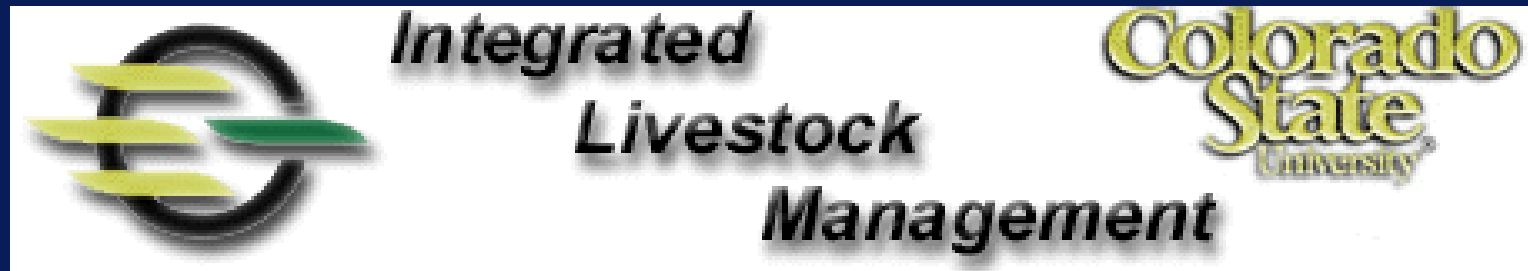


Developing and using beef herd metrics

Frank Garry, DVM, MS



Herd Metrics

- ◆ Assessment tools
 - ◆ Performance, losses, risk factors, disease
- ◆ External benchmarks – what is typical/normal in the industry?
- ◆ Averages? Values for high performing herds?
- ◆ Internal benchmarks
 - ◆ Current or previous performance
 - ◆ Monitoring improvement

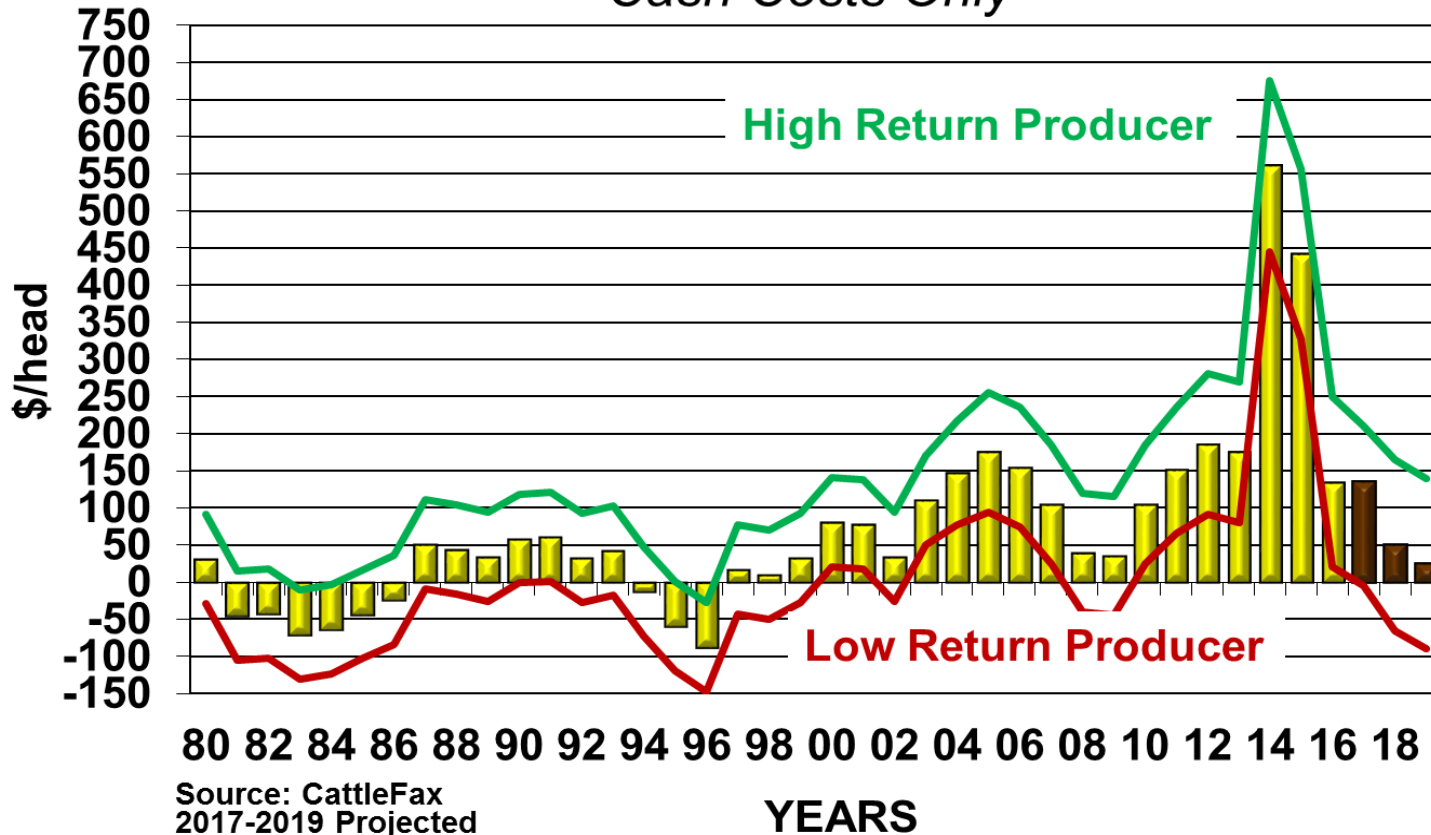
Cow/calf profit

Value of calves sold per breeding female
(plus cow and bull sales)

Vs

Cost of producing calves
(= Carrying cost)

Average Cow/Calf Profit (Loss) Cash Costs Only

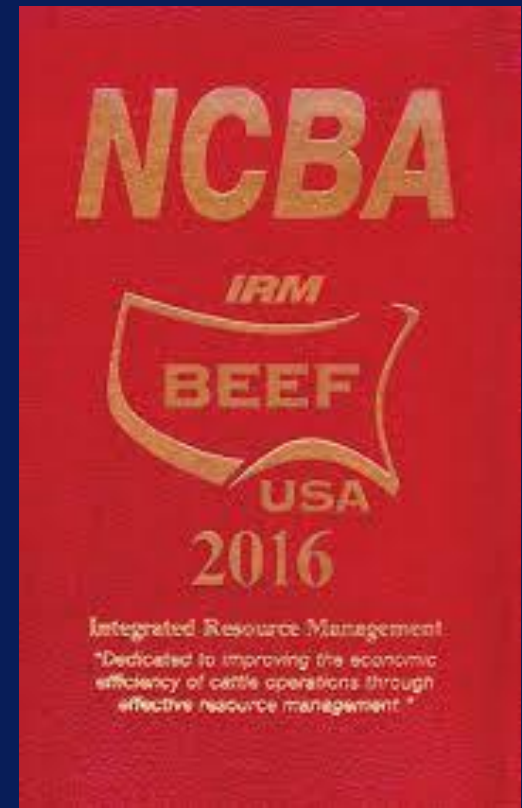


CattleFax

	Cash Cow Costs	Total Cow Cost (includes: depr., RTM)	<u>Breakeven</u>
High Return Producer	\$408.00	\$533.00	\$97/CWT
Avg. Return Producer	\$588.00	\$713.00	\$130/CWT
Low Return Producer	\$813.00	\$938.00	\$170/CWT

