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## Evaluation of Crossbred Cows and Crossbred Bulls

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Crossbred cows are common but interest in using crossbred bulls is recent. Little information is available on use of crossbred bulls, so advice and recommendations have been based on genetic principles rather than research. Nine mating combinations are reported here from using purebred and high grade Hereford, Santa Gertrudis, and crosses of Hereford and Santa Gertrudis cows and bulls.

### Methods and Materials

Weaning weights of 613 calves born the fall of 1970 and the spring of 1971 were used. Adjusted 205-day weights were calculated by the procedure recommended by the Beef Improvement Federation (1970) and adjusted to steer bases. Preliminary analysis showed spring born calves 12 percent heavier than fall-born calves, so all fall calf weights were multiplied by 1.12. Means, standard deviations, and standard errors were calculated within mating groups.

### Results and Discussion

Contrary to many reports, heterosis for growth to weaning was negative for all crosses, with  $F_1$  calves (from Hereford mated with Santa Gertrudis) the extreme, followed by backcrosses, with  $F_2$  progeny (calves from crossbred cows bred to crossbred bulls) the least negative. Positive heterosis was shown for maternal influence (probably milking ability) in crossbred cows. The crossbred bull gave a large negative heterosis (-27.8 lbs.).

The greatest variation is expected from crossbred cows mated to crossbred bulls; least variation, from purebred matings, producing either straight bred or first cross calves. Greatest variation in our data was in three of the four matings of purebred cows and purebred bulls. Variations in 205-day weight of calves from all other matings were somewhat grouped. More study is needed before explanations are attempted.

Our crossbred cows expressed heterosis for early breeding, with an average calving date one month earlier than the average for the two purebreds. Calves by crossbred bulls were born only slightly earlier than the average by purebred bulls.

Calves by purebred and crossbred bulls from purebred and crossbred cows were compared. Heterosis was positive for maternal contributions to weaning weight and early breeding. Calves by crossbred bulls were 27.8 lbs. lighter than the average of parent breeds, giving the crossbred bulls considerable disadvantage as compared to the average of the purebred bulls.

Table 44. Heterosis for indicated traits.

Trait	Heterosis	
	lbs.	%
Growth heterosis of F <sub>1</sub>	-20.90	-4.1
Growth heterosis of F <sub>2</sub>	- 2.25	-0.4
Growth heterosis of backcross	-18.85	-3.7
Maternal heterosis of crossbred cow	8.95	1.7
Paternal heterosis of crossbred bull	-27.80	-5.4
	Days	
Date-of-breeding heterosis of crossbred cow	-31.3	14.4
Date-of-breeding heterosis of crossbred bull	- 7.2	3.1