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"**Stocker Cents**"

Nutrition during heifer development can impact cow productivity

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Once the commitment has been made to purchase or retain a heifer to be a replacement in the herd, it is important to give her the best chance at having a long and productive life in the herd. Early development and her early reproductive performance are among the best indicators of how she will perform later in life. The ultimate goal for that heifer is to wean a calf every 365 days that weighs approximately ½ of her body weight, and that heifer is expected to wean her first calf, while still growing herself, and rebreed in time to join the rest of the herd for her second calf. This can be a daunting task, and it is very important that we provide that heifer with proper nutrition to meet these goals.

A large input cost for producers is replacing females in the herd. In fact this fall second to nutrition as the producer's largest input cost. As a result, the situation often arises where producers may over aggressively feed and develop heifers to ensure that they reach puberty prior to the breeding season. Nutrition during heifer development involves a fine balance of development to ensure nutritional needs are met to ensure reproductive success and future cow productivity. While malnutrition can lead to decrease lifetime productivity, overfeeding can have negative impacts as well. Many researchers over the years have studied these negative effects and how to combat them.

During puberty, the several important organs and tissues in the heifer are undergoing rapid changes, which can lead them to be easily influenced by over or under feeding. The development and changes in her udder, or mammary tissue, and her ovaries are especially of importance. Heifers are born with a certain number of follicles that make up her ovarian reserve. These form while the heifer is still in utero, and emphasizes how important it is that cows receive adequate nutrition during gestation. The number of follicles in this reserve has been shown to be related to fertility (Freetly et al., 2014), and it has been shown that overfeeding can lead to a smaller number of these follicles in reserve.

Fertility is an especially important concept with current bred heifer values. It has been estimated that a cow must stay in the herd and produce for 6 years to be considered profitable. This is the driving factor behind the concept of stayability. Proper nutritional management along with good genetics are a key factor in the ability of a cow to produce a calf every year to remain profitable for the producer.

Since the 1950's, it has been noted that heifers fed to gain at high levels during development deposit more fat in their mammary tissue (Sorensen et al., 1959), which impacts milk production, and in turn calf growth later in life. However, before limiting heifers to a low plane of nutrition comes to mind, it is important to emphasize that this plan can have negative impacts on milk production also (Ferrell, 1982). For example, when heifers were fed to a low, medium, or high rate of gain post-weaning, researchers found that both the low and high gaining

heifers produced less milk, and had lighter calves at weaning than those heifers that were fed to gain a moderate levels (Ferrell, 1982). This emphasizes the importance of matching the feeding program to the heifer's nutritional requirements.

Remember that the development phase for replacement heifers can lay the foundation for a productive cowherd, with females who will stay in the herd for a long period of time, and remain productive throughout their lifetime. Therefore, it is important to do your homework and determine what those heifers require during each phase of development, and closely match your forage resources to meet those needs.

For more information about beef cattle production, contact an office of the Mississippi State University Extension Service, and visit msucares.com/livestock/beef.

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