

Automatic Take-Offs – Are They For You?

Advances have made Automatic Take Offs (ATO's) very reliable. ATO's have a milk flow sensor that can be mechanical or electronic. ATO's in stall barns or flat parlors reduce the number of deep-knee bends by one (25%). In all parlors, ATO's can increase operator comfort and efficiency. In addition, the ATO can increase cows milked per operator per hour and reduce over-milking. For the cost of the ATO's, one might save a person in the pit.

Over-milking can lead to an increased SCC but over-milking will always lead to a longer milking time. Over-milking increases milking time in two ways, obviously by having the unit on longer but also training the cow for slower milk letdown. Numerous studies have shown a correlation between overmilking and slow milk flow.

During machine milking, the flow from the normal udder does not occur at a constant rate. After the unit is attached, the flow rate increases and will reach peak flow rate in 30-60 seconds, which is generally maintained for about two minutes. Milk flow rate then decreases gradually. Average milk machine on-time is usually less than 6 minutes per cow with an average flow of 5 to 6 pounds per minute.

Machine on time generally increases for higher producing cows and flow rates are similar for most normal teat ends on all breeds of cows. A consistent milking procedure can easily be achieved by having ATO's in your milking system and consistency can help train cows for faster milk let down and a higher flow rate.

According to Dr. Doug Reineman, UW-Extension milking engineer specialist, ATO removal rates are usually farm specific. For example, 3x milking will have a higher flow rate for detachment to reduce impact on the

teat end due to more frequent milking. However, a typical setting for detachers is 0.5 lbs. per minute for 2x milking and may increase to 1 pound for 3x milking. This is a good average number to start with. If pounds per milking drop as the flow rate is increased for detacher removal, you have gone too far. When changing flow rate settings, limit changes to ¼ pound per minute changes to give cows a chance to adjust. If flow rate for removal is too low, cows are over-milked and teat-end damage will occur. Under-milking with too high a detacher removal setting will result in lower milk yield per cow and may cause SCC to increase.

Recent studies with flow rates as high as 2.5 lbs. per minute (Minnesota) and 1.4,1.5,1.6,1.7, and 1.8 (Pennsylvania) for detacher removal did not find a significant difference in SCC. Pennsylvania did get a reduced yield of 1.5 lbs per cow per milking meaning their removal flow rate was too high. The Minnesota study suggested that a higher flow rate reduced milking time while having no effect on milk yield (all milked 3x). In these two studies, milking time was reduced. More studies need to be done to verify these findings but many producers have increased flow rate takeoff settings and improved cow flow and milk production.

The bottom line is that the time for ATO's may be right. Costs have fallen on many models and reliability is very solid. All types of barns and parlor setups can use ATO's and given that they can help your bottom line and perhaps your health (fewer deep knee bends) ATO's could be a good investment for your dairy operation.

*ISU Fact Sheet, LT-06, Larry Tranel,
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