Records vs Record Analysis

- ◆ Most producers DO keep records
- ◆ Thoroughness and accuracy?
- ◆ Using the records
- ◆ Format
- ◆ Metrics



**“What really matters is to make
what really matters what really
matters.”**

Anonymous

Animal dynamics – typical ranch with stable herd size

- ◆ Calf crop approximately 85% of mature cow herd = 85 calves weaned per 100 cows
- ◆ Approx 15% (12 -18%) turnover/replacement rate of COWS
- ◆ 70 calves sold per 100 cows
- ◆ 15 heifers retained as replacements
 - ◆ 20 heifers kept to breed, then 15 kept in herd and 5 culled
- ◆ Yearly animal sales per 100 cows– 65 weaned calves, 15 cull cows, 5 cull heifers, 2 cull bulls

Targets

- ◆ Pregnancy rate 93-96%
- ◆ Calving period <60 days
- ◆ Calving pattern Early = first 20 days = 65%
- ◆ 2yr olds 40 days before mature cows
- ◆ Wastage (Average) for comparison
 - ◆ Females open (6-15%) Target 4 – 6%
 - ◆ Fetal deaths (3%) Target < 2%
 - ◆ Born dead (2-4%) Target 1-3%
 - ◆ Perinatal death (2-4%) Target 1-3%
 - ◆ Calf deaths preweaning (2-3%). Target 1%

Understanding low calf crop

- ◆ Distribution of calf losses –
 - ◆ Failure to conceive > pregnancy losses > birthing losses > neonatal losses > losses from neonate to weaning
- ◆ Pregnancy issues – reproductive mgmt
- ◆ Perinatal issues – calving management
- ◆ Neonatal and postnatal issues – infectious calf health management

Understanding low calf crop

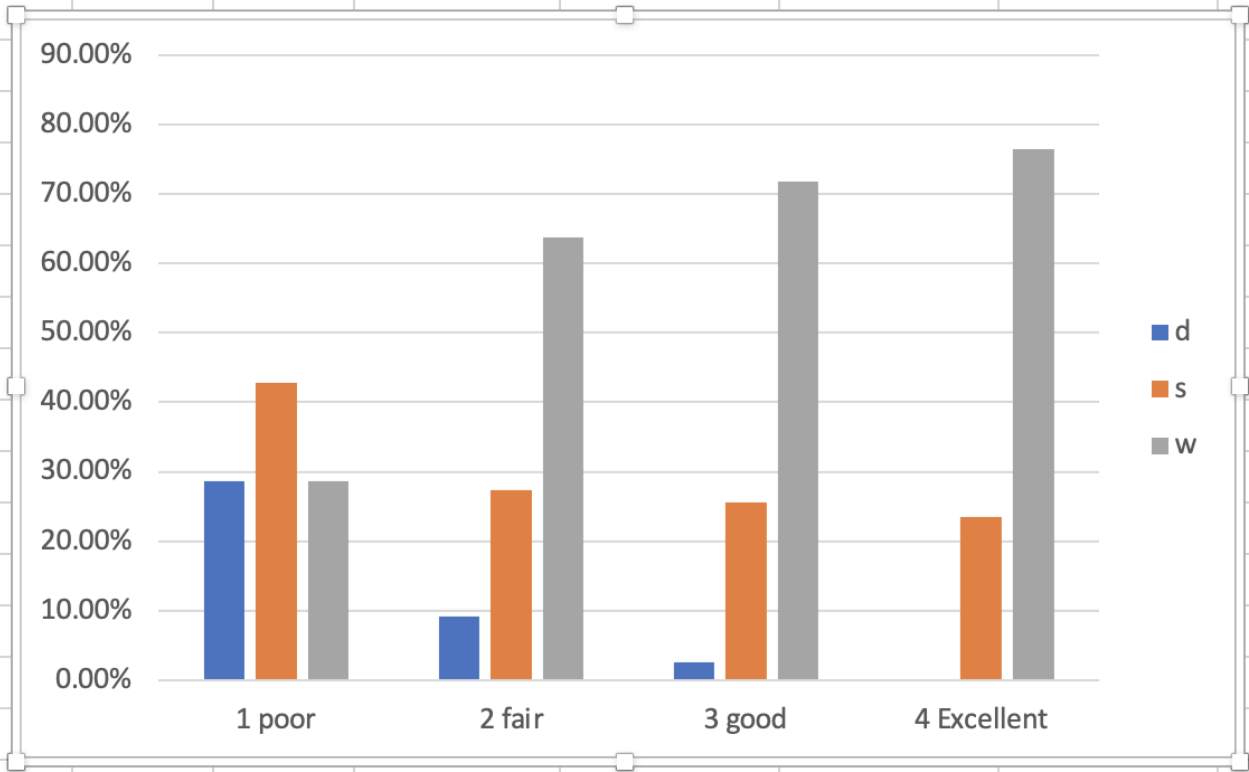
- ◆ Only way to analyze distribution of losses is through records that can be analyzed
- ◆ Simply having numbers not sufficient
- ◆ Need organized data that can be categorized

Categorizing data

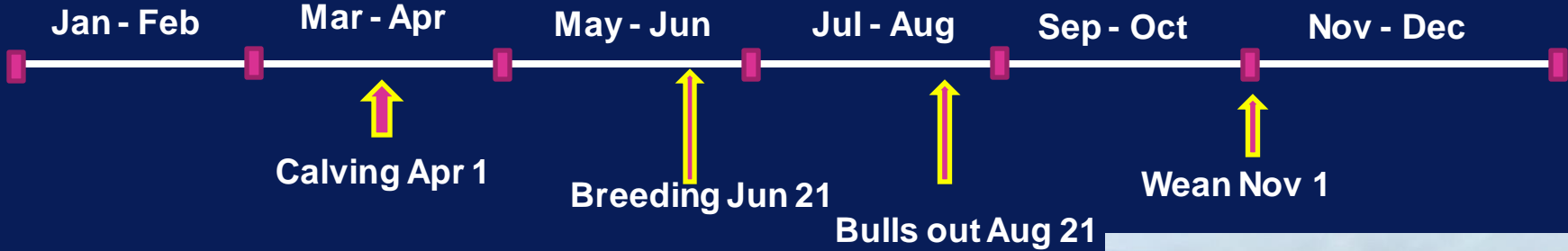
	A	B	C	D	E	F	G	H	I	J	K
1	Calf #	DOB	TP	Sample date	Scours Tx	sick/died	TP cat				
2	1244	1/7/11	5.1	1/12/11	y	w	2 fair				
3	1242	1/6/11	5.6	1/12/11	n	w	2 fair				
4	113	1/9/11	5.8	1/12/11	n	w	3 good				
5	1243	1/9/11	5.4	1/12/11	y	w	2 fair				
6	1247	21-Jan	6.2	1/19/11	n	w	4 Excellent			TP	Category
7	1248	22-Jan	6	1/19/11	y	w	3 good			0	1 poor
8	1249	24-Jan	5.8	1/19/11	n	w	3 good			5.1	2 fair
9	1258		4.8	2/17/11	y	w	1 poor			5.8	3 good
10	1259	2/27/11	5.2	3/2/11	y	w	2 fair			6.2	4 Excellent
11	1260	3/1/11	6	3/2/11	n	w	3 good				
12	1263	3/2/11	5.7	3/9/11	n	w	2 fair				
13	1270	3/16/11	6	3/23/11	n	w	3 good				
14	1271	3/18/11	6.4	3/23/11	n	w	4 Excellent				
15	1272	3/19/11	6.3	3/23/11	n	w	4 Excellent				
16	1273	3/19/11	4.3	3/23/11	y	w	1 poor				
17	1274	3/21/11	6.2	3/23/11	y	w	4 Excellent				
18	1288	3/23/11	5	3/30/11	n	w	1 poor				
19	1277	3/23/11	5.9	3/30/11	n	w	3 good				
20	1330	3/26/11	5.9	3/30/11	y	d	3 good				
21	1331	3/26/11	7.6	3/30/11	n	w	4 Excellent				
22	1328	3/26/11	5.9	3/30/11	n	w	3 good				
23	1327	3/27/11	7.9	3/30/11	y	w	4 Excellent				
24	1326	3/27/11	6.2	3/30/11	y	s	4 Excellent				
25	1329	3/27/11	6.3	3/30/11	n	s	4 Excellent				

