At a glance
an outlook on dairy production
Your robot herd partner
A key ally for your robot herd

Trouw Nutrition has invested in robotic milking feeding programs right from the beginning. We have a proven track record on-farm with the knowledge, expertise and tools to help you achieve your goals. This includes training our teams — both those in the field and our technical specialists — to help your robot herd maximize productivity.

Our team of Dairy Nutrition Advisors (DNA) are more than sales representatives. They are your partners and key members of your farm management team. They go through an innovative training program which is unique to Trouw Nutrition, that delivers more than 200 hours of education for dairy management.

This training program is more than just nutrition. DNA certified reps are trained to evaluate the entire farm, ask questions and understand your goals. Nutrition is important, but by evaluating the total business and prioritizing areas that may need greater attention we can enhance the overall success of the farm. Combining Trouw Nutrition’s products and services, the expertise of our team of specialists and their own experience, certified reps uncover key opportunities that will make your operation more profitable and productive.

Using this whole farm approach has proven to be successful for robot herds too. Through the DNA training program information, resources and training are also provided for robot herds. Our Dairy Nutrition Advisors can help you navigate this investment and reach your goals.

Our DNA approach does not offer cookie cutter solutions but ones that are customized and unique for each farm business. Every farm has unique opportunities and so strategies, and recommendations are unique as well.

If you are already using robots, transitioning or planning to do so, do not hesitate to reach out to your Dairy Nutrition Advisor or Shur-Gain dealer for advice on analyzing the data and identifying opportunities for your farm.

Let our team of Dairy Nutrition Advisors help make you more profitable today!

As an innovative company, Trouw Nutrition has been at the forefront for herd management and the automatic milking system (AMS) trend. We have been working with robot herds for the last 20 years and I am proud that today we are feeding more cows at the robot in Canada than any other company.
**PRECISION FEEDING in robotic milking herds**

**Precision feeding of dairy cows is a concept that is often discussed with the implementation of robotic milking systems.Precision feeding relies on knowing the nutrient requirements of an individual cow and delivering a specific diet that meets those requirements at a given level of intake. There is considerable interest in precision feeding approaches in robotic milking systems given the ability to deliver differing amounts of concentrate and in some cases, more than one concentrate.**

Before discussing application of precision feeding in robotic herds, let’s address whether the precision feeding theory can yield beneficial production responses.

There are very few studies that have addressed precision feeding directly. One study from the University of Florida tested whether precision feeding can reduce the negative energy balance in early lactation and limit over-feeding in late lactation. The researchers measured dry matter intake (DMI) on a daily basis, milk yield and composition at each milking, body weight at each milking and body condition score to estimate energy balance for each week. The control cows received a total mixed ration (TMR) balanced for 23 kg of DMI for a cow with a body weight of 650 kg and milk, fat and true protein yields of 41.5, 1.45 and 1.25 kg/d, respectively. The precision fed cows had their diet adjusted on a weekly basis to ensure that there was a greater supply of energy and protein than required for maintenance, lactation and pregnancy.

This study clearly demonstrated that while technically challenging, the concept of precision feeding can yield multiple benefits from a production efficiency standpoint. To summarize the results, the authors found that DMI did not differ, averaging 23.9 and 24.6 kg/d, but milk yield was 3.3 kg greater for precision fed cows (45.2 kg/d) than those fed a static TMR. Milk fat (1.51 vs. 1.40 kg/d), true protein (1.33 vs. 1.23 kg/d) and lactose yields (2.15 vs. 1.99 kg/d) were also greater for precision fed cows than the control. In addition to the yield responses, precision fed cows reached a positive energy balance sooner than the control cows, had greater feed efficiency and lower body condition gain in late lactation.

