

Selection Procedures for Beef Cattle Improvement

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The beef cattle selection experiment being conducted at the Fort Reno Livestock Research Station was designed to: (1) measure direct genetic response to selection for increased body weight at 7 and 12 months of age, (2) measure correlated genetic response of increased weight at 7 months as a result of selection based on weight at 12 months of age, (3) measure correlated genetic response of increased weight at 12 months resulting from selection based on weight at 7 months, and (4) compare genetic response between lines selected on the basis of individual performance with lines selected on a combination of individual and progeny test performance. Table 1 outlines the design of this experiment.

Table 1. Design of Beef Cattle Selection Experiment

	Line Number					
	5	6	7	8	9	10
Breed: H = Hereford, A = Angus	H	H	A	A	A	A
Number of Cows per Line	50	50	50	50	50	50
Selection Procedure:						
Traits: Month of weight and grade	7	12	7	12	12	7
Criteria: I=Individual, P=Progeny	I	I	I	I	I/P	I/P
Number males selected per year	2	2	2	2	5/2	5/2
Number years selected males used	2	2	2	2	2	2
Number females selected per year	10	10	10	10	10	10
Generation Interval (Years)	4.5	4.5	4	4	5	5
Year Line Closed	65	65	67	67	68	68

Weight at a given age is the primary criteria for making selections of both bulls and replacement heifers in each of the selection lines; however, conformation grade is also considered. In the progeny test lines, 9 and 10, the top five bulls will be selected in each line on the basis of their individual performance to be progeny tested. Based upon the progeny test information, the top two bulls in each line will be selected for use in their respective selection lines.

The process of establishing this project is now complete. The Hereford lines were closed in 1965. Angus lines 7 and 8 were closed in 1967, and the progeny test information was available this spring to evaluate the first sires to be selected for lines 9 and 10. This is a long term experiment and it will be several years before enough data have been obtained to make even a preliminary analysis with respect to measuring the genetic progress obtained from selection.

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