

Target Growth System replaces rules of thumb

This new system allows you to set dairy-specific goals for age at first calving and post-calving bodyweight so you aren't relying on "one size fits all" recommendations

By Mike Van Amburgh

For more than 30 years, dairy producers have been told that, for Holsteins, age at first calving (AFC) should be 24 months and post-calving bodyweight should be 1,200 pounds. These guidelines work reasonably well if they're adhered to - which they're not always.

With the release of the National Research Council's (NRC) Nutrient Requirements of Dairy Cattle, 2001 (Dairy NRC), producers and nutritionists can use the Target Growth System to help determine an age at first calving and a post-partum weight that's specific to a dairy's herd, environment and management.

Goals needed

To implement the Target Growth System, you must determine targets for your management. To do that, you'll need your herd's:

1. **Bodyweight of mature cows.** The system that by the time a cow reaches her third lactation, she's at least 96 percent of her mature weight. So you need a weight on as many of your third lactation and greater cattle. This is your growth endpoint and sets the rest of the targets. Years of study confirm that a first post-calving bodyweight at 82 to 85 percent of a herd's mature weight maximizes first-lactation milk yield. The Dairy NRC chose 85 percent for the program.

2. **Economical age at first calving.** To decide this, look at herd-life and lifetime milk yield as it relates to your AFC. Each herd has its own distribution around some milk/herd-life based on AFC.

Once you input these two factors into the model, it does the rest of the calculations.

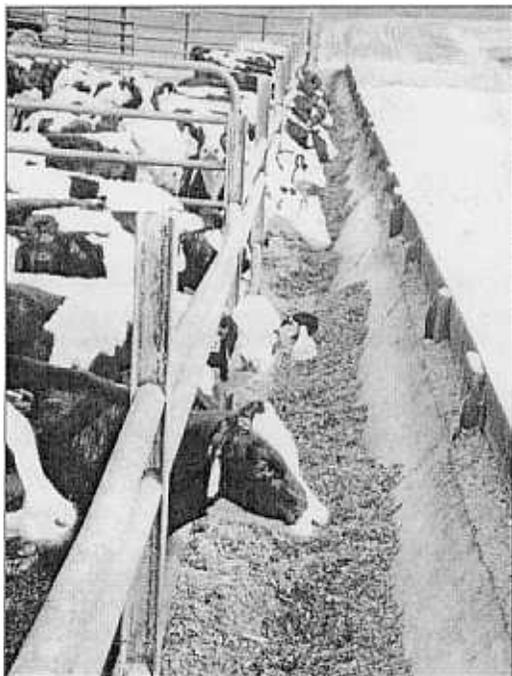
■ The program calculates the age at which

a heifer must become pregnant to meet your AFC target. The percentage of mature weight at pregnancy is 55 percent. This makes it consistent with the goals for AFC and 85 percent of mature weight at calving.

■ With the herd's current weight and age, the program calculates the target growth rate to meet your criteria. Then you can formulate the energy- and protein-allowable gains to meet that target growth rate.

Table 1 shows how the Target Growth System eliminates the "one size fits all" approach. Goals for AFC are identical for the first two groups of heifers, which differ only in mature size. However, the 400-pound, 6-month-old heifers with a mature size of 1,650 pounds must grow at 2.14 pounds per day to meet the AFC targets. Heifers of the same current size and age but with a 250-pound lighter mature body weight must gain only 1.56 pounds per day.

This is a substantial difference in growth rate. The consequences of feeding the lighter mature bodyweight heifer the diet to reach 2.14 pounds per day of gain will be over-conditioning and a potential loss of milk if it persists to calving. ■



The Target Growth System computes herd-specific age at first calving and post-calving bodyweight.

Photo by Sam Leadley.

Table 1. Example target growth calculations

Mature wght. (lbs.)	AFC (mo)	Current age (mo)	Current wght. (lbs.)	Target wght. 1st calving (lbs.)	Target wght. at preg. (lbs.)	Target age at preg. (mo)	Target GR (lbs./d)
1,400	23	6	400	1,190	770	14	1.56
1,650	23	6	400	1,403	908	13	2.14
1,650	25	6	400	1,403	908	16	1.71

FYI

■ Mike VanAmburgh is an associate professor in Cornell University's Department of Animal Science.

■ Find the NRC Dairy at www.nap.edu. Search for Nutritional Requirements for Dairy Cattle.