**CAN WE IMPOSE PRECISION FEEDING SYSTEMS ON ROBOTIC DAIRIES?**

Precision feeding requires collection of data, diet readjustment and continuous evaluation of the data. Measurement of body weight, body condition score, milk yield and milk composition are possible in some robotic systems and can be used to calculate the nutrient requirements of the cow. However, precision feeding also requires knowledge of feed intake and the composition of that diet. Unfortunately, robotic milking systems do not currently have the capability to measure concentrate intake at the robot (they only report the concentrate delivered) and measurement of partial mixed ration (PMR) intake is not currently possible from an ordinary bunk. This means that while we can calculate nutrient requirements, we have little ability to predict nutrient supply under commercial conditions. This leads to another question: can we assume that changing the concentrate feeding strategy is sufficient to increase energy intake and therefore be used to apply a partial precision feeding approach?

Experiments conducted at the Universities of Saskatchewan, Guelph and Aarhus have reported that increasing the amount of concentrate provided in the robotic milking system increases daily variability in the amount of concentrate delivered and consumed by cows in the robot. They also showed that increasing concentrate delivery may only modestly increase energy intake or not improve energy intake at all. Moreover, decreasing the robot concentrate allocation may decrease energy intake at a rate exceeding that which is targeted. Too rapid of a decline in concentrate without a corresponding increase in PMR intake could lead to an accelerated dry-off program.

In addition to greater variability with high robot concentrate allocation, changing the amount of robot concentrate also causes cows to alter their PMR intake. Unfortunately in most cases, the reduction in PMR intake is greater than the corresponding increase in concentrate intake resulting in no net change in energy intake. This lack of increase in energy intake likely explains why many studies do not see improved milk or milk component yields with greater concentrate allocation in the robot. This substitution of PMR with robot concentrate, coupled with increased variability as the allocation of robot concentrate increases, likely erodes the potential to apply precision feeding with current technology since there is no method to predict the change in PMR intake.

In conclusion, it appears that applying precision feeding strategies may not be as easy as simply adjusting the amount of concentrate offered at the robot. Controlled research studies have clearly shown that altering the robot concentrate allocation increases day-to-day variability for how much of that concentrate is consumed, results in an unpredictable change in PMR intake and in many cases does not increase energy intake.

While precision feeding is beneficial from a production efficiency standpoint, improvements are needed before precision feeding can be applied on farm.

*References available on request.*
We frequently find the cow’s satiety from the PMR impacts her desire to visit the robot, and therefore her ability to consume pellets (Figure 2).

Any animal training program includes a reward for the animal exhibiting the desired behaviour. The continual encouragement for cows to freely visit the robot is no different.

“The cows’ wish to be milked is normally not strong enough to obtain an optimal visit frequency; therefore, concentrate feeding is often used as a reward in the AMS. However, for the concentrate to work as a reward it is essential that the palatability is good.” (Madsen et al, 2010)

Pellet quality is not just about durability. High producing cows are usually fed more concentrate than lower producers. Meeting the nutritional needs of these top producers requires a pellet which is of higher nutritional density than the PMR. This not only supports the performance and health of these cows but also the producer’s financial performance.

Small amounts of quality robot concentrates can effectively be used to motivate cows into the robot. This allows the nutritionist to provide more nutrients at the bunk where it is most cost-effective in the total feed program.
Meet your animals’ needs with precision

How is nutrition different with a robotic milking system? Part of the grains are fed through the robot. This motivates the cow to go to the robot to get milked. After, we need to balance the diet according to the herd’s needs while considering your farm’s economic goals and performance. The NEWTON® formulation program is the ideal tool to help you reach those goals.

Now, how can NEWTON® help you? It formulates rations based on the dynamic energy principle. It calculates the needs of the cows according to their production, components and lactation stage. For example, a cow more effectively uses the energy supplied by the ration at the beginning of lactation than at the end of lactation.

The concentrates are calculated based on forage quality to maximize their use. The better the forages are, the less you need concentrates. Certain parameters are integrated in NEWTON® to allow us to evaluate the nature of the ration. We can, for example, see the level of unsaturated fatty acids in the rumen, and it’s impact on fermentation, the efficient fibres, and the excess carbohydrates and rumen available protein.

