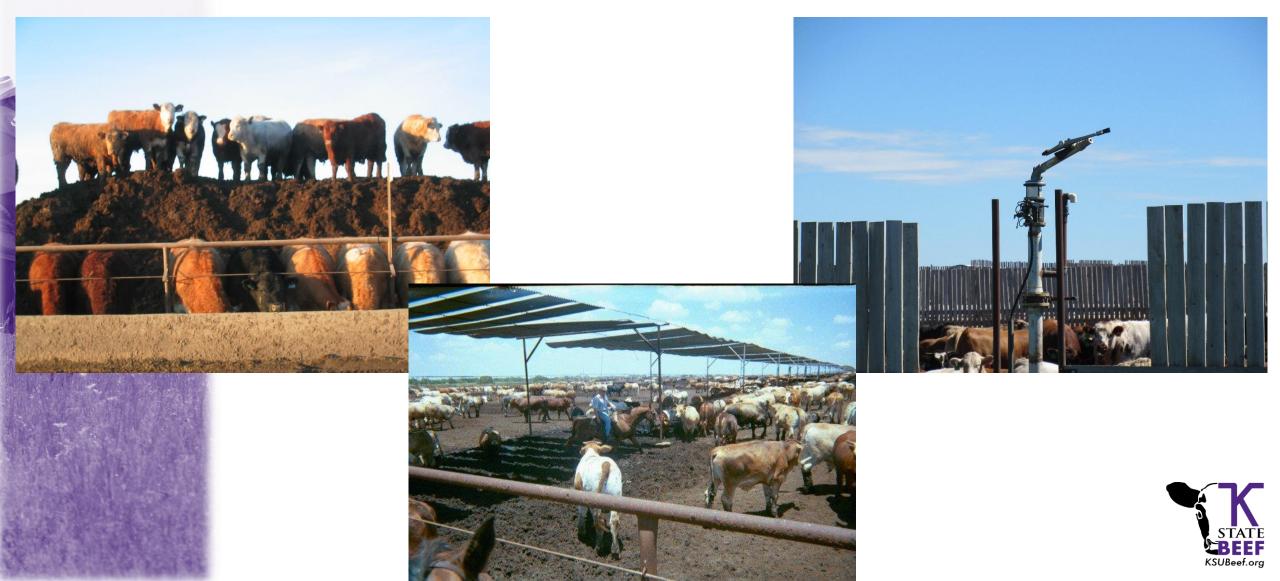
OTHER MANAGEMENT CONSIDERATIONS

- Reduce pen stocking density
 - Split fat pens if space available
 - Double trough space for water availability
 - Reduces crowding
 - Reduces bedding pack heat load
 - Less animal heat over same area

• Due to current market conditions, this may not be possible



PEN ENVIRONMENT





SPRINKLERS

- Can be useful if used correctly
- Wet the animal and pen/Don't mist
 - Droplet size matters (150 micron diameter)
- Very early in morning or overnight
 - Helps with overnight cooling before peak heat load
 - Cools pen floor
- Not for use in the middle of the day
 - Increases humidity in the pen microenvironment





Contraction of the second	2011/07/01-14:00

Treatment	Avg. Face Temp (°F)	Ambient Temp (°F)
Bare Floor	137	97
6" Manure	137	97
6" Straw	112	97



WATER CONSUMPTION

- Rules of Thumb (not exact calculations)
 - 3x DMI in Fall, Winter, Spring
 - 5x DMI in Summer
- Perspective:
 - 2x greater water consumption at 90°F compared to 70°F



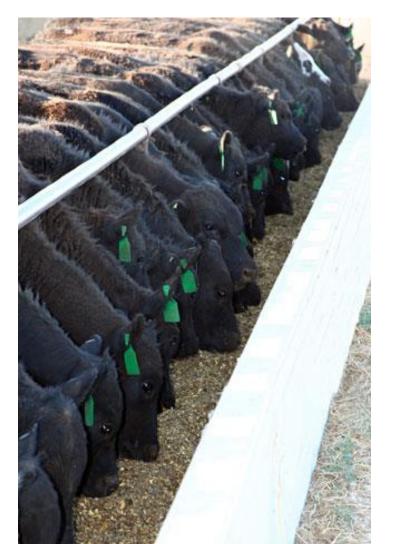


WATER AVAILABILITY

- Trough space
 - 2-3in of linear trough space per head during heat stress
- Volume
 - Many waterers have summer and winter capacity levels
- Water supply lines
 - Pressure and flow capacity
 - Proper refill time to trough
 - Some suggestions say 1.1% body weight of the cattle per hour
 - Or 1.5 gal/hr for a 1000lb animal



QUESTIONS?





