

Winter Management of Replacement Heifers

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The most important factor to successful rearing of replacement heifers is achievement of puberty by the onset of the breeding season. Heifers need to reach puberty by 15 months of age if they are to conceive and calve by 24 months of age. However, as many as 35% of all beef heifers fail to reach puberty by this time. Puberty is defined as the time when an animal first becomes capable of reproducing. Puberty is achieved at a physiological age rather than a chronological age. Maturation into this state involves complex interactions between endocrine function, environment, social environment, breed, nutrition, and weight to bring about the development of reproductive tract and the reproductive function. There is a tremendous variation in age at the onset of puberty among heifers due to these many contributing factors. Perhaps the most important factor is the plane of nutrition from weaning to breeding.

Heifers that have a high plane of nutrition reach puberty at earlier age than heifers on a low plane of nutrition. Low planes of nutrition inhibit the development of the reproductive endocrine system. Body weight is a useful tool for predicting when heifers will reach puberty, and feeding to that target weight is a practical management tool to ensure high potential fertility. However, keep in mind that age at puberty is not determined solely by weight, but by an undetermined array of physiological conditions that result in a given weight. Therefore, achieving the target weight will not ensure puberty will be reached, but is an insurance policy.

Although plane of nutrition is inversely related to age at puberty, pattern of gain has no effect on age of puberty as long as heifers reach approximately 60-65% of mature body weight prior to the breeding season. Compare a group of heifers (Group 1) that have a steady rate of gain from weaning to breeding to a group of heifers (Group 2) that have rapid gain the first half of the feeding period followed by a maintenance diet and to a group of heifers (Group 3) that have an initial maintenance diet followed by rapid growth the 2nd half of the feeding period. Group 2 had the highest feed costs as you are forced to maintain a heavier body weight over the feeding period. Group 3 saves around 12% of feed costs compared to Group 1 as compensatory gain increases efficiencies the last phase of the feeding period. However, Group 3 has the greatest amount of risk. As long as these groups of heifers meet the target weights, there will be no difference in age of puberty or conception rate. Cattle that fail to meet the target weights run the risk of late puberty, late conception and late calving date the first year. This subsequently shortens the period of time in which the coming three-year-old has time to recover from calving and rebreed. Mismanagement of the replacement heifer can therefore lead to the famous open 2nd-calf-heifer.

Getting your heifer to the target weights can be achieved in many different ways. Knowing that pattern of gain does not affect puberty; ranchers have the opportunity to create a feeding system tailored to feed resources, labor and weather.