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At a glance

an outlook on dairy production

trouwnutrition.ca

YOUR ROBOT HERD *partner*

trouw nutrition
a Nutreco company

Jacques Leclerc, Agr., MBA
President Managing Director
Trouw Nutrition Canada

YOUR ROBOT HERD *partner*

It is no surprise the number of robot farms continues to increase each year. You have many reasons to choose this technology: better quality of life, reduced labour needs, more flexible working hours, data collection and many more.

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.

Our team of Dairy Nutrition Advisors (DNA) and I firmly believe that we are great partners to support you and your robot herd, whether you are thinking about transitioning to this technology or have been working with robots already.

What sets us apart? Our team of advisors use a whole farm approach and are able to utilize their expertise in a number of areas of farm management – not just nutrition – to help you achieve your goals. Through our DNA program, our team is trained to look for opportunities to maximize your herd's productivity and your business' profitability.

Providing high quality nutrition and solutions is the core of our business. Utilizing NEWTON, our unique ration balancing program and the Shur-Gain pROBOTic pellet, we have a proven track record on-farm of our robot customer herds meeting and exceeding their production goals.

OUR TEAM IS READY TO HELP TURN YOUR ROBOT HERD GOALS INTO ACHIEVEMENTS.

Please reach out to our team of Dairy Nutrition Advisors to get started today or visit YourRobotHerdPartner.com

IN THIS ISSUE

John A. Metcalf, PhD
Ruminant Portfolio Manager
Trouw Nutrition Canada

To turn your *supplier* into a *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!

MANAGEMENT IN ROBOT FARMS : A TOTAL APPROACH

What the cows tell us!

A key point that all nutrition advisors learn throughout the DNA training program is to observe your cows. What do cows tell us? Some things we may look for are : Do they lie down and chew their cud? How is their locomotion score? What is their behaviour at the feed bunk? Taking the time to look over and watch your cows will help us see the overall health status of your herd and lead us to investigate, uncover and suggest solutions to help improve your profitability.

Dr. Greg Penner
Department of Animal and Poultry Science
University of Saskatchewan

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 yield 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.*

Chelsea Gordon
Ruminant Technical Services Manager
Trouw Nutrition Canada

To turn your *ration* into a *feast*

HIGHER MILK YIELD: A PALATABLE ROBOT FEED TO BALANCE YOUR PMR

Robot feeding strategies often focus on the amount of pellet offered, the nutrients in the feed bunk (Partial mixed ration or PMR) and the impact on robot visits. Too often we forget about the cow's motivation to choose to go to be milked.

Several factors influence the cows' visits to the robot (**Figure 1**). Focusing on motivation, nutrition plays a role in:

- **Satiety**
- **Preference to visit the robot**
- **Milk production**

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)

FIGURE 1 - FACTORS AFFECTING MILKING FREQUENCY

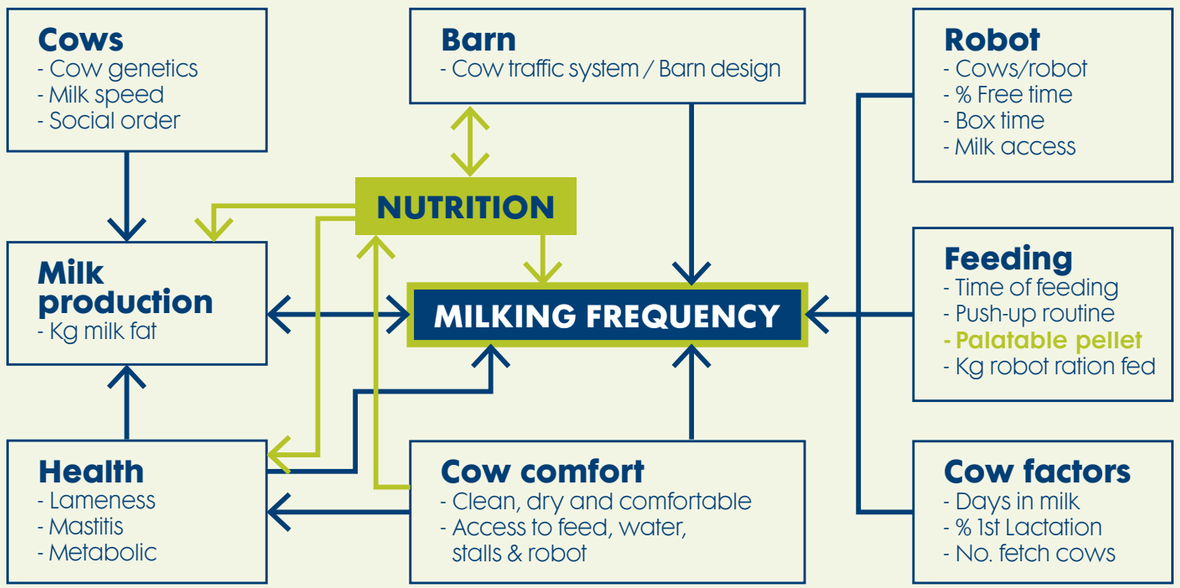
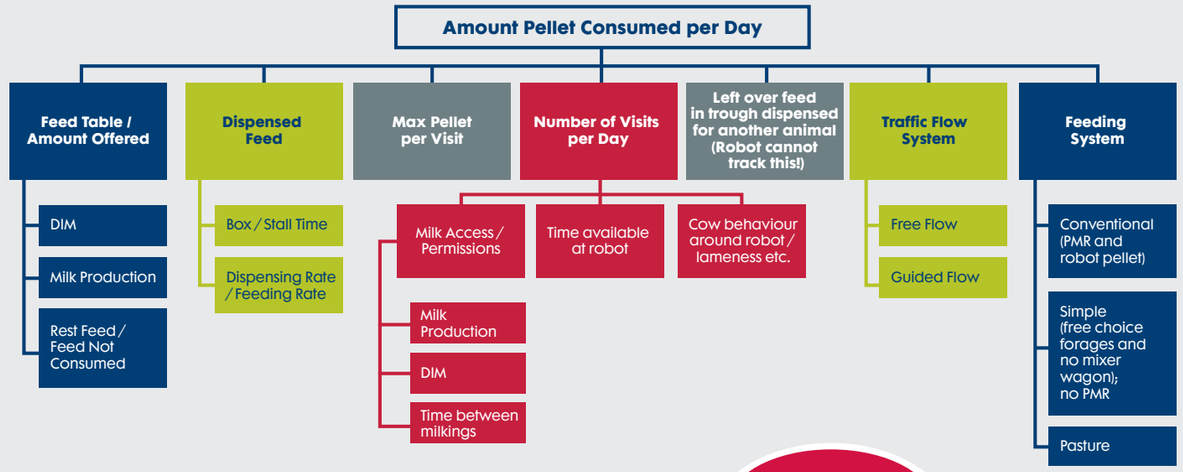


