NCA-IRM-SPA COW-CALF ENTERPRISE SUMMARY OF REPRODUCTIONAND PRODUCTION PERFORMANCE MEASURES FOR NORTH DAKOTA 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 are as follows: Pregnancy Percentage 93.7%; Pregnancy Loss Percentage 0.3%; Calving Percentage 93.4%; Calf Death Loss 3.1%; Calf Crop or Weaning Percentage 90.5%; Female Replacement Rate Percentage 16.1%; Calf Death Loss Based on Number of Calves Born 3.3%; Calves Born During the First 21, 42, 63 and after 63 Days 59.3%, 87.1%, 96.0% and 4.0% (respectively); Average Age at Weaning 199 days; Actual Weaning Weights for Steers, Heifers and Bulls 581 lbs, 551 lbs, and 626 lbs (respectively); Average Weaning Weight 570 lbs; and Pounds Weaned per Exposed Female 514 lbs. Summary of cow culling information per cow exposed: dead 0.6%; age 2.5%; physical defect 1.6%; poor fertility or open 4.7%; inferior calves 2.6%; replacement stock 3.0% and unknown 0.7%.

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, 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 evaluate 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 121 North Dakota beef cow herd during 1989 to 1993 are inputted into the CHAPS III computer program. Sixty eight thousand seven hundred and ninety individual calf records are combined into one large data set to generate typical North Dakota 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. Table 1 summarizes the typical North Dakota NCA-IRM-SPA production measures. The mean standard deviation, top and bottom 10 percent of the herds 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 his/her operation. If the data is available, than the producer should compare his/her operation to the data presented. If the data is not available, than the producer should consider how the data might be obtained. Annual trends in NCA-IRM-SPA production measures during 1989 to 1993 are listed in Table 2.

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. North Dakota NCA-IRM-SPA cow -calf enterprise summary of reproduction and production performance measures.

Reproduction Performance Measures Bases on Exposed Females:

	Mean	SD	Top	Bottom
Pregnancy Percentage	93.7	4.4	99.1	87.0
Pregnancy Loss Percentage	0.3	0.8	0.0	2.2
Calving Percentage	93.4	4.5	99.1	86.8
Calf Death Loss	3.1	2.9	0.3	10.3
Calf Crop or Weaning Percentage	90.5	5.1	96.7	82.4
Female Replacement Rate Percentage	16.1	8.1	1.8	31.4
Calf Death Loss Based on Number of Calves Born	3.3	3.1	0.3	10.8
Calves Born During First 21 days	59.3	16.2	82.5	28.9
Calves Born During First 42 Days	87.1	10.2	96.4	66.1
Calves Born During First 63 Days	96.0	5.8	100.0	84.0
Calves Born After First 63 Days	4.0	5.8	0.0	16.0
Production Performance Measures:				
Average Age at Weaning(days)	199	20	167	237
Actual Weaning Weight for Steers	581	64	705	446
Actual Weaning Weight for Heifers	551	54	651	458
Actual Weaning Weight for Bulls	626	87	812	469
Average Weaning Weight	570	57	678	468
Weight Weaned per Exposed Female	14	61	623	400

Year	Pregnancy Percentage	Pregnancy loss Percentage	Calving percentage	Calf Death Loss	Calf Crop	Female Replacement Rate	Percentage Death Loss	Calving Distribution				Average		Pounds Weaned per exposed cow
								21	42	63	late	Calf Age	Wean Weight	
1989	91.2	0.3	90.9	2.7	88.4	16.3	2.9	60	85	95	5	196	566	498
1990	93.5	0.2	93.3	2.3	91.2	16.2	2.5	59	88	96	4	195	565	507
1991	94.4	0.4	94.0	2.5	91.7	15.2	2.6	59	88	96	4	200	555	509
1992	94.7	0.3	94.4	3.4	91.1	15.9	3.6	59	86	96	4	200	568	519
1993	93.8	0.5	93.4	4.0	89.9	16.9	4.2	61	88	96	4	200	592	526

Table 2. ANNUAL NCA-IRM-SPA COW-CALF ENTERPRISE SUMMARY OF REPRODUCTION AND PRODUCTION PERFORMANCE MEASURES VALUES