

La Coop Unifrontières

Heading towards a return to normal... if “normal” is still a thing!

By Jean-Sébastien Leblanc, Agr.
General Manager



We've now been confined for a few months, and almost all societies around the world have put their population on pause for a while. During this period of confinement, humanity has been able to show what it has to offer: life. This life that was (too often!) taken for granted, by the vast majority, suddenly became a very delicate element. Many people chose to defy the statistics and rolled up their sleeves to help the most vulnerable people. For example, Laurent Duvernay-Tardif, starting lineup of the last year's Super Bowl Champions!—and who obviously doesn't need this money to make ends meet—is one of those people! He was even one of the first NFL players to take advantage of the “Opt Out” clause for next season, in order to remain on the “offensive line” in the Quebec health care system. He is an exceptional man.

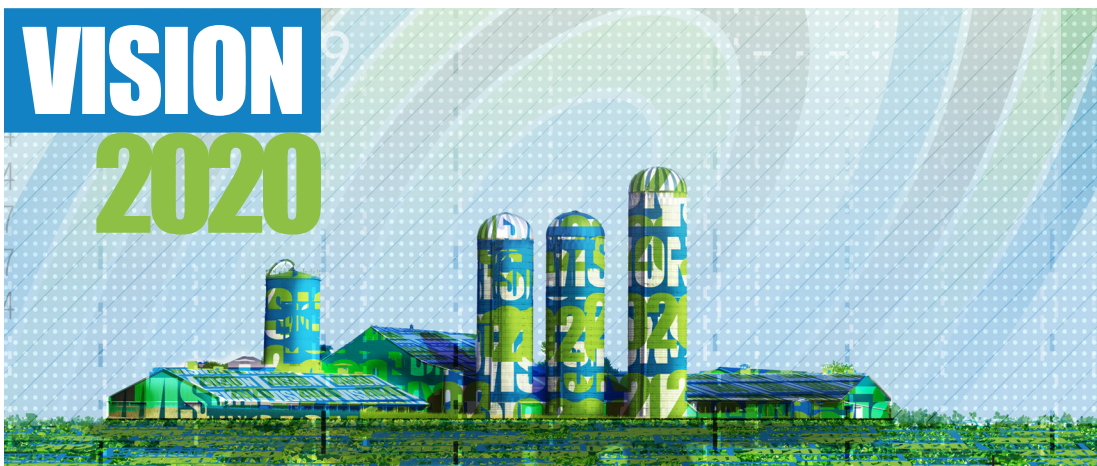
Depending on the evolution of their respective situations, several nations have decided to proceed with a progressive deconfinement and others have adopted for a different strategy and maintained several containment measures in addition to postponing activities such as postponing the return of students to school in the fall. According to several sources of information, we would be in a calm period, waiting for the next wave. When will it arrive? How intense will it be? No one can predict it accurately! As far as I'm concerned, I can't wait to get back to normal, when it will be possible. However, my many discussions on the subject, both with my family and friends and with acquaintances on social networks, have made me realize that the “normal” that I so much hope for, may never return, or at least not completely! Faced with this situation, there are several attitudes that we can adopt: live in nostalgia and

remember the good memories of what will no longer exist, accept the changes that will be proposed to us and even be the ones who will influence them.

In each of your businesses, as well as in your families, you will make decisions to adapt your reality to the various directives in effect. Let's be agents of change and at least try to influence these choices, so that they resemble us and we all feel comfortable living with them!

At The Coop, we reacted very quickly at the beginning of the crisis. We didn't improvise, but we acted with the means at hand, in order to strive towards two overriding objectives: preserve the health of our employees and maintain all the services and products offered to our clientele. In both cases, I think it is safe to say we won every battle so far. No case of COVID-19 has been identified among the employees and our clientele is still loyal to the cooperative. Among all the transformations and changes we have implemented, several deserve to be considered for the future, pandemic or not. To this end, I would like to hear you, hear your point of view and, above all, find out if there is something we have not yet put in place in your opinion.

In the coming months, we will try to stabilize The Coop in its new ways of doing things and its new processes. That's when the choices mentioned earlier will become a reality. To reiterate, let's all be agents of change and make The Coop a little truer to ourselves through these choices.



