1995 NCA-IRM-SPA COW-CALF ENTERPRISE SUMMARY OF REPRODUCTION AND PRODUCTION PERFORMANCE MEASURES FOR CHAPS COW-CALF PRODUCERS

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ABSTRACT

Being competitive in current beef production requires that producers understand all details of their working operation. The North Dakota State University Extension Service in cooperation with the North Dakota Beef Cattle Improvement Association provide managerial reports generated through the Cow Herd Appraisal of Performance Software (CHAPS III). These reports assist producers with total herd evaluations which are utilized in North Dakota's Integrated Resource Management (IRM) program. For more effective utilization of individual herd data, production benchmark values utilizing the NCA-IRM-SPA calculations were obtained from 199 beef cow herds with a total of 96,880 cows exposed to bulls and processed through CHAPS III from 1990 to 1994.

INTRODUCTION

Performance and production data need to be collected and utilized for a sound beef operation to function in the 90's. The collection of data, such as birth date, birth weight, weaning weight, etc., is a common event, however the utilization of the data may vary considerably from one beef producer to the next. The purpose of this paper is to enhance the beef producer's ability to evaluate production records and increase the understanding and utilization of production data within the operation.

Beef performance data actually only comes in one form, but with two purposes. The purpose that most producers first think of and relate to, is performance data. Performance data is used within genetic evaluation programs to estimate the direction of genetic change and allows for accurate cow culling, heifer selection and bull buying. The second purpose is the appraisal of overall cow herd productivity which allows a beef producer to evalu-ate management decisions for the past year through changes in overall cow herd output. In other words, do the management regimes and selected individuals actually perform at the expected level.

The beef producer needs to first incorporate into the cow herd the CHAPS (Cow Herd Appraisal of Performance System) evaluation program and focus on both individual performance as well as overall herd productivity. The following evaluations are provided by CHAPS on individual performance data. The calf output is divided by sex and provides birth date, birth weight, calving ease, actual weaning weight, age in days, adjusted 205 day weight, adjusted 205 day weight ratio, frame score, average daily gain, weight per day of age, calf grade and parentage information on each calf. Averages presented are within sex and include an overall sex group average, individual sire averages and cow breed averages for all traits recorded.

A separate sire summary is included to provide trait averages by sire for birth weight, calving ease, actual weaning weight, adjusted 205 day weight, average daily gain, weight per day of age, calf age and frame score. Most probable producing ability (MPPA) values are calculated for all cows within the herd. The cow summaries include the cow identification, age of cow, cow breed, MPPA, number of calves born, number of calves weaned, calving interval, and sire of cow. All previous years individual calf records are available for review if needed.

The appraisal of overall cow herd productivity is accomplished within CHAPS through summarizing the calf data. The herd summary includes a reproductive analysis of the herd, a calving distribution report, an overall growth report, herd uniformity score and a cow culling report. The herd comparison report identifies those factors which are critical to the operation of the beef business. The last report includes the NCA-IRM-SPA cow-calf summary of reproduction and production performance measures values. The NCA-IRM-SPA performance values are standardized calculations based on guidelines established by National Cattlemen's Association National Integrated Resource Management Coordinating Committee Cow-Calf Financial Analysis Subcommittee.
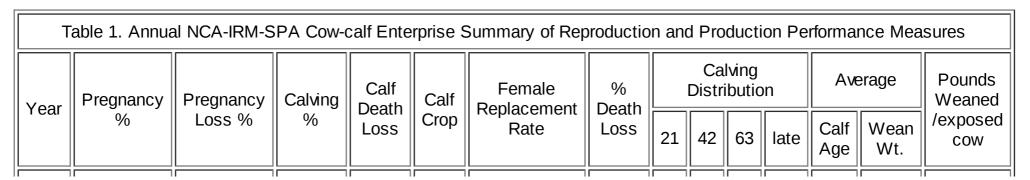
MATERIALS AND METHODS

The North Dakota Beef Cattle Improvement Association has processed beef cattle records since 1963. Individual calf records for 199 beef cow herds during 1990 to 1994 are processed through the CHAPS III computer program. Ninety six thousand eight hundred eighty individual records of cows exposed to bulls are combined into one large data set to generate typical CHAPS beef cow herd performance.

RESULTS AND DISCUSSION

Although a producer's natural instinct is to review the individual performance data first, the initial step should be to review the overall herd productivity data. Once the total operation has been evaluated, the beef producer can initiate changes to the operation. Generally, the operation will need to modify some combination of management and cattle genetics. Annual trends in NCA-IRM-SPA production measures during 1990 to 1994 are listed in Table 1. Benchmark five year rolling average values are in Table 2. Table 3 summarizes the mean values for the top, middle, and bottom one-thirds for the 199 beef cow herds processed through CHAPS III from 1990-1994. These NCA-IRM-SPA reproduction and performance values are presented to encourage producers to critically evaluate their own operations. As each value is reviewed, a producer should ask if that information is available for their operation. If the data is available, then the producer should compare their operation to the data presented. If the data is not available, then the producer should consider how the data might be obtained.