	A	B	C	D	E	F	G															
1																						
2																						
3	Count of TP cat	Column Labels ▼																				
4	Row Labels ▼	n	y	Grand Total																		
5	1 poor	28.57%	71.43%	100.00%																		
6	2 fair	54.55%	45.45%	100.00%																		
7	3 good	61.54%	38.46%	100.00%																		
8	4 Excellent	70.59%	29.41%	100.00%																		
9	Grand Total	58.06%	41.94%	100.00%																		
10																						
11	<table border="1"> <caption>Bar Chart Data</caption> <thead> <tr> <th>TP Category</th> <th>n (%)</th> <th>y (%)</th> </tr> </thead> <tbody> <tr> <td>1 poor</td> <td>28.57%</td> <td>71.43%</td> </tr> <tr> <td>2 fair</td> <td>54.55%</td> <td>45.45%</td> </tr> <tr> <td>3 good</td> <td>61.54%</td> <td>38.46%</td> </tr> <tr> <td>4 Excellent</td> <td>70.59%</td> <td>29.41%</td> </tr> </tbody> </table>							TP Category	n (%)	y (%)	1 poor	28.57%	71.43%	2 fair	54.55%	45.45%	3 good	61.54%	38.46%	4 Excellent	70.59%	29.41%
TP Category	n (%)	y (%)																				
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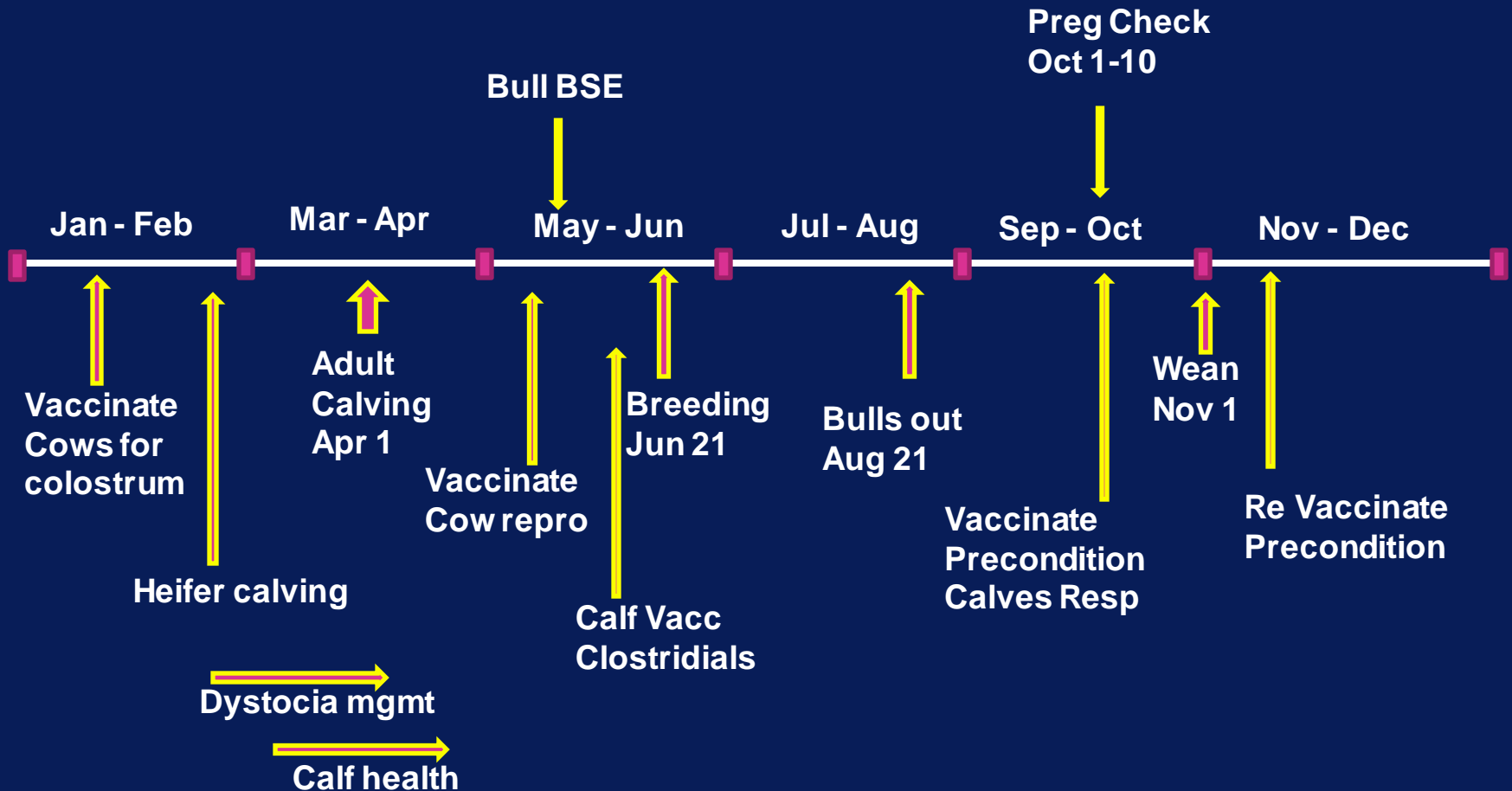
	A	B	C	D	E	F	G	H
2								
3	Count of TP cat	Column Labels						
4	Row Labels	d	s	w	Grand Total			
5	1 poor	28.57%	42.86%	28.57%	100.00%			
6	2 fair	9.09%	27.27%	63.64%	100.00%			
7	3 good	2.56%	25.64%	71.79%	100.00%			
8	4 Excellent	0.00%	23.53%	76.47%	100.00%			
9	Grand Total	7.10%	27.74%	65.16%	100.00%			



