

# Survey results: Optimizing robot IOFC

By Eliza Ruzic, Vita Plus Loyal dairy specialist, and Pat Hoffman, Vita Plus dairy technical support specialist

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As robotic milking systems continue to gain interest and adoption, dairy producers are looking at the economics associated with the technology. Producers often ask us, “What truly influences milk production on a robotic dairy? Do pellet characteristics influence visits and milk production? Does the energy density of the partially mixed ration (PMR) affect milk production?”

To address some of these questions, the team at Vita Plus Loyal conducted a survey of 32 Upper Midwest dairies during the summer of 2018. Among herds surveyed:

- Milk production ranged from 60 to 97 pounds per cow per day.
- Robot visits (milkings per day) ranged from 2.4 to 3.1 visits per cow per day.
- Milk production per visit ranged from 21.4 to 39 pounds per visit.
- Cost of robot pellets ranged from \$132 to \$500 per ton.
- Cost of the PMR (dry matter basis) ranged from \$130 to \$190 per ton.

## Maximizing IOFC

Surprisingly, our survey showed the average visits to the robot had no effect on income of feed costs (IOFC). Rather, and somewhat logically, milk production per visit had the greatest positive influence.

In contrast, robot visit refusals and cost of the robot pellet or supplement had a negative effect on IOFC – a key finding of this survey.

Robotic dairies with the highest IOFC often fed very low-cost pellets, such as corn gluten feed and/or simple combinations of shelled corn and soybean meal. Further, robotic dairies with higher IOFC fed less total pounds of feed through the robot.

These data are in direct contrast to the more common dogma that the robot pellet has a major influence on milk production and profits in a robotic milking system.

A non-nutritional factor that had a major effect on IOFC was the use of sand bedding. While it had no effect on the number of visits, sand bedding significantly improved milk production per visit by 3 pounds.

## More milk with better PMRs

Robot dairies that fed their cows higher-cost PMRs had greater milk production per visit. This is further supported by the observation that herds feeding PMRs balanced for higher crude protein and lower neutral detergent fiber (NDF) had higher milk production per visit.

In contrast, cost of the robot pellet and the amount of pellets offered at the robot were negatively correlated with milk production per visit. The data from our survey herds suggest putting nutritional emphasis more on nutrient-dense PMRs and less on nutritional reliance on robot pellets or supplements to improve milk production per visit. We could not find where the nutritional composition or flavoring of the robot pellet had any effect on visits or production per milking.

## Key survey findings

Robot herds feeding more nutrient-dense PMRs and where cows were bedded with sand had greater milk production per visit, which appears to raise IOFC. Results from this survey suggest many dairies with robotic milking systems are successfully feeding low-cost robot pellets and, by doing so, are bolstering their bottom lines.

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