USE OF BEEFBASIS.COM FOR MAKING CALF MANAGEMENT AND MARKET DECISIONS

Dr. Dale Blasi, Professor, Dept. of Animal Sciences and Industry

Dr. Glynn Tonsor, Professor, Dept. of Agricultural Economics

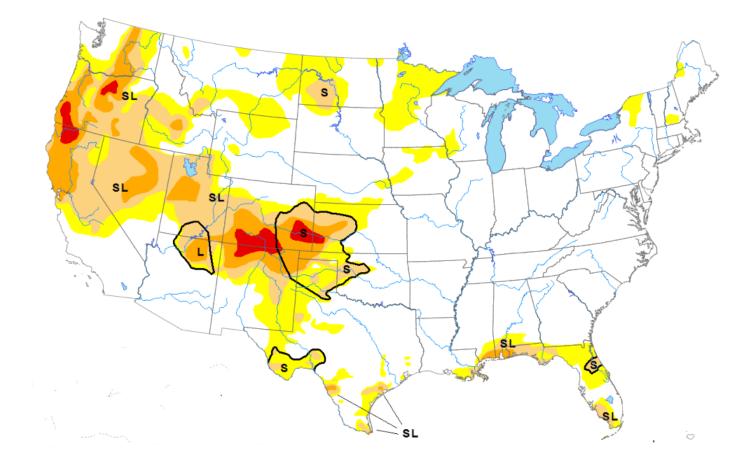
Kansas State University



United States Drought Monitor									
Current Map	Maps	Data	Summary	About	Conditions & Outlooks	En Español			

Map released: May 28, 2020

Data valid: May 26, 2020



MARKET VOLATILITY: BE PREPARED

- Existing Pasture conditions?
 - Your "typical" weaning date
- Forage inventory on hand
 - Herd size some added flexibility
- Early weaning pre-weaning immunization measures
- Existing facilities/equipment/labor





Real Home M Analytics Data P About

	Instant Pric	e Forecast 🛛 🕻			<u> </u>	Find the F	-
Date	State	¥	Location	¥		¢ \ 7	
Sex 🔻	Frame	•	Muscling	T			
Weight	Head					Analysis Tools	Data Tools
Feeder Cattle Future Prices (\$/cwt)		Corn Future Prices (\$	/bu)				
			O Start Over	Submit	4		
					Ŧ		



Industry Expertise

With over 25 years of experience in managing and marketing cattle, the BeefBasis team can help you solve today's market uncertainties.



Data and Analytics

Fast and easy access to the information and tools needed to improve your buying and selling decisions.



We Have Your Back

Want a private consultation? We've got you covered – click here.

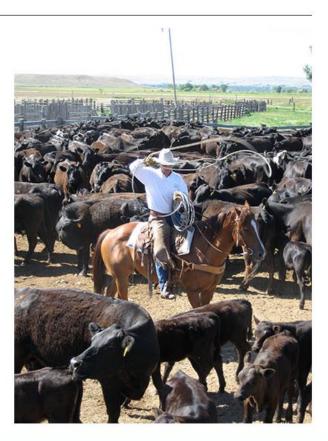


Analytics

BeefBasis.com offers a range of decision-support tools designed to improve your marketing decisions.

