



# Vet Call

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## What's new in heifer development?

*I am often asked what is new in heifer development, and my answer lately has been, "Higher standards." Whether you develop heifers for your own herd replacements or for sale to other beef producers, the bar has been raised. The need for greater biologic efficiency to ensure continued economic success in the face of narrower margins in the beef industry has made the standards that were outstanding a few years ago no longer acceptable today.*

### Reproductive efficiency

A successfully developed heifer will reach puberty prior to the start of breeding season, will conceive to an artificial insemination (AI) mating, will give birth to a calf at 2 years of age with little risk of dystocia, will milk adequately for calf health and growth, and will resume cycling and become pregnant for her second calf early in the second breeding season.

In order for this scenario to describe the majority of heifers in a replacement pool, they must be selected properly and managed to grow and maintain body condition in their particular geographic and forage situation. Growth and lactation must be sufficient, but not excessive to the point where readily available forages and minimal-to-moderate supplementation are not sufficient to allow high pregnancy rates.

Although much work has been done in the past few years to fine-tune estrus synchronization protocols, and CIDR® (controlled internal drug release) devices have been introduced, the key to high heifer pregnancy rates, particularly AI pregnancy rates, is still selection and nutrition. Although reproductive efficiency is primarily affected by management skills and decisions of humans, genetic differences in age at puberty and fertility do exist, and replacement heifers should be selected from parents that perform well in these traits.

Nutritional management should ensure that heifers reach 55%-65% of their mature weight prior to the start of their first breeding season and continue to grow so that they reach 80% of their mature weight by the time they calve as 2-year-olds. A heifer's body condition score (BCS) should be maintained between 5 and 6 from the time of weaning until she is pregnant with her second calf, with a BCS of 6 being the target leading up to

the start of the breeding season and during the last trimester of pregnancy.

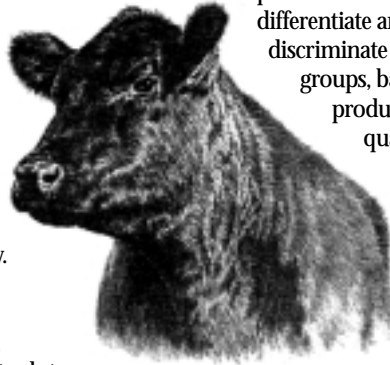
### Health

New and improved diagnostic laboratory tools to screen for the presence of disease-causing organisms allow veterinarians to ensure that replacement heifers do not introduce disease-causing agents into a herd. The high level of biosecurity that is becoming standard for replacement heifers, whether they are home-raised or purchased, dictates that all replacements be screened and found not to be persistently infected (PI) with either the bovine viral diarrhea (BVD) virus or the parasite *Neospora caninum*.

In addition, although not as biologically or economically damaging, some herds are also screening for bovine leukosis virus (BLV) and are eliminating positive animals from the replacement pool. Although testing procedures are not currently adequate to screen replacement-age heifers for Johne's disease, replacements should only come from herds with a biosecurity system in place to minimize the risk of this organism being present.

### Genetics

Replacement heifers bring all of the future genetics for female reproductive efficiency to a cow herd. Therefore they must have the genetic ability to optimize age at puberty, fertility and nutritional maintenance requirements (size and lactation) for the breeding herd. In addition, replacements will supply one-half of the genetics for all the future sales off the ranch, whether they are sales of replacement bulls and heifers or market animals.



Production traits such as growth rate, feed efficiency and carcass value (as measured by carcass weight, yield grade and quality grade) greatly affect the value of cattle. Cattle buyers throughout the beef production chain are increasingly able to differentiate and appropriately price discriminate between individuals and groups, based on likely or measured production efficiency and product quality characteristics.

### Information

Whether or not mandatory identification becomes a reality in the next few years, because of the higher standards for genetics and health of replacement heifers required by modern cattlemen, you must be able to identify all replacements and be able to document their health and genetic attributes. Improving biologic and economic efficiency of beef production requires that disease problems be minimized and that genetic potential allow for efficient reproduction and growth, and desirable carcass characteristics.

Heifers that lack a strict biosecurity screening for persistent (lifelong) infectious agents and documentation of their health status no longer need to be allowed as replacement animals. In addition, heifers that lack evidence that they are genetically superior to the current herd are no longer acceptable as herd replacements.

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For more information, refer to previous "Vet Call" columns:

**Bovine leukosis virus (BLV)** – March 2002, page 374

**Bovine viral diarrhea (BVD)** – August 2002, page 94

**Neospora caninum** – September 2002, page 324

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