Cow/calf production calendar

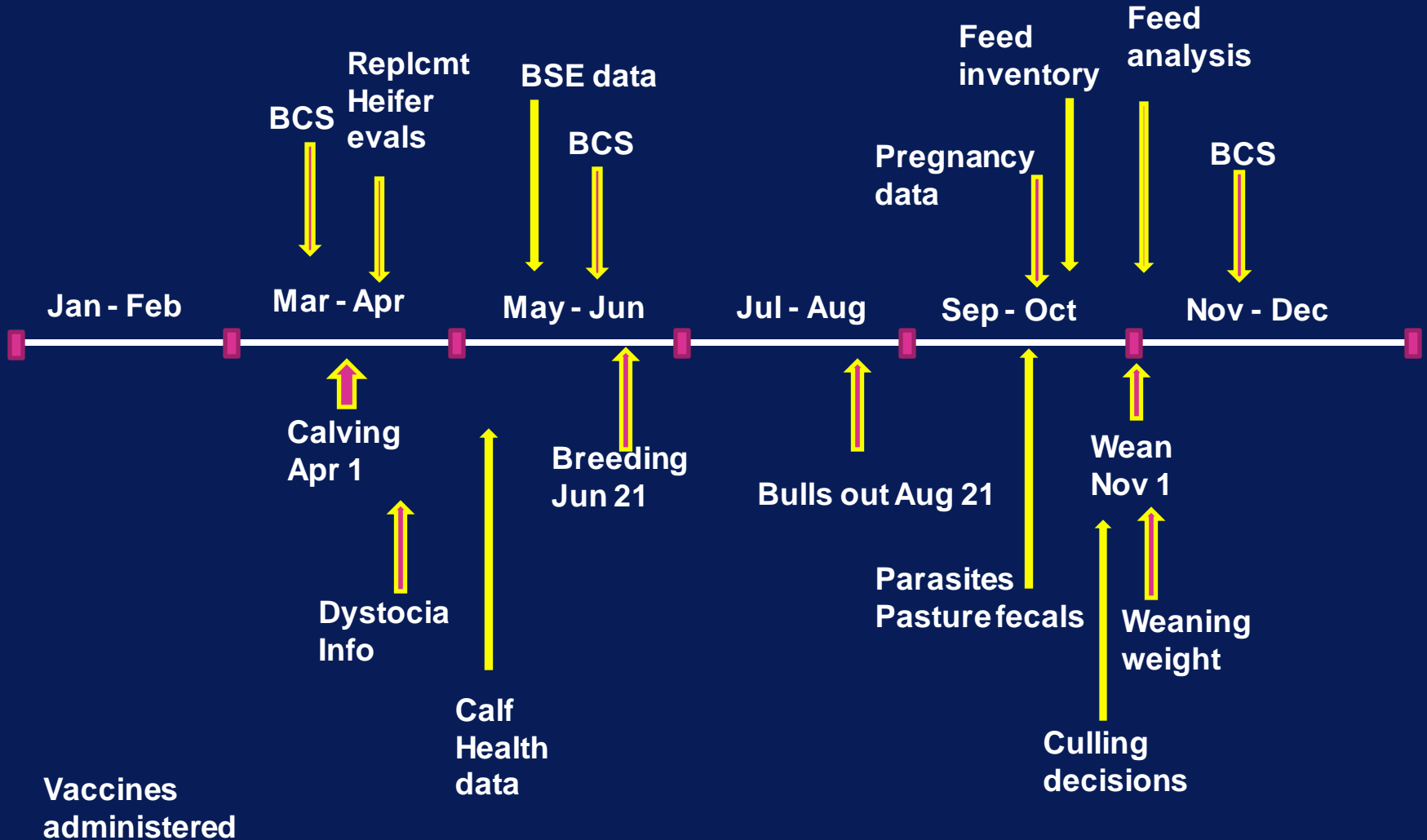


Cow/calf production calendar



Cow/calf production calendar

Evaluations and Data



Pregnancy distribution

Pregnancy histograms

- ◆ Overall pregnancy percentage does not equal optimum profitability
- ◆ Need to assess timing/stage of pregnancy
- ◆ 20 day intervals
- ◆ Then break down with other descriptors
 - ◆ Age, bulls, pastures, breed

Pregnancy histograms

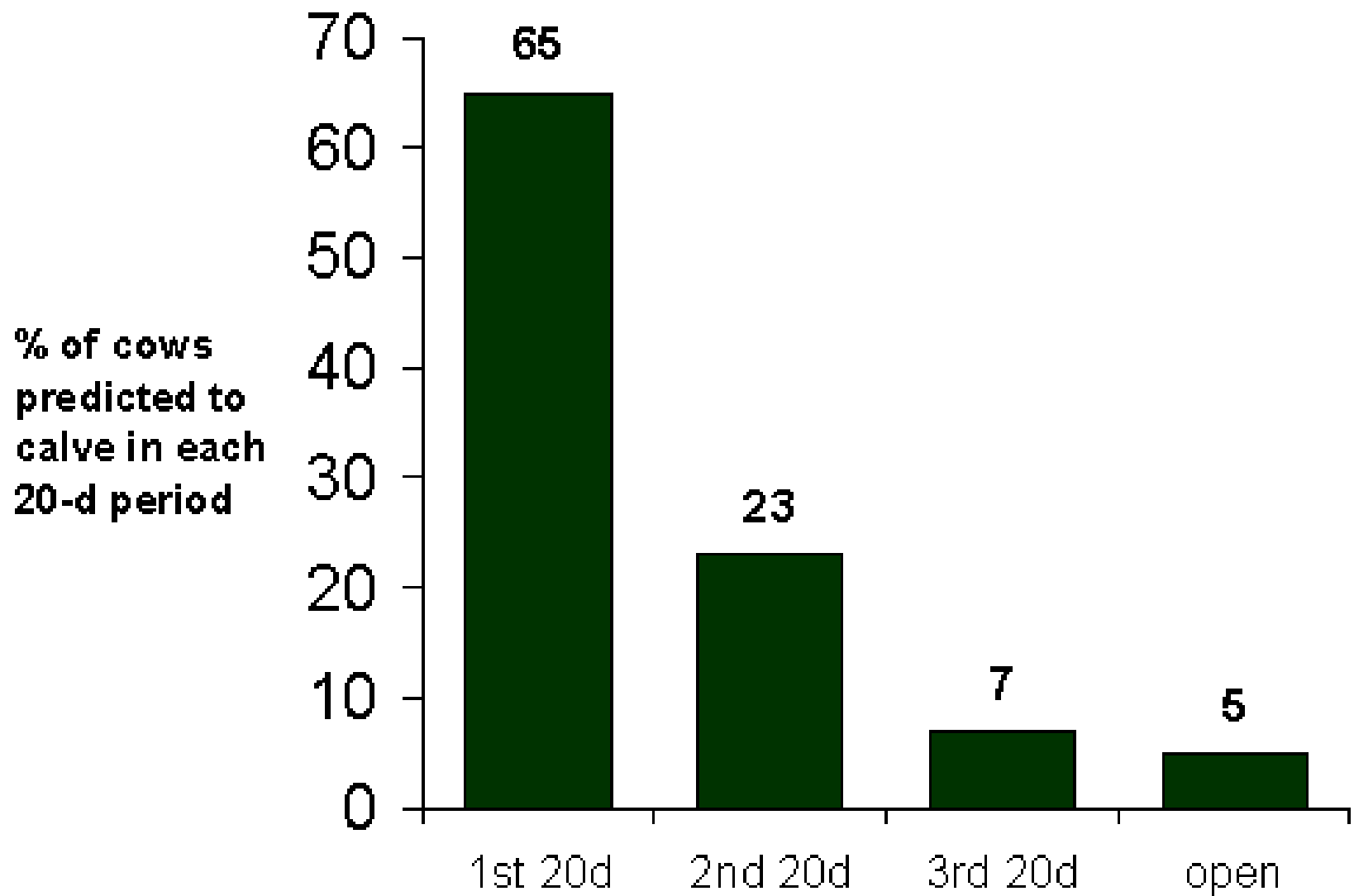
- ◆ Optimum performance
- ◆ 100% estrus rate per cycle
- ◆ 65% conception per breeding (60-70%)
- ◆ Best done at pregnancy check
 - ◆ <120 days after start of breeding
 - ◆ Can be assessed at calving, but delayed
 - ◆ Can make decisions earlier