Our Analytics Tools





By-Product Feed Price Listing

April 30, 2020

Company Name & Address	Feed	Price/Ton	Price Quote Notes		
5			4/30/2020		
ADM	Wheat midds	\$140.00	FOB Arkansas City KS		
540 South Street	Wheat midds	\$170.00	FOB Lincoln		
Lincoln, NE 68501 Tom KC/Ark City/Minneapolis-Lloyd Lincoln	Wheat midds	\$145.00	FOB Minneapolis MN All quotes bulk \$140-150		
Tom/Lexi 866-268-6196	Wheat midds, pelleted	\$155.00	FOB Arkansas City KS (limited supply)		
10			4/2/2020		
CyberAg Feed Co., Inc. Box 12707 N. Kansas City, MO 64116 Ann Shippee	Cottonseed hulls, sacked	\$245.00	FOB Jonestown MS (45s) (\$220 Apr-Sep)		
1-800-892-5859 ann.cyberag@gmail.com	Cottonseed Pellets	\$150.00			
11			1/16/2020		
Diversified Ingredients 143 W. Clinton Place	Alfalfa pellets	\$225.00	FOB St Louis MO		
St. Louis, MO 63122	Cereal Tailings	call	FOB Perryville MO		
Greg McArthur 636-200-9024/Cell 314-650-9772	Rice Bran	call	FOB St Louis MO (BAGGED Call)		
636-200-9099 gmcarthur@diversifiedingredients.com	Rice Hulls	\$65.00	FOB St Louis MO		
15			4/30/2020		
Livestock Nutrition Center - LNC	DDG Peilets	\$258.00	FOB KC MO, only spot available		

http://agebb.missouri.edu/dairy/byprod/bplist.asp



Feed Cost

Natural Feeding

Share Lease

Creep Feed

Livestock Decision Aid

FEED COST COMPARISON

This tool helps producers evaluate the relative costs of two different feedstuffs. Additional information is available on iGrow.

Feedstuff #1		Feedstuff #2			
Preset		Preset			
Distillers Grain, Corn, Wet	T	Wheat Middlings	T		
Cost of Feed		Cost of Feed			
80	\$ / Unit	160	\$ / Unit		
Size of Unit		Size of Unit			
2000	Ibs	2000	Ibs		
Trucking Cost per Mile		Trucking cost per mile			
4	\$	4	\$		
Number of Miles		Number of Miles			
300	miles	170	miles		
Tons per Load		Tons per Load			
25	tons	25	tons		
Dry Matter		Dry Matter			
36	%	89	%		

https://www.igrowlivestocktools.org/#!/calculators/feed-cost

Feed Cost Results

	Distillers Grain, Corn, Wet	Wheat Middlings	Max Price for Wheat Middlings
Feed Cost per Ton (As Fed)	\$80.00	\$160.00	
Shipping Cost per Load	\$1,200.00	\$680.00	
Shipping Cost per Ton	\$48.00	\$27.20	
Total Cost per Ton As Fed Delivered	\$128.00	\$187.20	
Delivered Cost per Ton DM	\$355.56	\$210.34	
Delivered Cost of Crude Protein (\$/ton)	\$1,226.05	\$1,168.54	\$169.21
Delivered Cost of TDN (\$/ton)	\$352.04	\$262.92	\$223.45
Delivered Cost of NE m (\$/Mcal/ton)	\$309.18	\$244.58	\$209.45
Delivered Cost of NE g (\$/Mcal/ton)	\$461.76	\$375.60	\$202.94
Delivered Cost of NE I (\$/Mcal/ton)	\$329.22	\$253.42	\$215.99
The highlighted cell is the better buy for that ingredient.			
			ок

https://www.igrowlivestocktools.org/#!/calculators/feed-cost



Prepared by:	Dale A. Blasi
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229 Weber Hall

