



Cattle Producer's Handbook

Reproduction Section

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Use of Reproductive Tract Scoring in Range Beef Heifers

Tom Geary, USDA-ARS Fort Keogh LARRL
Miles City, Montana

Selection and management of beef replacement heifers involves decisions that affect the future productivity of the entire cowherd. Ideally, replacement heifers would be selected after exposure of all heifers to a short breeding season (natural service or A.I.), but few beef operations have the resources for this luxury. Instead, replacement heifers are generally identified according to size and appearance at weaning, when little is known about their reproductive capabilities. The ability to identify heifers with the greatest reproductive potential at an early age should increase production efficiency of the entire cowherd.

Age at puberty for heifers is defined as the age of first behavioral estrus (heat). Earlier age at puberty is associated with higher pregnancy rates during defined breeding seasons, earlier calving, and heavier calf weaning weights. Early-calving heifers have higher average lifetime productivity than late-calving heifers.

Strategies that assist producers in selecting and developing heifers that will attain puberty before the start of the breeding season and conceive early in the breeding season have been identified. These strategies include using bulls with a large scrotal circumference to produce replacement heifers, selecting replacement heifers based on age, developing heifers to reach a target breeding weight, and the use of reproductive tract scores (RTS) before the start of breeding. This paper will focus on the value of RTS in range beef heifers.

Reproductive Tract Scoring System

Reproductive tract scores are subjective estimates of sexual maturity based on ovarian activity and size of the reproductive tract (primarily uterus and ovaries). The RTS system uses a score of 1 to 5 to estimate pubertal status via rectal palpation of the reproductive tract (Table 1).

An RTS of 1 is assigned to heifers with infantile tracts, as indicated by small, toneless uterine horns and small ovaries that are devoid of significant structures. Heifers assigned an RTS of 1 are likely the furthest away from puberty.

Heifers with an RTS of 2 are generally closer to puberty than those scoring 1, due primarily to larger uterine horns and ovaries with small palpable follicles. An RTS of 3 is assigned to heifers that are on the verge of estrous cyclicity based on uterine size and tone and palpable ovarian follicles. Heifers assigned an RTS score of 4 are considered to be estrous cycling as indicated by

Table 1. Description of reproductive tract scores.^a

RTS	Uterine horns	Ovarian dimensions (mm)			Ovarian structures
		Length	Height	Width	
1	Immature, <20 mm diameter, no tone	15	10	8	No palpable follicles
2	20-25 mm diameter, no tone	18	12	10	8 mm follicles
3	25-30 mm diameter, slight tone	22	15	10	8-10 mm follicles
4	30 mm diameter, good tone	30	16	12	10 mm follicles, CL possible
5	>30 mm diameter	>32	20	15	CL present

^aFrom Anderson et al. 1991.