Ensuring a Successful Breeding Season

- ◆ 95 (90)% pregnant
- ◆ Front-end loaded: 60+% pregnant 1st 21 days & 85+% pregnant in first 42 days
- ◆ **Constraints**
- ◆ Postpartum anestrus interval
- ◆ Cows (multiparous) – 40-60 (50-70) days
- ◆ First-calf heifers (nulliparous) – 80-90+ days
- ◆ Puberty – 60-65% of mature weight
- ◆ “Conception Percentage” – 65 (60-70)% pregnant at preg-check per ovulation

Breeding performance

- ◆ Gestation = 283d.
- ◆ Conceive 82 days post partum for 1 year cycle
- ◆ Postpartum cycling
 - ◆ Cows 40-60d, heifers 80+d
- ◆ First 20 day breeding period starts 62 d after first 20 day calving window
- ◆ Second 20 d calving = Starts breeding 43 to 62 d after calving
- ◆ Breeding ends 123 d after first calving window



Why is this pregnancy distribution important?

- ◆ Maximum calf growth
- ◆ Replacement heifers
- ◆ Protects against repro problems/losses
- ◆ Use of feed resources
- ◆ Optimize calf health
- ◆ Maintains excellent performance in future = “momentum”
- ◆ Improves marketing of calves
- ◆ Use of labor resources

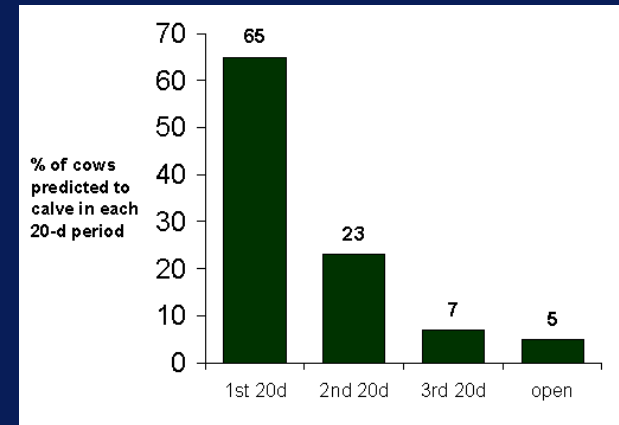
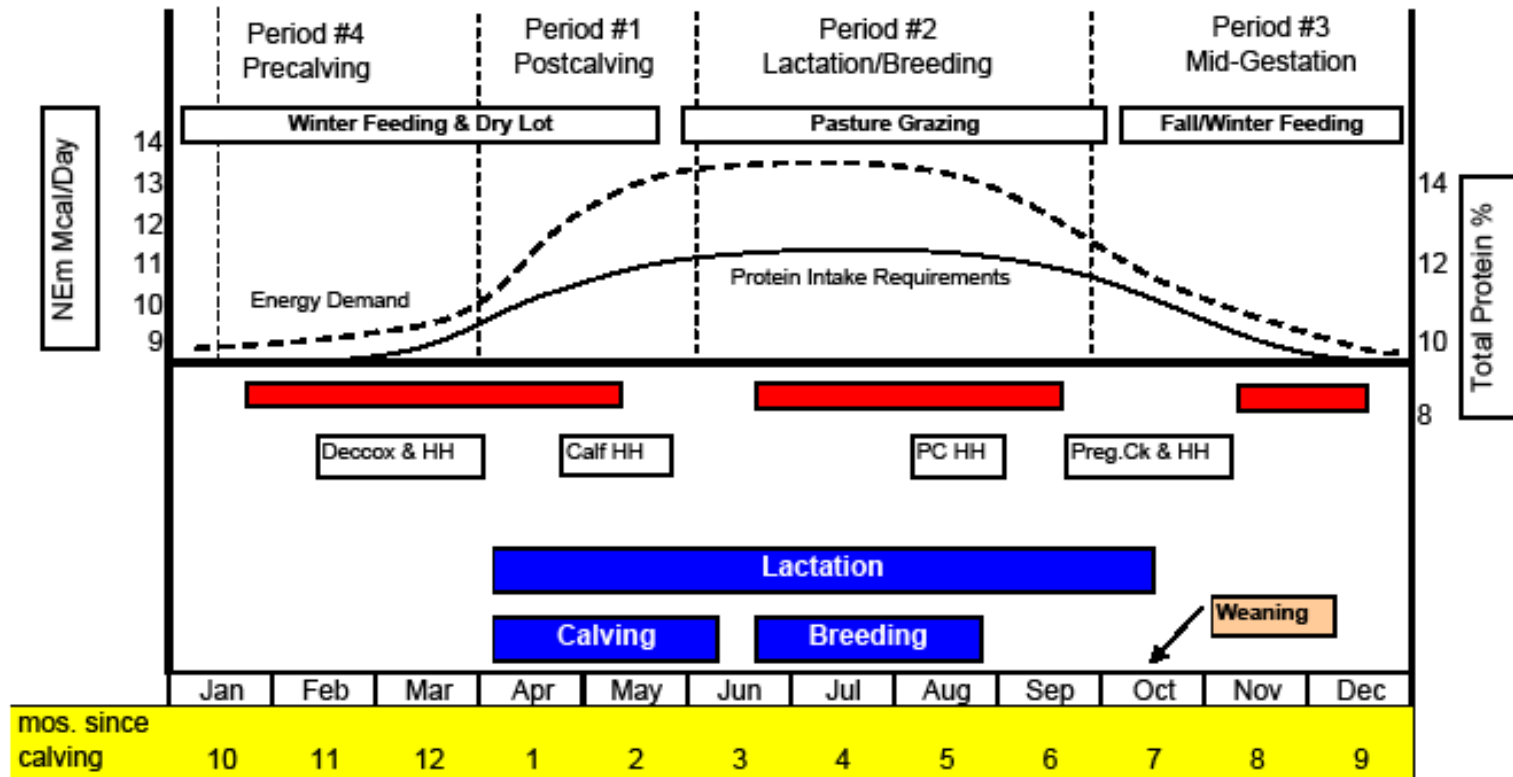