Individual cow as well as herd performance records are a valuable and necessary tool for making accurate selection and culling decisions. However, beef producers must realize that these records need to be utilized in a comprehensive evaluation of herd productivity in order for the beef cattle operation to discover the greatest efficiency and profitability.

Table 1. Annual NCA-IRM-SPA Cow-calf Enterprise Summary of Reproduction and Production Performance Measures													
Year	Pregnancy %	Pregnancy Loss %	Calving %	Calf Death Loss	Calf Crop	Female Replacement Rate	% Death Loss	Calving Distribution				Average		Pounds Weaned /exposed cow
								21	42	63	late	Calf Age	Wean Wt.	

1990	94.0	0.2	93.8	2.4	91.6	17.8	2.6	58	87	96	4	195	557	505
1991	94.4	0.4	94.0	2.7	91.6	17.8	2.9	57	87	95	5	200	556	510
1992	94.9	0.2	94.7	3.3	91.4	17.7	3.5	57	83	94	6	202	569	522
1993	94.1	0.4	93.7	4.0	90.1	21.6	4.3	59	87	96	4	202	588	521
1994	94.3	0.6	93.7	3.8	90.3	20.0	4.1	60	87	96	4	202	559	497

Table 2. CHAPS NCA-IRM-SPA cow calf enterprise mean and standard deviation values for reproduction and production performance measures.		
Reproduction Performance Measures:	**Mean**	**Standard Deviation**
Pregnancy Percentage	94.3	4.1
Pregnancy Loss Percentage	.4	.8
Calving Percentage	94.0	4.1
Calf Death Loss	3.3	3.0
Calf Crop or Weaning Percentage	90.9	5.1
Female Replacement Rate Percentage	19.1	8.8
Calf Death Loss -		
Based on Number of Calves Born	3.6	3.2
Calves Born During First 21 days	58.3	17.0
Calves Born During First 42 Days	86.1	11.8

Calves Born During First 63 Days	95.6	6.7
Calves Born After First 63 Days	4.4	6.7
Production Performance Measures:		
Average Age at Weaning(days)	201	21.7
Actual Weaning Weight for Steers	577	66.4
Actual Weaning Weight for Heifers	548	55.8
Actual Weaning Weight for Bulls	619	86.5
Average Weaning Weight	567	59.0
Weight Weaned per Exposed Female	511	64.6
Culling Percentages Based on Total Cows Exposed		
Total Percent Culled	13.5	8.9
Percent Dead	.6	.9
Percent Culled due to Age	2.1	3.5
Percent Culled due to Defects	1.6	2.7
Percent Culled due to Poor Fertility or Open	4.1	3.5
Percent Culled due to Inferior Calves	1.7	3.2
Percent Culled for Replacement Stock	2.3	6.4
Percent Culled for Unknown Reasons	1.2	4.2

Table 3. CHAPS NCA-IRM-SPA cow calf enterprise mean values for the top, middle, and bottom thirds for reproduction and performance measures. Selected on age adjusted weight weaned per exposed female.			
Reproduction Performance Measures:	**Top Third**	**Middle Third**	**Bottom Third**
Pregnancy Percentage	95 .1	94.6	93.6
Pregnancy Loss Percentage	.3	.4	.5
Calving Percentage	94.8	94.2	93.1
Calf Death Loss	2.6	3.2	4.8
Calf Crop or Weaning Percentage	92.5	91.3	88.7
Female Replacement Rate Percentage	18.1	19.7	20.7
Calf Death Loss -			
Based on Number of Calves Born	2.7	3.5	5.1
Calves Born During First 21 days	59.4	58.0	58.1
Calves Born During First 42 Days	87.7	86.7	83.6
Calves Born During First 63 Days	96.8	95.7	93.3
Calves Born After First 63 Days	3.2	4.3	6.6
Production Performance Measures:			
Average Age at Weaning(days)	192	203	212
Actual Weaning Weight for Steers	593	577	549
Actual Weaning Weight for Heifers	565	553	522

Actual Weaning Weight for Bulls	635	636	578
Average Weaning Weight	585	574	538
Weight Weaned per Exposed Female	541	520	466
Age Adjusted Weight Weaned Per Exposed Female	**566**	**514**	**442**
Culling Percentages Based on Total Cows Exposed			
Total Percent Culled	12.8	12.5	13.1
Percent Dead	.4	.6	.9
Percent Culled due to Age	2.2	1.6	2.0
Percent Culled due to Defects	1.5	1.3	1.9
Percent Culled due to Poor Fertility or Open	3.7	3.8	4.3
Percent Culled due to Inferior Calves	1.4	1.4	1.6
Percent Culled for Replacement Stock	2.1	2.5	1.0
Percent Culled for Unknown Reasons	1.5	1.2	1.2