FIGURE 2 - FACTORS AFFECTING AMOUNT OF PELLET CONSUMED PER DAY



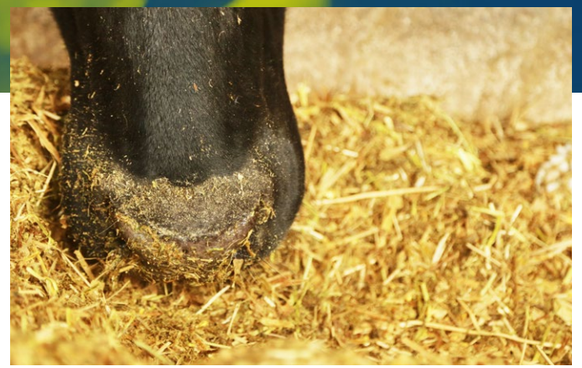
Palatability of the pellet is influenced by the ingredients and texture of the feed. Herds that have tried mash feeds at the robot tend to return to a commercial pellet (Salfer and Endres, 2016). Rodenburg and Wheeler (2002) identified that a high durability pellet resulted in more voluntary visits and higher milk production. When there are too many fines, or inconsistent grind size found in a mash/textured product, calibration of the robot concentrate is challenging.

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.

Martine Côté, Agr.
Dairy Nutritionist
Trouw Nutrition Canada

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 fermentaion, 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.

newton
SHUR-GAIN THE POWER OF DYNAMIC ENERGY

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

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

Turn your challenges into successful results

RICKEEN FARMS

> WALLENSTEIN, ONTARIO

Owners:
Rick & Doreen, Brett & Jocelyn Shantz

Service Centre: Yantzi Feed & Seed

Dairy Nutrition Advisor: Dylan Yantzi

Breed:	Holstein
Number of milking cows:	120 milking cows
Avg. production:	Milk: 34-36L Butterfat: 4.0-4.1 Protein: 3.2
Herd classification:	ME: 11 EX: 3 VG: 43 GP: 52

Left to right: Oliver, Doreen, Rick, Jocelyn and Brett Shantz

Rickeen Farms has focused on slow and steady growth for their century farm. Owned by Rick & Doreen, and Brett & Jocelyn, and with Rick's dad, Oliver, still helping with chores, this fifth generation dairy is a great example of how multiple generations can work together to achieve their goals.

In 2010, they completed a new free stall robotic milking barn, installing two of the first Delaval robots in Ontario. Since then they have grown their herd, adding heifer and calf barns in 2017 and 2019 respectively, and are currently milking 120 purebred Holstein cows. The family received their first Holstein Canada Master Breeder Shield in 2017.

The Shantz family has seen great results working with their Shur-Gain dealer, Yantzi Feed & Seed and Trouw Nutrition.

"Since putting in Shur-Gain's 19% pROBOTic pellet, we are feeding 2kg less of the pellet but haven't seen any significant drops in production," says Brett. He continues, "In fact, we are averaging 2L more milk since making the switch."

Rick also notes, "The cows are lining up at the robot to get milked. We are making milk at the bunk instead of at the robot."

The Shantzes utilized Trouw Nutrition's valued added services, having a whole-farm audit completed. They have made some changes as a result of the audit, including putting in new water troughs, and they have noticed improvements.

"We like that our feed company shows an interest in the entire operation, not just the nutrition," says Brett. "We appreciate the proactive approach and the willingness from our rep, Dylan Yantzi, to sit down and chat and even coming out during herd health."

TESTIMONIALS

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.

Breed:	Holstein
Number of milking cows:	136 milking cows
Avg. production:	Milk: 39.5 L moy. Butterfat: 4.1 Protein: 3.17 CCS : 72,000

Left to right: Albert, Fernand, Carole, Élisabeth, 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 daily 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. Ariane reacts or adapts to the situation almost immediately."

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

Breed:	Holstein
Number of milking cows:	70 milking cows
Number of animals:	175
Avg. production:	Milk: 41kg Butterfat: 4.1 Protein: 3.43
Herd classification:	83% GP or better 18 VG in the herd

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.

YOUR ROBOT HERD *partner*

Let's keep in touch!

Subscribe to get more information about robot herd nutrition strategies, innovations and future events.

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