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## CHAPS SUMMARY FOR SOUTH DAKOTA, 1992

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### CATTLE 93-14

#### Summary

Calving distribution and calf performance data were summarized from the CHAPS (Cow Herd Appraisal of Performance Software) analyses of 102 South Dakota cow herds. CHAPS uses beef cow weaning weight records to calculate adjusted 205-day weights and ratios, keep lifetime production records on cows, calculate Most Probable Producing Ability estimates for cows, produce a sire summary, and analyze production according to cow age and 21-day calving periods. The 1992 summary represents 11,661 cows for an average of 114 cows per herd. The herds ranged in size from 10 to 616 head. The average midpoint of the calving season for these herds was April 6. The average actual birth and weaning weights were 82.5 and 551.0 lb, respectively, with the average age at weaning 211.4 days. Overall, 80.6% of the females calved by day 42 of their respective calving seasons, although there was considerable disparity in the percentage calved by day 42 between the HIGH and LOW (94 vs 61%) calving distribution herds. This difference is important since actual weaning weights declined 25 to 35 lb for each 21 days later that calves were born. In addition to these data for the state summary, CHAPS provides valuable information for making within herd selection and management decisions.

Key Words: Cow-Calf, Performance Records

#### Introduction

A computer program for evaluating cow herd productivity was acquired in 1989 by the

SDSU Extension Service and placed in most of the county extension offices. The program is called CHAPS which stands for Cow Herd Appraisal of Performance Software. CHAPS uses standard beef cow weaning weight records to adjust weaning weights and calculate 205-day ratios. In addition, the program keeps lifetime production records on cows, calculates MPPA (Most Probable Producing Ability) for cows, produces a sire summary and analyzes birth dates and weaning weights to give a calving distribution and production analysis by cow age and 21-day calving periods. CHAPS records are summarized to develop a state database to provide producers a basis for comparative analysis of their herds' productivity.

Data of particular interest in the summary were the percentage of calves born in 21-day segments of the calving season. Calving distribution provides an excellent indication of reproductive performance and provides a producer a tool to utilize in troubleshooting reproduction, nutrition and management problems within the various age groups of cows in the herd. CHAPS determines the start of the first 21-day period as 285 days after either bull turn in or the start of artificial insemination on the 3-year-old or older cows. Any cows or heifers calving ahead of that date are considered Early. The calving distribution and performance of the 34 herds with the highest percentage calved by the end of the first 42 days (HIGH) are compared to the 34 herds with the lowest percentage calved by the end of the first 42 days (LOW).

This report summarizes the data from the 102 CHAPS herds in South Dakota for 1992. The

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data are also summarized according to region of the state with SE representing counties east of the Missouri River and south of Highway 14, NE representing counties east of the Missouri River and north of Highway 14, and WR representing counties west of the Missouri River.

### Results and Discussion

#### Herd Demographics

The 1992 CHAPS summary for South Dakota represents 11,661 cows from 102 herds. There were 33 herds from the SE, 41 herds from the NE, and 28 herds from WR. The average herd size was 1-14 cows with a range of 10 to 616 cows.

The age distribution of the cows in the summary appears in Table 1. In these herds, 16.0% were first calf 2-year-olds and approximately 47.5% from 5 to 9 years of age. In these herds, 41.2% were under 5 years and 11.3% were 10 years or older. The average cow age was approximately 5.7 years. As expected, actual weaning weights were highest for the 5- to 9-year-old age group with gradient increases from 2-year-olds through 5- to 9-year-olds similar to the age of dam adjustments recommended by the Beef Improvement Federation.

The average start of the calving season (mature cows) was March 13 and the average weigh date was November 5. The average midpoint of the calving season was April 7.

#### Performance

The average actual birth and weaning weights were 82.5 and 551 lb, respectively, with an average age at weaning of 211.4 days. The averages for weight per day of age and adjusted 205-day weight were 2.61 lb per day and 557.6 lb, respectively. The average reported preweaning death loss was 2.2% with a range of 0.% to 20.7%.

Table 1. Number and percentage of cows by age in 1992 CHAPS summary

Age of cow, year	Number of cows	% of total	Weaning weight
2	1860	16.0	483
3	1553	13.3	506
4	1390	11.9	528
5-9	5537	47.5	542
10 and over	1321	11.3	534

#### Calving Distribution

The percentage of cows calving in each 21-day calving period and the corresponding actual weaning weights are shown in Table 2 for all cows and the HIGH and LOW calving distribution groups. Across all herds, 50.1% of the calves were born by the end of the first 21-day period, 80.6% by 42 days, and 91.7% by the end of the third 21-day period. While this overall level of reproductive performance is quite good, there is still considerable disparity among the herds. This is evident when the cumulative calving percentages for the HIGH and LOW groups are compared at the end of the first 21-day period (67.7 vs 26.6%), the second 21-day period (93.6 vs 60.6%), or the third 21-day period (98.4 vs 81.6%).