Figure 1

Beef Cow Nutritional Management & Yearly Production Cycle

Client: _____



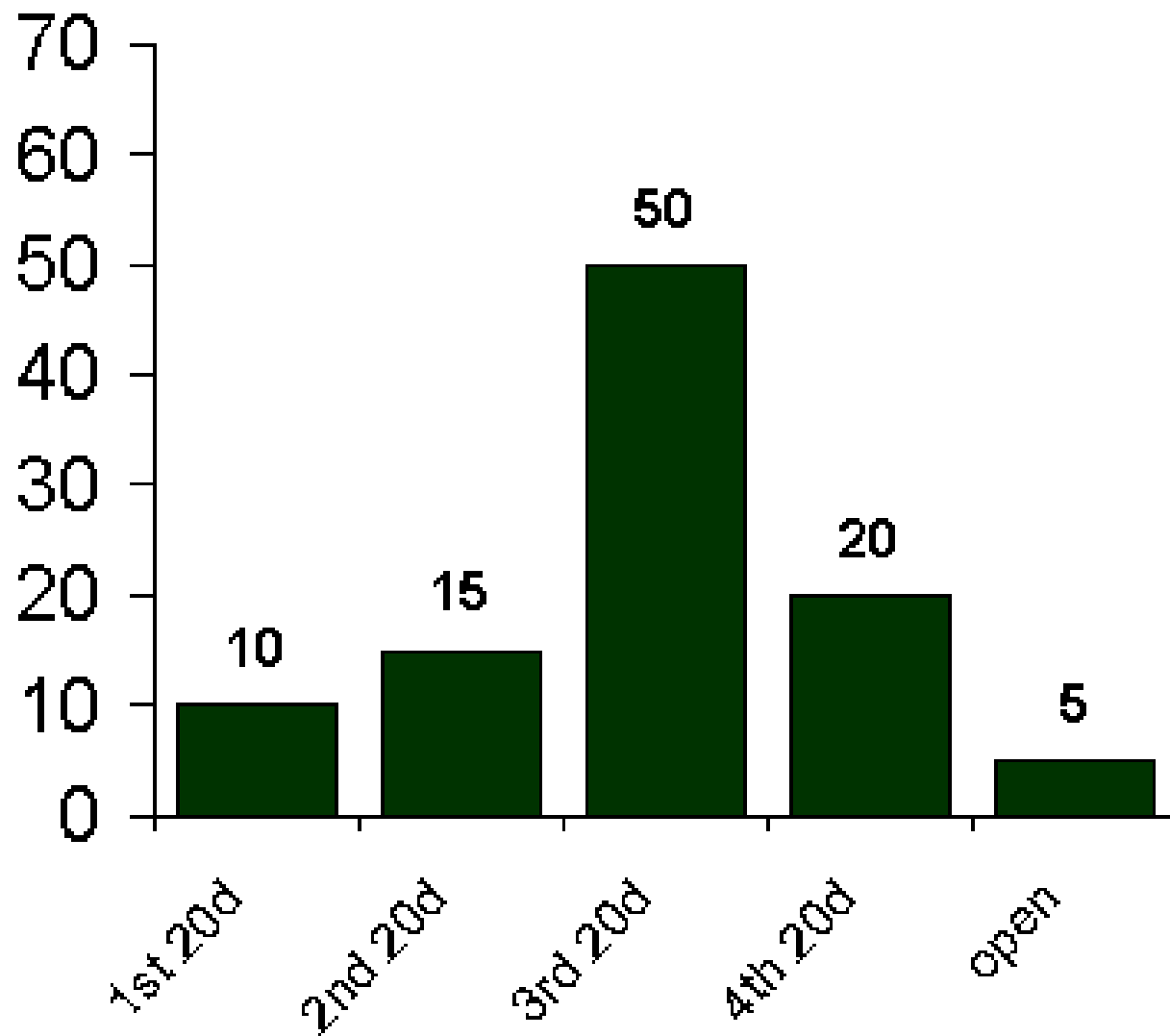
References: Nutrient Requirements of Beef cattle, 6th Revised Edition; Beef cattle Nutrition in Veterinary Clinics of North America, 1991

Nutritional Factors Affecting Reproduction and Practical Nutrition for Beef cattle Ranchers, L.R. Corah, PhD, Kansas State University.

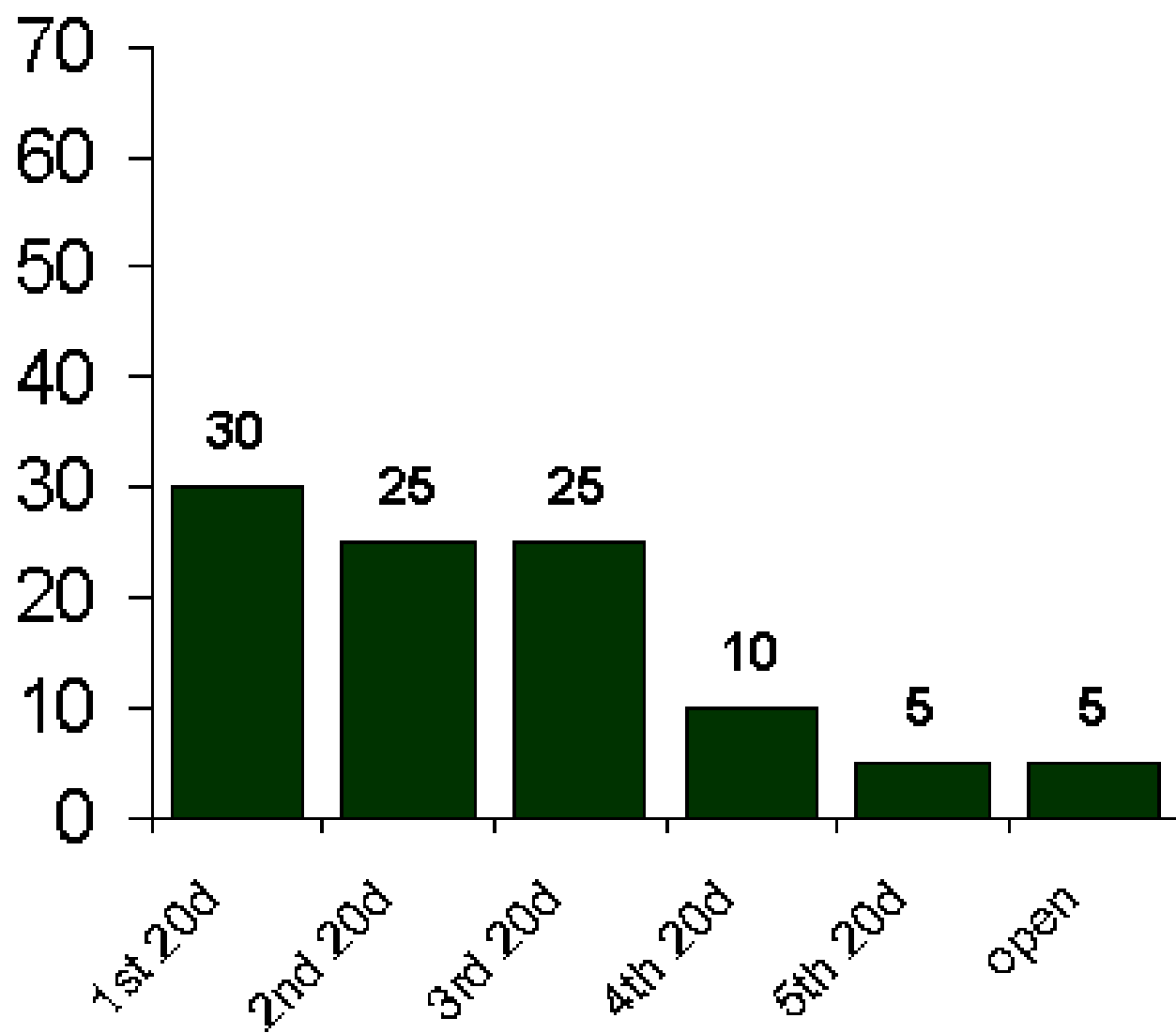
Mos. since calving referenced in Nutrient Requirements of Mature Beef Cows pub. MP391