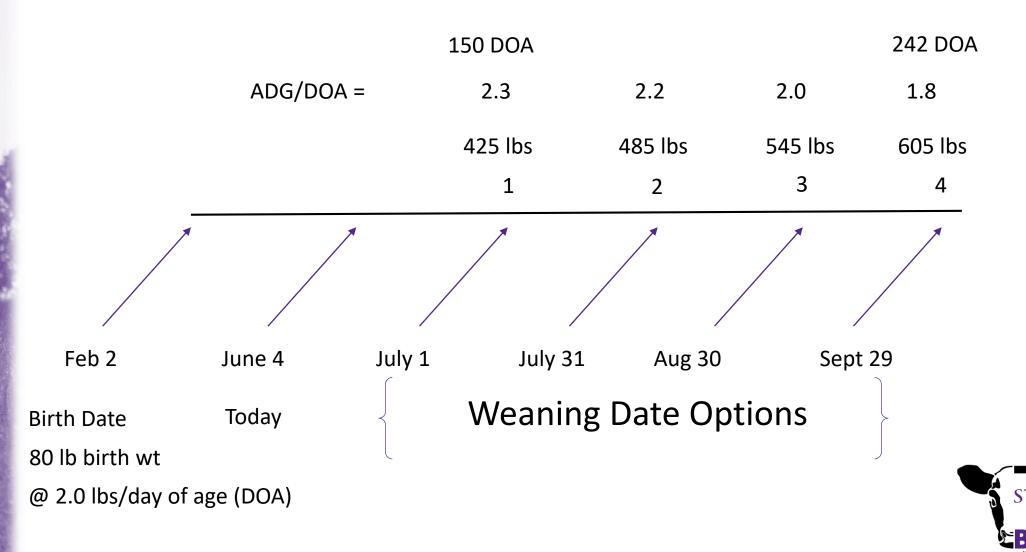
Feedyard Summary Sheet

785-532-5427

Covid 19 Examples			Ration:	creep die				db lasi @ks	
Feeding Period		7/1/20	8/1/20		Wind Expos	ure	some protec	tion	Modifiers
Average Weight		425 lbs	range:	50	Hair Conditi	ion	clean/dry		no implant
Wt.@ 50% Choice		1175			Hair Coat		summer coa	t	no MGA
Breed Type		Beef			Avg. Air Ten	npF	77.3	n	o Beta agonist
Current Condition	Score	5			Hide Thickn	ess	thick		
Gender		steer			Maintenand	e Adj.	0%		
Ration Formulatio	n		1 head			Ration Sum	ima ry	3	1 days
Feed	% of DMI	% AsFed	Pounds	%waste			400 lb	425 lb	450 lb
alfalfa-late b	28.46%	22.1%	4.0			DMIbs	11.4	11.9	12.5
bluestem-dorman	20.1%	16.6%	3.0			Est. DMI	11.5	12.1	12.6
ddgw_s	15.1%	11.0%	2.0		lbs	NE -Gain	2.2	2.2	2.2
corn rolled	35.6%	27.6%	5.0		lbs	MP -Gain	1.9	2.0	2.1
grower mineral	0.8%	0.6%	0.1			peNDF%	<u>R DP Ratio</u>	Rumen pl	H Ration D M
water	0.0%	22.1%	4.0			14.2%	156.6%	5.96	66.0%
						DMIRatio	99.0%	99.0%	99.0%
						DMI:BWt	2.85%	2.81%	2.77%
						MP Reqmt	90%	93%	96%
					Mcal	NE/MP adj	0.19	0.19	0.20
						Feed:Gain	5.86	5.89	5.93
					lbs	Daily Gain	1.95	2.03	2.10
					lbs	Final Wt.	460	488	515
					\$0.50	\$/Hd/Day	\$1.44	\$1.48	\$1.53
					+yardage	\$/lb Gain	\$0.74	\$0.73	\$0.73
Storage Shrink	1.0%	Delivered	18.1	lbs		\$/to	n DM	\$/1	ton AF
Bunk Loss		Consumed	18.1	lbs		\$164.61	\$162.98	\$108.66	\$107.59
				Percent	of Requirem	ent Met			
TDN	69.9%		Calcium	108.0%		Selenium	172.9%	Ca:	P 1.5
NEm Mcal/lb	0.69		Phosph.	146.7%		Zinc	90.1%	N:	S 9.0
NEg Mcal/lb	0.43		Magnes.	168.7%		Copper	59.7%	Fe:C	u 19.7
Non Fiber Carb.	34.6%		Potassium	173.1%		Mangan.	100.8%	DCA	B 13.1
Cr. Protein	13.5%		Sulfur	151.0%		Cobalt	52.4%	lo no phor	e 196
Degradable CP	50.5%		Sodium	177.1%		Iodine	157.2%	-	
Soluble CP	14.9%		Chlorine	162.0%		Iron	235.5%		
Fat	4.1%		Vit. A	123.3%		Vit. E	2.6%		
						Manure-lbs/	100 hd days	MG	Α

manare-way a	oo na aays	IVN3 A	
N excr.	P excr.	K excr.	<u>S excr.</u>
14.6	2.8	12.1	1.9

Marketing timeline for variable wean date





CONCLUSION(S)

- Regardless of the environmental conditions, a producer should always monitor
 - Pasture status
 - Available harvested forages
 - Market
- Use Beefbasis regularly to establish your trigger points
 - If large enough to make sufficient lot sizes, stringently sort by size and sell
 - E.g. sell largest one-half of calf crop at end of July and remaining ½ month later.



THANK YOU!

QUESTIONS?

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



K-STATE BEEF EXTENSION SPECIALISTS



Dr. Dale Blasi

- Stocker mgmt./nutrition
- dblasi@k-state.edu

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