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R.J. Pruitt

*South Dakota State University*

R.M. Haigh

*South Dakota State University*

K.E. Vander Wal

*South Dakota State University*

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## SDSU PUREBRED BEEF HERDS

R. J. Pruitt<sup>1</sup>, R. H. Haigh<sup>2</sup> and K. E. Vander Wal<sup>3</sup>  
 Department of Animal and Range Sciences

### CATTLE 89-2

A herd of purebred Angus and Simmental cows is maintained at the Cow-Calf Teaching and Research Unit near the SDSU campus. Cattle maintained at this unit are used for teaching, research and extension activities. Current reproductive physiology research under the direction of Dr. Herley Miller is reported elsewhere in this publication. In addition to use in the classroom, cattle are used for the annual SDSU Little International, field days and numerous 4-H, FFA and other educational events. In addition to providing research information and an opportunity for education, this herd provides a stimulus for interactions between students and faculty and an avenue for communication between faculty and producers in the region.

In 1990 approximately 50 Angus and 50 Simmental females will calve to some of the elite

bulls of the industry as indicated by National Sire Summary information. The average expected progeny differences (EPD's) for the AI sires used in 1989, the cow herd and the 1989 calf crop are reported in Table 1. In addition to extensive AI, limited embryo transfer is being used to improve our purebred herd.

It is unfeasible to maintain a herd with all of the breeds that are important to South Dakota and surrounding states. We have two breeds that are distinctly different with well established breed association performance records programs that are also quite different. To maximize the herd's value as a teaching resource a wide variety of sires that represent differences in calving ease, growth rate, maternal value and mature size within their respective breed are used. This enables us to provide examples of the genetic

TABLE 1. EXPECTED PROGENY DIFFERENCES

	AI sires used in 1989	Cow herd	1989 replacement heifers
<u>Angus</u>			
Birth weight	+ 3.9	+ 4.2	+ 4.7
Weaning weight	+ 33.3	+ 20.9	+ 24.6
Milk	+ 11.4	+ 5.1	+ 5.4
Combined maternal index	+ 28.0	+ 15.5	+ 17.7
Yearling weight	+ 58.9	+ 35.9	
<u>Simmental</u>			
Calving ease	100.0	97.2	96.9
Birth weight	- .4	+ .8	- .4
Weaning weight	+ 11.7	+ 9.1	+ 11.7
Yearling weight	+ 25.6	+ 17.5	+ 19.3
Maternal calving ease	103.9	103.7	103.0
Maternal weaning weight	+ 11.1	+ 7.9	+ 9.0
Maternal milk	+ 5.2	+ 3.4	+ 3.1

<sup>1</sup>Associate Professor.

<sup>2</sup>Manager, Cow-Calf Teaching and Research Unit.

<sup>3</sup>Assistant Manager, Cow-Calf Teaching and Research Unit.

differences that are useful to the commercial beef cattle industry in this region. Tables 2 and 3 show information on some sires that have been used recently. Development of expected progeny differences (EPD's) by most breed associations are a great asset to the commercial cow-calf producer in matching genetics to a specific environment and set of

resources. Understanding how to use the information currently available to accomplish this is a real challenge to the beef industry. Although more complicated than the traditional idea of determining an ideal type that fits all situations, these are important concepts to understand for students who will be involved in the seedstock and commercial cow business in the future.

TABLE 2. EXPECTED PROGENY DIFFERENCES OF SOME RECENTLY USED ANGUS SIRES

	Birth weight	Weaning weight	Maternal		Yearling weight
			Milk	Combined index	
High milk, high growth sire	+6.1	+40.1	+14.4	+34.5	+68.1
Low birth weight, high milk, above average growth sire	- .4	+15.4	+14.6	+22.3	+40.8
Moderate birth weight, high growth, average milk sire	+3.1	+33.9	+ 4.1	+21.1	+66.3

TABLE 3. EXPECTED PROGENY DIFFERENCES OF SOME RECENTLY USED SIMMENTAL SIRES

	Calving ease index 1st calf	Birth weight	Weaning weight	Yearling weight	Maternal		
					Calving ease 1st calf	Weaning weight	Milk
High growth, moderate birth weight sire	98.3	+ .7	+24.6	+37.0	95.3	+14.4	+ 2.1
Calving ease, high maternal, above average growth sire	102.2	-1.5	+ 4.8	+10.7	108.5	+14.2	+11.8

In the recent past, yearling bulls produced have been used in other SDSU crossbred research herds with some bulls offered for sale. Table 4 shows information on the 1988 steer calves produced in a rotational crossbreeding program at the SDSU Range and Livestock Research Station. These steers were sired by young Angus and Simmental bulls produced in our purebred herd or by some of the same AI sires used to produce them.

Information provided to bull buyers include birth weight, weaning weight, yearling weight, scrotal circumference, frame score and expected progeny differences (EPD's). EPD's currently calculated by most breed associations offer the most accurate method of

selecting young bulls for calving ease, growth rate and productivity of their daughters. Frame scores are provided as an objective measurement related to mature size that can be used to increase or decrease the weight at a desired grade and mature size of the progeny produced, whichever is desirable for a given situation. Scrotal circumference of yearling bulls is the most useful objective selection tool currently available to select for improved reproductive performance of a bull's daughters because of its relationship to age at puberty. If you are interested in receiving performance information and a price list for bulls available in April, 1990, contact Ron Haigh, Kevin Vander Wal or Dick Pruitt of the Animal and Range Sciences Department.

TABLE 4. CROSSBRED STEERS FROM THE SDSU RANGE AND LIVESTOCK RESEARCH STATION

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Number of steer calves	57	head
Actual weaning weight	614	lb
Age at weaning	199	days
Age at slaughter	391	days
Slaughter weight (shrunk)	1140	lb
Hot carcass weight	693	lb
Fat thickness	.39	inches
Rib eye area	12.3	square inches
Yield grade distribution		
1	9.7	%
2	69.0	%
3	21.8	%
Quality grade distribution		
Choice	78	%
Select	22	%

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