La Coop
Unifrontières

Head office
4, rang St-André

Napierville
(Québec)
J0J 1L0

Tel.: 450 245-3308

Express Consultant

Patrick Vincent TP,
Consultant Coop Unifrontières

Nancy Lamothe, Agr.
Account Manager, Special Credit, FCC

Marjolaine La Barre, Agr.
Director of Business Relations, FCC



Farm business management with a 2020 flavour...

At the time this article was written, the situation of COVID-19 was in its beginnings. The global impact of a pandemic remains unknown. How should you respond as a business leader? Has a new trade agreement just come into effect? What will be the impact on your business in the short and medium term? What will interest rates do over the next few years? Will buying local remain and will consumers' buying habits change permanently? Does climate change have an impact on your business?

Nancy Lamothe : These are typical questions asked in recent months. Unfortunately, it's difficult to answer them, other than by speculating or playing through scenarios. Let's talk about the facts: farm debt for all commodities has increased dramatically over the past decade. A cause for concern? Not if that debt is strategically managed and contributes to the evolution of the business while generating financial gains. However, it is important to remember that debt makes businesses more vulnerable to interest rate fluctuations, income declines and spending increases.

How can we equip ourselves to deal with this? Liquidity management plays a key role in decision-making, as do the partners who support you on a daily basis, whether it be on a technical, managerial or financial level. You must have a team you can rely on. Taking the time to manage that team and having an effective way of communicating within the company allows you to seize more opportunities.

The globalization of markets is here to stay, so you might as well adapt! Make budgets, establish a short, medium and long-term investment plan, ensure all shareholders and the next generation of employees share the same vision. React quickly to change, but how? I recommend going back to knowing your production costs. Documenting and having data remains the strength of successful companies. Share your concerns, projects and vision with your key partners. Why not have a multi-disciplinary meeting with your key advisors? Time is often short, but this type of annual or triennial meeting, with a well-established schedule and a timekeeper, can be an effective approach.

In a world of change, there are opportunities to be seized, it's up to you to identify them and, above all, to prepare yourself. Have your dashboard of indicators to guide you on the financial and technical situation of your company. Have clear and realistic objectives to achieve each year. We have found that effective companies, with sound management, can often afford to take on more debt, and that communication between partners plays an important role in their success. Your focus must be on areas where you have control.

Patrick Vicent : According to Ms. Lamothe, both farm managers and advisors know that it is impossible to do it all alone. That is why it is important to know your objectives, your means and, above all, your limits, in order to have a realistic vision.

Having participated on several occasions in these group consultations, hearing out the different perspectives of the nutrition consul-



tant, veterinarian and financial advisor all at once, makes it possible to establish a clear and unambiguous game plan. In fact, each advisor can put forward his or her knowledge without having to go through the manager, who can sometimes distort the message. It's not always easy to bring all these people together, but when it's possible it makes the work much easier and helps avoid duplication and conflicting efforts.

More than ever, there are many ways to communicate, but that doesn't guarantee the clarity of the message sent, so there's nothing like an interdisciplinary meeting to get everyone on the same wavelength.

I invite you to consider such a meeting during the off-season, if only to validate that all the important people in your company share the same vision, including those who work for you.

For your consideration ...



Silo gases, what do they do and why do they do it?

The primary goal of keeping forages in an oxygen-free environment is to increase their shelf life through fermentation. This process has been and is still used to preserve foods such as vegetables and fruits. Who hasn't already eaten sauerkraut or a good cheese that has been aged for several years? The fermentation process also increases the digestibility of forages and thus leads to better production performance. From the moment the fresh forage is put into storage, the risks related to gas production appear. Whether it is the inhalation of nitrogen dioxide which, in contact with the humidity of the lungs, turns into acid and can cause pulmonary edema, or the loss of consciousness caused by carbon dioxide having taken the place of oxygen, the situations are multiple and can even cause death.

Types of gas

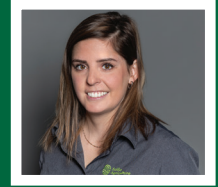
Carbon dioxide is formed by the fermentation process in all types of silos. However, it is a predominant product of the fermentation process in hermetically sealed silos and helps to maintain the nutritional quality of the forage. In a utopian world, carbon dioxide would only be produced during the aerobic phase (consumption of oxygen by the bacteria) and its concentration would be maintained throughout the storage process. Production of CO₂ during the anaerobic phase indicates, most of the time, a loss of forage dry matter and thus inevitably economic losses for the company. Although a high concentration of CO₂ can be dangerous to humans, creating a lack of oxygen, causing asphyxiation or suffocation, adequate ventilation will help dissipate the CO₂.