= mineral supplementation program

**% of cows
predicted to
calve in each
20-d period**



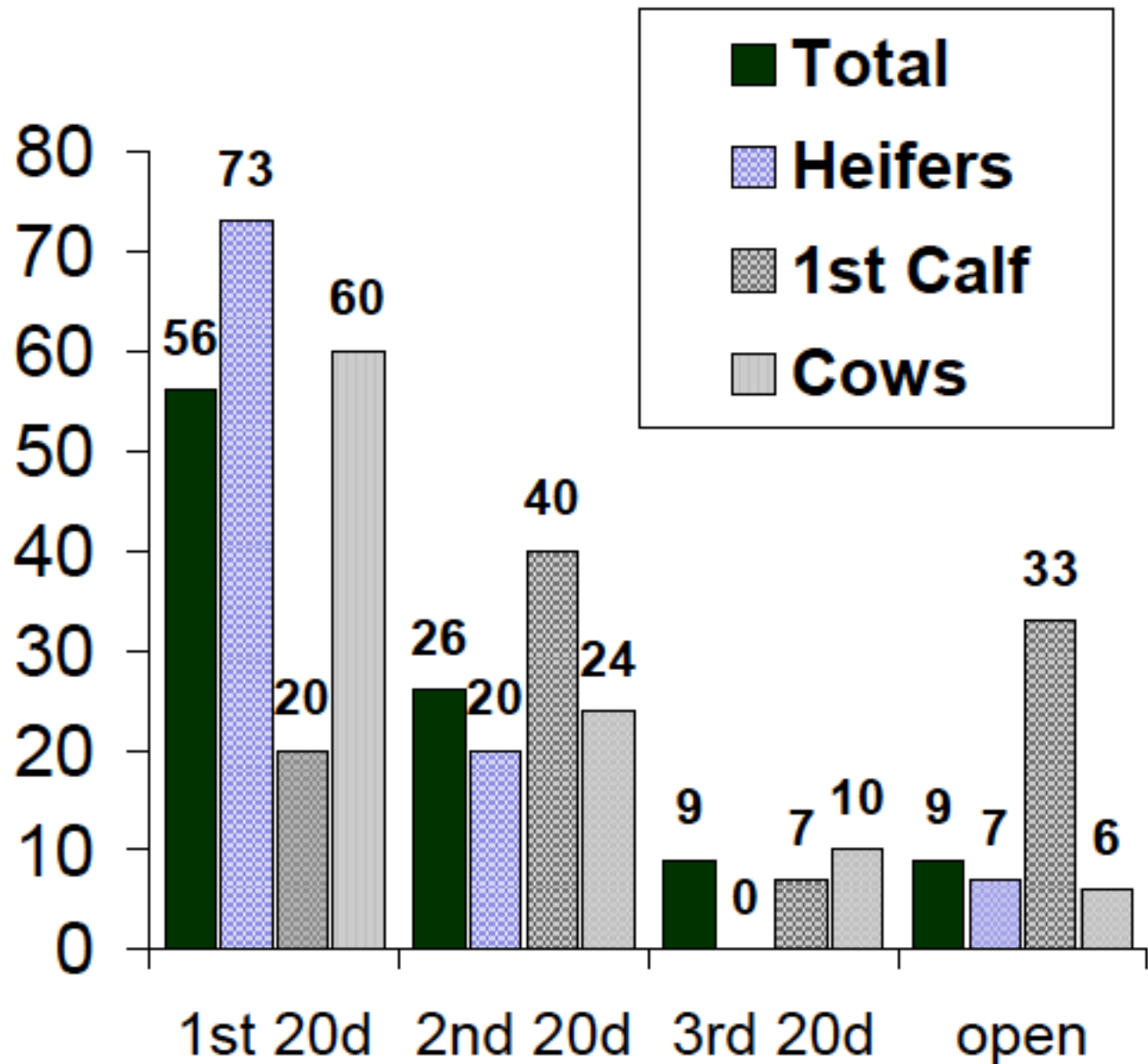
**% of cows
predicted to
calve in each
20-d period**



Reasons for poor pregnancy histogram

- ◆ Inadequate female fertility
- ◆ Inadequate delivery of fertile semen
- ◆ Infectious or non-infectious agents that prevent or end pregnancy

% of cows predicted to calve in each 20-d period



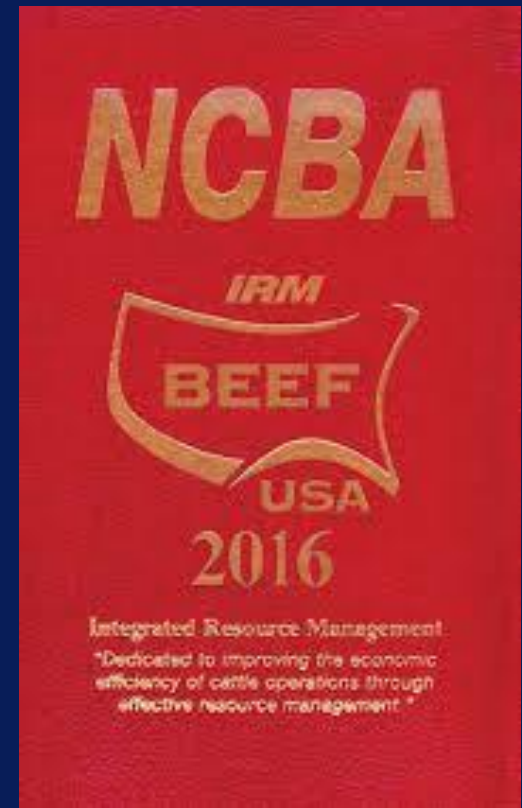
Calf crop

- ◆ Pregnancy percentage
- ◆ Pregnancy distribution
- ◆ Calving percentage
- ◆ Pregnancy loss -
Abortion rate
- ◆ Perinatal mortality
- ◆ Postnatal mortality



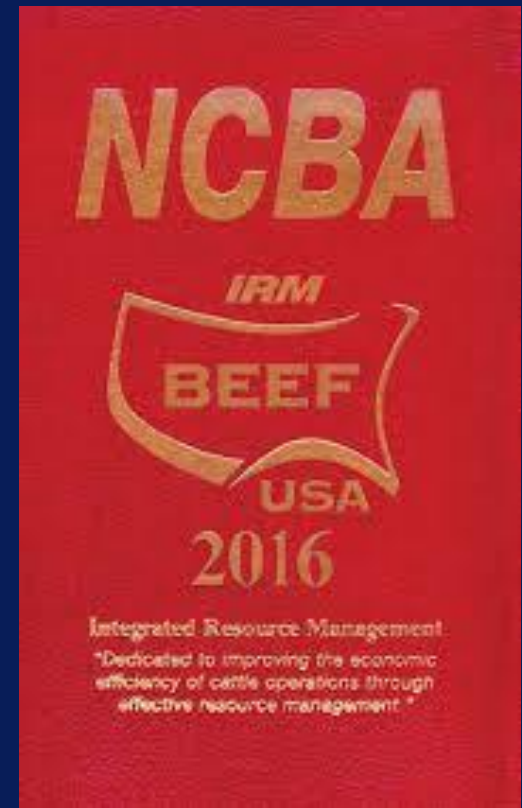
Calf Health

- ◆ Date of illness
- ◆ Clinical signs
- ◆ Treatment
- ◆ Date of death
- ◆ Necropsy – yes/no