When the cumulative percentages calved are examined for the various cow ages, the advantage of the HIGH herds becomes apparent in two primary areas (Table 3). First, the HIGH herds bred more heifers to calve ahead of the main herd which helped them get a higher percentage of their heifers calved by the end of the first 21-day period (83.3 vs 42.9%). Secondly, the HIGH herds were able to get their 2-year-olds bred back more quickly, resulting in a higher percentage of 3-year-olds calved in the first 42 days (92.6 vs 58.2%).

Table 2. Percentage of cows calving and average actual weaning weight by 21-day calving period for all cows and for high and low calving distribution groups

21-day period	All cows		HIGH <sup>a</sup>		LOW <sup>a</sup>	
	%	Weight	%	Weight	%	Weight
Early	6.1	562	9.8	561	2.8	611
1st	44.0	568	57.9	567	23.8	578
2nd	30.5	544	25.9	530	34.0	572
3rd	11.5	517	4.8	489	21.0	545
4th	5.1	486	1.0	418	12.0	511
Late	2.2	453	.2	386	5.6	475
Average wt		551		558		555
Avg calving date	April 7		April 1		April 12	
Avg start date for calving cows	March 13		March 17		March 7	
Weaning date	November 5		October 29		November 12	

<sup>a</sup>HIGH = 34 herds with highest percentage calved in first 42 days. LOW = 34 herds with lowest percentage calved in first 42 days.

In past summaries, the advantages in calving distribution resulted in higher actual weights for the HIGH herds. However, in 1992 there was little difference in weaning weights between HIGH and LOW herds. This is a result of a longer calf production time for the LOW herds as they started calving earlier (March 7 vs March 17) and were weighed later in the fall (November 12 vs October 29). So even though output was similar, the LOW herds are likely to have higher feed costs, especially with the 10-day earlier start to the calving season.

#### Regional Comparisons

Performance and herd traits are compared among the three regions in Table 4. Herds in the NE started calving later and herds east of the Missouri River weighed calves approximately 2 weeks later in the fall than those WR. This is at least partially due to the wet, rainy conditions in eastern South Dakota in the fall of 1992.

Average herd size was slightly smaller in the SE and the higher preweaning death losses

occurred in the NE, although differences were minor. WR herds calved more heifers ahead of the cow herd and had the highest percentage of cows calved in the first 42 days of the calving season.

Herds in the SE had the longest calf production time and WR herds had the highest weight per day of age and the highest adjusted 205-day weights. WR herds had the most desirable herd uniformity scores.

#### Conclusion

CHAPS provides valuable information for South Dakota beef producers. By participating in CHAPS and contributing to state and local data bases, individual producers can not only evaluate the performance of their own herd but also compare to other herds with similar resources. If you are interested in enrolling your herd in CHAPS, contact your county extension agent, local veterinarian, or an extension beef specialist at SDSU.

Table 3. Average cumulative percentage calved by 21-day calving periods within age group for all cows and high and low calving distribution groups

Age	Group	% of each age group				
		Early	1st	2nd	3rd	4th
2	All	28.8	68.0	88.2	95.2	98.5
	HIGH	43.1	83.3	96.3	99.6	99.7
	LOW	10.6	42.9	74.8	89.3	96.8
3	All	2.3	48.0	80.0	92.2	97.8
	HIGH	3.8	62.6	92.6	97.8	99.5
	LOW	2.5	25.1	58.2	81.7	95.2
4	All	2.4	48.2	81.7	94.0	98.3
	HIGH	2.7	64.2	92.8	98.0	99.1
	LOW	2.5	26.2	62.7	84.5	99.5
5-9	All	1.8	46.9	79.2	91.5	97.0
	HIGH	3.0	66.6	94.2	98.9	99.7
	LOW	1.2	23.1	57.4	79.1	92.4
10 and over	All	.7	44.3	77.9	90.9	97.2
	HIGH	.7	59.4	91.3	98.0	99.5
	LOW	.9	24.4	59.4	82.5	94.3

Table 4. CHAPS trait comparisons for herds in the southeastern (SE), northeastern (NE), and west-river (WR) regions of South Dakota

	SE	NE	WR
Avg start of calving	March 7	March 18	March 9
Mean calving date	April 6	April 10	April 1
Avg weigh date	November 11	November 8	October 24
Total cows	95	119	127
Calf death loss, %	1.7	2.7	2.1
Age at weaning	218	210	205
Weight/day	2.60	2.55	2.70
Actual calf weight	567	534	557
Adjusted 205-day weight	549	547	583
Herd uniformity score	84	83	75