

# Determining Optimal Age at First Calving

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Dairy replacement needs are a revolving cycle. Management of one age group impacts the next stage, and the next and so forth.

Perhaps producer Craig Brei of Leopolis, Wis., explains it best: "Healthy cows have healthy calves which grow into healthy heifers, which you can breed earlier and calve in to be healthy cows."

The goal of a replacement program is to raise heifers so they can enter the milking herd at the desired age and weight, at a profitable level for that specific dairy.

An important factor in the herd cycle is age at first calving (AFC). Various studies have measured the optimal AFC with recommendations ranging from 20 to 24 months. Certainly, ideal age at first calving may differ between herds based on their management specifics.

Having said that, with the U.S. average AFC at 25.4 months\*, industry analysts agree many herds have an opportunity to improve profitability and utilization of replacements by decreasing their age at first calving.

"Every month AFC is delayed beyond 22 months costs producers approximately \$100 per animal, primarily because of lost milk production opportunity and the lower number of days in an animal's productive life," states Mike Lormore DVM, from Monsanto Dairy's technical services division.

Although AFC is measured in months, lactation results are mostly determined by heifers' size at calving. The optimal postpartum body weight to maximize first lactation milk yield is approximately 1210 pounds, says Lormore. "Reaching this by 22 months appears to be a realistic goal.

"Due to the negative relationship between inadequate body weight and calving-associated morbidity and mortality, it's critical that bodyweight milestones be established, monitored, managed and achieved."

## **Breed Heifers by Weight**

Studies demonstrate calving weight and body condition has greater impact on first-lactation performance than calving age - particularly due to influence on cow health, reproduction and survival. Weight and body composition, not age, determines the start of puberty. Therefore, it's more important to breed heifers by weight than age.

Heifers fed a balanced ration should easily be able to reach 85 percent of mature weight by 24 months, which would equate to a 1200-pound calving weight, according to dairy specialists at Penn State University. To reach this goal, calves need an average daily gain of at least 1.7 pounds. Pregnancy should occur when heifers reach 55 percent of mature weight (see Table 2).

## **Determining Your Targets**

Outlined here is one approach to determine weight and age at first calving for your herd.

### **Determine breeding weight target based on mature size of your herd.**

Weigh or tape third lactation cows and average their weights, suggests Dr. Mike Van Amburgh of Cornell University.

Calculate breeding weight based on your mature cow weight.

### **Monitor heifers and determine the age they reach ideal breeding weight.**

### **If bred at that age, what is the expected age at first calving?**

Is this acceptable?

If not, evaluate calf and prebreeding heifer program.

If you would like to breed heifers at a younger age, are there management changes which would enable heifers to reach breeding weight earlier? Van Amburgh suggests pre-pregnancy growth rates below the target indicate need for ration changes or increased intakes.

If heifers presently weigh more than 55 percent of mature weight at breeding, could the breeding age be lowered? This may decrease age at first calving and reduce potential problems in early lactation due to overconditioning. Or, Van Amburgh suggests, decrease energy intake to reduce growth rate.

### **Monitor heifer reproduction.**

How many breedings are presently needed to get heifers pregnant? Can this be improved?

Based on your answers - specific to your herd - you can evaluate the age at first calving which is most effective and profitable for your management.

\*National Animal Health Monitoring System, 2002