Weaning

- ◆ Date of weaning
- ◆ Weights
- ◆ Treatment
- ◆ Vaccinations



Standardized performance analysis (SPA)

- ◆ Tool for beef producers
- ◆ Improve efficiency/ lower costs of production
- ◆ Specific performance measures
- ◆ Financial and performance data
- ◆ Reproduction, production, grazing, marketing, finance, economic measures
- ◆ Standards and tables for assessment

NCBA Redbook

Calf Information											205 day				
Cow ID	Calf ID	Sire ID	Birth Date	Birth Wt	Sex	CLVG EZ	Wean Date	Wean Wt	COW BCS	Remarks**	adjusted	**Calf Death Loss Code	**Age @ Death		
631	801	AN31	03/15/06	85	B	1	10/15/06	550	5	Calf Died 2,1	530	0 - Predator	1 - Under 1		
											#DIV/0!	1 - Abortion	2 - 15 to 30		
											#DIV/0!	2 - Scours	3 - 30 to Br		
											#DIV/0!	3 - Pneumonia	4 - Brand to		
											#DIV/0!	4 - White Muscle	*Calving Ease		
											#DIV/0!	5 - Enterotoxaemia	1 - No assis		
											#DIV/0!	6 - Birth Related	2 - Assisted		
											#DIV/0!	7 - Accident	3 - Assisted		
											#DIV/0!	8 - Cold Stress	4 - Caesare		
											#DIV/0!	9 - Other	5 - Breech t		
											#DIV/0!				
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Excel Spreadsheet

	A	B	C	D	E	F
1	Animal ID	Breed	Parity	BCS	Pasture	Pregnancy Length (Days)
2	1696	Charolais	1	5.5	2	100
3	3777	Limousin	1	6	4	90
4	1713	Angus	1	6	3	85
5	6293	Charolais	1	5	4	95
6	458	Limousin	1	5.5	4	80
7	3624	Charolais	1	4.5	2	85
8	6478	Charolais	1	5	4	80
9	3597	Angus	1	5	1	90
10	5743	Limousin	1	5	2	100
11	2079	Angus	1	5.5	2	50
12	1957	Limousin	1	5.5	3	55
13	1236	Angus	1	6	2	70
14	6611	Angus	1	6	2	0
15	5895	Charolais	1	6	3	95
16	3220	Charolais	1	4.5	4	90
17	3797	Limousin	1	5.5	3	100
18	3545	Angus	1	6	2	110
19	4051	Angus	1	4.5	4	110
20	3004	Charolais	1	6	3	110
21	7834	Limousin	1	5.5	1	105
22	2344	Angus	1	5.5	4	90
23	4858	Limousin	1	4.5	1	95
24	1703	Limousin	1	5.5	2	75

Other Software Features

- ◆ Minimum Data management
- ◆ Data analysis
- ◆ Tech integration
- ◆ Veterinary interaction – protocols
- ◆ Financial integration

Examples

- ◆ CalfDex – basically a spreadsheet with no calculations
- ◆ Calfbook – animal inventory only
- ◆ CattleMax – animal and other inventory
- ◆ HerdX – advanced data visualization
- ◆ Animal Record Management from TELUS- very advanced with QR codes
- ◆ CowSense – has add-ons that can be purchased separately

Midwest MicroSystems LLC

Home of Cow Sense® The Herd Management Software!

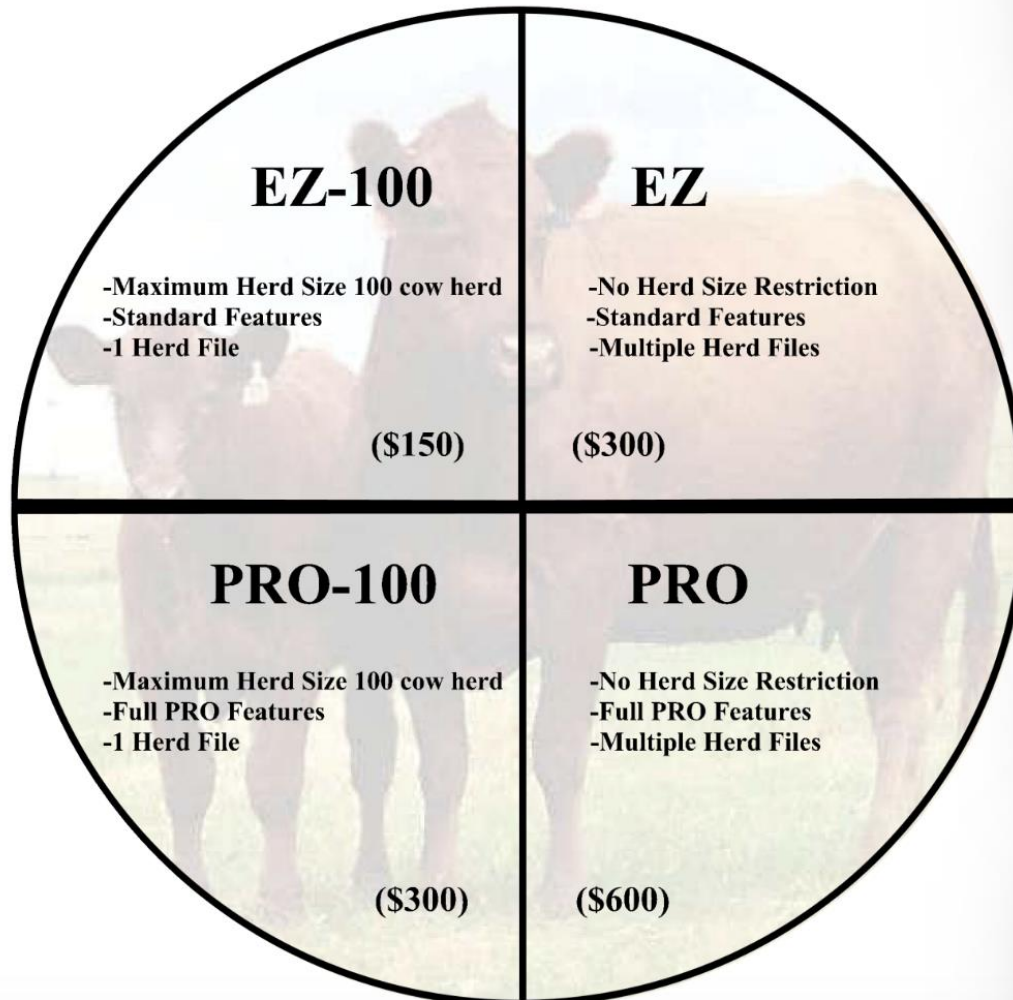
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 **Partner Exchange Tool Guides**

“If you have to eat a frog,
don't look at him too long”

Mark Twain

