Determining parlour performance

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Several factors, including the number of milkers and desired milk quality interact to determine parlour efficiency. One of the most important efficiency factors is maximising total pounds of milk produced. The best method to evaluate this is to calculate milk production based as a per stall per hour of operation number.

This number can be calculated in any parlour or stall barn system whether or not meters or milk monitoring devices are installed.

The information needed is the time in hours and tenths of an hour, the total amount of milk produced during the milking and the number of units. The calculation is made by dividing the total milk produced by the number of milking units and the resulting milk weight is then divided by the total time.

Importance of preparation

In many dairies, total cows milked per day or per hour is commonly used as a proxy for pounds of milk output but too often is used as the only measure. When cows are not prepped properly, throughput can increase even though less milk is produced! This is not the desired goal for any herd.

In simplistic terms, increasing milk per stall per hour can be achieved in three ways:

- Increasing production per cow.
- Increasing the average milk flow while units are attached.
- Decreasing the amount of time units are attached to cows.

Production per cow may be influenced more by other factors such as nutrition and cow comfort. Cows milked calmly after adequate stimulation give more milk and will milk out quicker and more completely.

To achieve high maximum milk weights harvested in the parlour or barn on a daily basis requires excellent pre milking udder preparation procedures that ensure high quality milk and excellent mastitis control.

Management's goal should be to bring cows to the milking parlour as clean as possible at every milking and in as calm a manner as possible.

Cows handled in a calm manner move slower with less manure splash on the back of their front legs, lower body and most

Cows that are handled in a calm manner move slowly and therefore remain cleaner. Note the clean front legs.

importantly on the teats and udder floor than do cows that are pushed aggressively to the parlour.

Calm cows will more willingly enter the parlour and will have better primary oxytocin letdown during udder preparation.

A primary goal for any dairy is to have good stockmanship and cow handling. Animals thrive when handled in a quiet, calm manner in an environment where they feel safe. Maximum flow rates and fast, complete milking are more often achieved when cows are consistently prepped and units are attached to plump, full teats.

Following SOPs (standard operating procedures) is essential for good parlour performance.

Teat contact time

Adequate oxytocin requires at least 10-12 seconds of teat contact time during stripping, washing or drying teats. Units should be attached as close as possible to 90 seconds after the teats are first touched during the preparation procedure.

On many farms, when milkers 'slow down' and follow the SOP (standard operating procedure) the overall milking speeds up and the milker's job becomes easier. This is because there are fewer liner squawks and fall off and, therefore, milkers are not required to go back and adjust or re-hang units. Consistency in udder preparation is a critical factor in many dairies. Variation between milkings and milkers are significant issues. SOP's are required and all milkers must appreciate that how they perform the procedures and the routines during milking will impact both the overall udder health and profitability of the farm.

Milkers have control over how clean teats are when units are attached. The level of mastitis is directly related to the number of bacteria present on teats and teat ends when the units are attached.

Stall guidelines

Guidelines for milk per stall per hour are as follows:

- 2 x parlour herds > 150lb/stall/hour (68kg).
- 3 x parlour herds > 110lb/stall/hour (50kg).
- 2 x stall barn herds > 275lb/unit/hour (125kg).
- 3 x stall barn herds > 240lb/unit/hour (109kg).

Goals for parlour efficiency can be described as follows.

- Have cows enter the parlour and occupy the stalls calmly, yet quickly.

Continued on page 9

Continued from page 7

- Have a milker begin an excellent udder preparation routine within 60 seconds of the first cow's entry time.

By following this recommendation, cows will have adequate stimulation of the udder for excellent oxytocin letdown and the teats will be clean, dry and stimulated when the units are attached.

- Have the unit be applied to the cow as close as possible to 90 seconds after the start of udder preparation.

Units should be attached to the cow with minimal or no air leakage, which minimises excitement to the cow. Immediately after attachment, units should be properly adjusted.

- Have the cow milk out quickly and completely.
- Have the unit removed immediately upon cessation of milk flow.
- Have the cow exit calmly within a minute of unit removal.
- Have the next cow occupy the same stall calmly yet quickly to begin the process again.

Another key factor in parlour efficiency is to minimise the time between unit removal from one cow to attachment of the same unit to the next cow.

This can occur for a variety of reasons, including:

- Delays in cow entrance into the parlour from the holding area.
- Delays entering the parlour and occupying the parlour stall.
- Delays between the time when the cow occupies the parlour stall and unit attachment.
- Delays when exiting the parlour.
- Delays due to an empty holding pen between groups of cows.
- Delays from attachment of the first unit on a side to the last unit on the same side.
- Delays due to long unit on time for one cow holding up the rest of the side.
- Delays due to equipment factors decreasing milk flow rate (i.e. low vacuum).
- Delays due to inadequate stimulation decreasing milk flow rate during udder preparation process.

Less aggressive settings

One common recommendation made to producers is to make the take off settings 'less aggressive'.

Less aggressive means to remove units sooner. Aggressive milking is when liners are opening and closing on teats with very low milk flow.

While less aggressive takeoff settings are always in the best interest of the cows and their teat ends, changing settings will only result in improved parlour performance if when milkers finish attaching on one side the other side of the parlour still has units milking.

Parlour performance can only be evaluated by being in the parlour during milking to review the procedures used to prep one cow and the routine employed to milk groups of cows. Although it is important to review records on automated facilities, this is never the best method to evaluate parlour performance.

Careful observations of cow behaviour not only as they enter the parlour, but also as they are touched and handled during udder preparation, as units are attached and throughout milking are necessary to fully understand parlour issues.

Always walk the entire dairy facility to allow observations to be made of the manure management, cow comfort and cow handling procedures.

Failure to evaluate the entire dairy will often lead to faulty recommendations being made to the producer regarding parlour performance. ■

Dr Reid received his doctorate of veterinary medicine from Kansas State University before becoming a practising large animal veterinarian. He has over 30 years of experience in the dairy industry and has been a consultant in the North American dairy industry for 15 years, concentrating primarily on milk quality. He is also currently a board member of the USA's National Mastitis Council. Dr Reid is known and respected throughout the world for his dairy management expertise.