

## **Effects of Subclinical Johne's Disease**

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The extended time period from initial infection with Johne's Disease often as very young calves to the appearance of clinically apparent signs of the diseases such as chronic diarrhea and weight loss perhaps 3-5 years later means that the subclinical stage of this disease lasts for several years. During this subclinical stage of Johne's, these infected animals impact the dairy herd in several ways that should be of concern to dairymen.

At some point in this long incubation period, subclinically infected cows begin to shed the Johne's bacteria in their feces, colostrum and milk. The precise time when this shedding begins cannot be predicted. Indeed, the factors responsible for the beginning of shedding are not known but presumably have to do with the amount of the infecting dose, age when infected, immune status of the cow and various stress factors such as calving. It is thought that these cows may shed intermittently in the beginning and as they continue to approach the clinical stage they shed more continuously and in large amounts. If these animals are shedding at calving, they pose a significant threat to newborn calves by shedding the bacteria in their colostrum and milk as well as by contaminating the calving pen as well as their udder and teats with manure laden with the infectious bacteria. When calving pens are shared by more than one cow and colostrum or discard milk is commingled, a single infected cow may infect many more calves than her own.

Besides infecting newborn calves through bacteria in the manure, these subclinically infected cows may also infect their calves before they are born. While it has been estimated that clinically infected cows may infect up to 20% of their calves while developing in the uterus, subclinically infected cows may infect up to 10% of their calves in the uterus or during the birthing process. In this way, at all stages of infection, infected cows are slowly but continuously producing more infected animals into the herd.

Subclinical infections though not apparent to the eye of the dairymen may also have a detrimental effect on milk production. Until recently, the effect on milk production has not been clearly defined. Some report suggested a negative effect while surprisingly some suggested a positive effect. A recently reported study has helped to clear up the picture. Now it seems that there is probably no detrimental effect on milk production in herds where the average parity or lactation number is two or less. In fact, some reports have found that in these younger animals, that the subclinically infected cows may produce more than herd mates of similar age and lactation. In herds where the average lactation number is greater than 2, subclinically infected cows can be expected to produce less milk on average than their non-infected herdmates. The key is to stratify the herd by lactation in order to attempt to estimate any production loss.

Thus, these subclinically infected Johne's disease cows present a real challenge to dairymen and their herd veterinarians. It is difficult to identify these young, subclinically infected cows using either the ELISA or fecal culture methods. And from the standpoint of milk production, it may not be economically cost effective to attempt to find them and remove them from the herd. On the other hand, these subclinically infected cows are a significant source of the Johne's bacteria for infection of new animals in the herd. At the bottom line, these subclinically infected cows must be considered along with readily apparent Johne's cows in a herd prevention and control program.