

# OPTIMAL VWP FOR FIRST LACTATION COWS

## Waiting may be more reproductively efficient

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You may want to rethink the voluntary waiting period (VWP) when using Ovsynch to breed first lactation dairy cows.

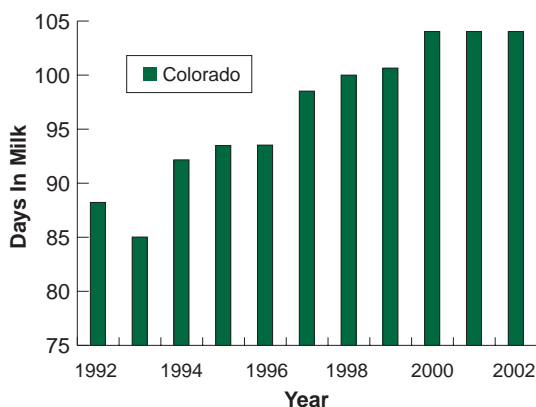
In the past 10 years, production and reproductive performance of first lactation cows have changed. Unfortunately, the changes in reproductive performance have not been positive. For first lactation cows in Colorado, the number of days open, days in milk (DIM) at first service and services per conception have all increased, and conception rates have declined by 9.5 percentage points. One way of improving reproductive performance of dairy cows has been to implement a systematic breeding program, such as Ovsynch or Presynch. However, there are few studies that have been conducted to determine the best time to initiate an Ovsynch program. A recent trial utilizing Ovsynch demonstrated that the VWP could be delayed and higher pregnancy rates could be achieved following Ovsynch and at 200 DIM. The percentage of cows pregnant at 200 DIM was equivalent when a later VWP was used.<sup>1</sup> (See Table 1)

**Table 1: Elective waiting periods compared among production groups**

Item	Low Producers		Average Producers		High Producers	
DIM at timed AI	53-59	73-81	73-81	73-81	73-81	94-102
No. of cows AI	153	148	262	230	142	128
% Pregnant at timed AI	14.4	34.5	34.0	28.7	28.2	41.4
% Pregnant at 200 DIM	78.4	76.4	80.2	80.4	69.7	71.9
Days open	115	108	114	115	113	123

Production changes in first lactation cows have also challenged the current standards for their VWP. The production characteristics of first lactation cows in high producing herds have changed markedly in the last 10 years. For Colorado herds on test, peak milk production has increased by 13 lbs per day, and cows are reaching peak production 16 days later at 104 DIM. (See Figure 1)

**Figure 1: Average DIM at peak production—first lactation Colorado herds**



So why is a longer VWP advantageous? Today, first lactation cows produce more pounds of milk per day and reach peak production later in lactation. They are very persistent in production after they have peaked and have almost flat lactation curves. Those that do conceive early (less than 60 DIM) often suffer a “sophomore slump” because they have not had adequate time in the first lactation to grow and restore body condition.

With these observations in mind, increasing the VWP has distinct benefits:

- Allows time for more cows to be cycling at VWP.
- Permits more uterine infections to be resolved.
- Provides more time for first lactation cows to grow and regain body condition during the first lactation in preparation for the second lactation.

By extending the time before first service, more cows will have an ideal calving interval, resulting in better second lactation production.

### Systematic breeding programs

A systematic breeding program is key when deciding to increase the VWP. A systematic breeding program like Ovsynch allows producers to increase the VWP, attain higher conception rates with the delayed VWP, achieve high pregnancy rates in the first cycle with a 100 percent service rate and have a large proportion of first lactation cows with an ideal calving interval. If a Presynch program is implemented, Jeff Stevenson at Kansas State University has shown that the highest pregnancy rates were achieved when GnRH and timed AI were conducted 72 hours after the last prostaglandin injection in the program.

Pregnancy rates for acyclic cows with traditional heat detection programs are zero. Systematic breeding programs that use GnRH can induce acyclic cows to cycle but pregnancy rates are about half of cycling cows. The incidence of ovarian inactivity is about twice as high in first lactation cows as older cows. Using a systematic breeding program with GnRH obviously has higher pregnancy rates for acyclic cows than traditional heat detection programs. Delaying the VWP period for first lactation cows can further increase pregnancy rates to systematic breeding programs as the acyclic cows begin cycling.

Attempts to breed first lactation cows early in lactation are often futile and, if successful, often result in a sophomore slump. Increases in peak milk production, DIM to reach peak and days open, as well as other factors, have caused many producers to take a second look at extending VWP for first lactation cows. With a timed AI program, the optimal time of first service can be achieved. These changes for first lactation cows make extending the VWP an economical and feasible choice.

#### References:

<sup>1</sup> Tenhagen, et al. 2003. Theriogenology 60:1527.