Also, NEWTON® formulates according to precision nutrition by calculating exactly what the cow needs to maximize its production. Therefore, we avoid any waste caused by overfeeding. This allows for sustainable farming and appropriate feeding cost. It also takes rumen modifiers* into consideration by incorporating their effects in the calculation of the ration. This lets you reduce your feeding cost and increase your profits.

Please contact your Dairy Nutrition Advisor or Shur-Gain dealer to talk about your feeding strategy.

For more than 35 years, NEWTON® has continuously improved to help you increase your profitability.

* A rumen modifier is an ingredient added in small quantity to the ration. It can modify the energy or protein available for the rumen bacteria. NEWTON® can therefore calculate the rumen contribution of a rumen modifier versus the contribution of an additive.

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Together, let’s to turn your goals into achievements
YourRobotHerdPartner.com

**FERME DES GRANDS PRÉS**
× STANSTEAD TOWNSHIP, QUEBEC

Owners:
Pascal, Fernand and Carole Roy

Service Centre: H.L. Boisvert

Dairy Nutrition Advisor: Ariane Fontaine, T.P.

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<td>Avg. production.</td>
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Left to right: Albert, Fernand, Carole, Stéphane, Charles, Mélissa, Élodie et Pascal.

Pascal Roy represents the third generation of his family who has worked on the Des Grands Prés dairy farm. Even though he took over the farm’s management, his parents are still involved in the dairy chores of the farm. In 2019, with the construction of a new barn, they made a transition to robotic milking.

Working with H.L. Boisvert feed mill for a little over a year, Pascal mentions his good relationship and the ease of communication he has with his Dairy Nutrition Advisor, Ariane Fontaine. Pascal mentions, “She actively follows up on my herd so we can do the most at the best price. She always has good ideas! She always offers sound advice. ”

“I like their local service, their delivery service and their consulting services. My advisor adapts quickly. She can monitor our farm from her office thanks to our online database and we talk regularly. With the robots, we have access to live data. They help us increase our performance.”

Pascal mentions that quality of products fed to his animals has increased the efficiency and the production of his cows. “Every change we have made has increased performance.” He also adds that the consistency of the robot feed, the stability of the pellets and the weight of the product at delivery helps to calibrate the feed in the robot.

He concludes by saying how proud he is of the team around him, both at the mill and at Trouw Nutrition. “Together, they help me achieve my goals of producing the maximum of fat per cow while keeping my business on track.”

**SUNSHINE COLONY FARM**
× HUSSAR, ALBERTA

Dairy Farm Manager: Paul Walter

Service Centre: Trouw Nutrition - Lethbridge

Dairy Nutrition Advisor: Bob Reck

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Sunshine Colony has been in the dairy business since the 1950s, and Paul Walter has been the dairy manager for the past 15 years. His family, including his wife Leah and their five children also help with day to day chores.

Paul’s brother Daniel helps also as the second man at the barn. Paul started his career in dairy farming in his late teens, helping his dad with the dairy farm management. He is the second generation of dairy farmers in his family. A memorable accomplishment was when they were able to breed their first excellent cow and that four generations in their herd all come back to her. Those those animals score VG85.

Eight years ago, they made the decision to switch to robotic milking. They are currently milking the cows with one Lely A4 and one Lely A5 robot. The A5 robot was added in March 2020. A big positive for their business since switching to robots has been the labour savings, production improvements and better herd health, Paul says. A personal positive for Paul and his family is more flexibility.

In addition to feeding robot pellet, the herd is also using Shur-Gain products for their dry cow ration and Rumimax® for their heifers.

“Our Trouw Nutrition rep, Bob Reck, is excellent to work with and open to new ideas,” notes Paul. “He is always sharing how Trouw Nutrition is trying to make the dairy more profitable.” We have always heard positive feedback from other producers about both what Trouw Nutrition has to offer as well as Bob’s work as a nutritionist, he says.

“We receive excellent service and get our feed delivered on time,” says Paul.

Adding a new robot in 2020 was the culmination of a five year plan for this herd. Paul’s next goal is to run a more efficient business, focusing on more production with less cows.
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