

# Time for Technology



## **Footbathing the Robotic Milking Herd**

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Although new technology can open up a whole new world of opportunities, it usually also brings new challenges. For example, robotic milking offers great benefits through more frequent milking, saving time, decreasing strenuous repetitive work, and increasing the flexibility of the work routine. But it does call for new emphasis on cow health and mobility because cows need to attend milking voluntarily. Hoof health becomes especially important to success of this technology, making the strategic use of an effective foot bathing routine an essential management activity. In parlor herds, footbaths in the return lanes filled with an appropriate chemical at prescribed times of the week, assure that every cow gets the same number of passes through a solution that is relatively clean and fresh. But with robotic milking the right strategy is not nearly as clear.

Traditionally, footbaths have been placed in the exit lane from each robotic milking stall in free traffic herds and in the pre-selection gate of forced traffic herds. Aggressive cows with healthy feet visit the robot as many as seven to ten times per day, so they get many more passes through the bath than needed. This is detrimental to the life of the solution, and if a strong solution is used, too many passes can also be detrimental to the cow. Decreased robot traffic on foot bathing days demonstrates that some cows are not eager to "take their bath", probably because the cold solution causes discomfort. For cows with open sores who need the treatment most, contact with the solution is probably painful as well. Some farmers speculate that seeing the bath full of liquid reduces visits. If that is the case, then perhaps making cows walk through a bath of clean soapy water on all the other days may overcome their reluctance. Unless this is done with automatic baths the labour involved would be excessive. While this avoids the slump in visits on days the bath is used, without a controlled experiment we cannot tell if visits are continuously depressed or if there is greater acceptance.

In any location, a permanent footbath that is not kept clean when not in use becomes a source of contamination when it gets filled with manure. Regular cleaning is an impractical demand on labour, so temporary footbaths that can be removed are recommended. Alternatively, a permanent bath should be designed so it can be covered or filled so that cows walk over a level, skid proof surface, when the bath is not in use.

In some recent new barns a "tollgate" layout where multiple robots direct cows to a single exit lane, makes it possible to direct cows from several robots through one footbath. This can reduce capital investment in automatic baths by reducing the number of baths needed, and also saves on chemicals and bath maintenance labour. In some layouts, a selection gate ahead of the bath could

send selected cows through the footbath to avoid extra passes for the frequent visiting cow. But when some cows loiter in the return lanes, the tollgate layout can occasionally result in poorer cow flow.

In the classic "Dairylogix" six row layout with two robots, the same objectives can be achieved by placing an automatic footbath in the return route from one robot to the separation area. On days when there are no other separation activities planned, cows can be diverted through the footbath and back to their milking group for a preprogrammed number of passes. If the barn has one group of milking cows, and most cows use both robots it will not take long before the majority are bathed. As a last resort, cows milked in the other robot can be separated to the fetch pen of the robot with the bath, to be refused for milking and then sent through the bath.



**A hinged footbath in a remote crossover can be stored vertically when not in use.**

An alternative method of foot bathing uses a large bath that is 10 feet long and the full width of a cross over, placed in the crossover furthest from the AMS. Ideally, the gating should be set up so it can be used by all cow groups in the barn. The bath used here is usually stored vertically at the end of the row of freestalls and lowered and filled when needed. Once filled, groups of cows are walked through the bath slowly once or twice in a row, once

or twice a week. Although thi[Type a quote from the document or the summary of an interesting point. You can position the text box anywhere in

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s does disturb the cows, it keeps harsh chemicals away from the milk and from the robot. With less manure exposure over a shorter time, chemicals work better and there is a uniform number of passes per cow. In free traffic barns that do not employ tollgate layouts, this method is my current preference. There may be merit in combining this herding activity with passage through a selection gate so that planned handling activities of sorted cows can be carried out on a routine basis in conjunction with foot bathing. To facilitate sorting, cows need to be in a single lane. In this case a traditional bath like those recommended for parlors would be appropriate.

Some robot owners are also experimenting with hoof washing spray nozzles in the back of the robotic milking stall that direct water or chemical solution against the rear hooves from behind.



**Spraying the hooves with water can be combined with cleaning the floor of the milking stall.**

In robotic systems that use individual teat cups on long hoses, the risk of contamination when a teat cup is kicked off requires frequent cleaning of the robot floor. In these systems spraying some water from the rear makes sense because it cleans both the floor and the hooves. A commercial system developed in Europe sprays water at pressures up to 155 pounds per square inch to clean the back of the rear hooves. It can also follow up with a spray of an iodine solution. Although there are no clinical trials to prove efficacy,

farmers using these systems are reporting improved hoof health.

As illustrated here, there are several options for footbathing the robot herd, each with its own potential advantages and disadvantages. Unfortunately there are no research studies or clinical trials to tell us which approach works best. While there is no doubt that good hoof health is critical to robotic milking success, and while good hoof health will likely require regular foot bathing, the how and where and when of it all continues to be largely a matter of personal preference.