The second gas that is potentially dangerous to humans is undoubtedly nitrogen dioxide. This is produced by the breakdown of nitrates in fresh forage into nitrite (NO₂). Nitrates are normally used by the plant to produce proteins. Under normal conditions, nitrates are almost automatically converted into protein. However, in the presence of stress (drought, hail, frost, high nitrogen fertilization) an accumulation of nitrates in the plant is possible, mainly in the lower part of the plant. During fermentation, several acids are released during the degradation of several chemical compounds by the bacteria and thus lead to an acidification of the environment. Nitrite is chemically unstable in acidic conditions and will combine with oxygen ions to stabilize itself. The result is nitrogen oxides such as NO₂. Nitrogen dioxide is characterized by a brownish color and a slight odor of bleach. Fermented silage that has produced nitrogen dioxide may have a more yellowish tinge. However, it is important to mention that this gas can also be transparent and odourless. Unlike carbon dioxide, a small concentration of nitrogen dioxide can be very dangerous to humans. For carbon dioxide we may feel a discomfort at about 15,000 ppm (FSIS USDA), while for nitrogen dioxide some irreversible symptoms will appear at as little as 100 ppm after an exposure of only one minute (INERIS, 2004). However, a concentration of about 25 ppm may cause some discomfort in the form of eye and/or nose irritation. Delays in which pulmonary edema may develop following exposure to this gas can be of up to 48 hours (CNESST, 2017). It is therefore very important to be at rest and closely monitored by a medical team to avoid complications. This gas can also be dangerous in the long term as it can cause



silo disease which can occur with low concentrations of nitrogen dioxide in the silo. Even low levels of NO₂ can be dangerous causing silo disease with long term effects.

Regardless of the cause of gas production in silos, whether desired or not, it is important to take all possible precautions when working with fresh forage in a closed environment. The first reflex should be not to enter this environment during the active fermentation period. This period varies from one forage to another and with the type of storage used. If it is necessary to enter this environment, it is essential to use the recommended safety equipment.



Rumination, an additional tool to help you make the best decisions

Technology is evolving and nowadays, several systems are available with rumination detectors. Although these tools are expensive, they are proving to be indispensable in the daily routine of progressive farmers and their advisors.



The average rumination time of a dairy cow is between 450 and 550 minutes per day. That is because the dairy cow's natural mechanism releases buffer elements to stabilize rumen pH. Within the same day, a cow should be lying down between 10 and 12 hours and 80% of its rumination is done over that period. Rumination time will vary according to each herd, breed, age and physiological stage of the animals. Nevertheless, when we analyze data from a lactating group, we should **not observe more than 20 to 30 minutes of daily variation and about 50 to 70 minutes on individual cases after a week post calving.**

Rumination is an interesting tool for a herd manager, as it helps with accurate decisions and protocol development. Indeed, we can often observe a decrease in rumination following stress 12 to 24 hours before the onset of fever or clinical signs.

For nutritionists, the value of rumination is very important in validating the consumption of the animal's ration and its effectiveness. A variation in rumination in the herd will necessarily be due to a variation in voluntary dry matter intake and ration components (change in forage dry matter, effective fibre/particle size, NDF, starch).

However, nutrition is not the only factor affecting rumination time. Other factors are:

1. Overcrowding in a pen
2. New animals entering a pen
3. Inadequate stall size, reducing lying time.
4. Disturbances (e.g. stall filling, foot bathing, hoof trimming)
5. Lameness problems
6. Thermal stress (reduction of DMI)
7. Metabolic disorders (acetonemia, acidosis, mastitis, etc.)
8. Cows in heat

Here is what we can observe, on average, as a decrease in rumination in relation to the various environmental factors.

EFFECT ON RUMINATION DURATION PER DAY IN RELATION TO VARIOUS ENVIRONMENTAL FACTORS¹

Thermal stress	10 to 22 % decrease
Excessive time in the feed fence	14 % decrease
Mixed stall (primiparous and multiparous)	15 % decrease
Overcrowding	10 to 20 % decrease
Calving	30 to 50 % decrease
Oestrus	15 % decrease
Trimming of hooves	0 to 10 % decrease
Mastitis	10 to 25 % decrease

Source: omafra.gov.on.ca/english/livestock/dairy/facts/ruminations

The goal of monitoring rumination time is to reduce environmental stress & variation in the cow's routine. Increased cow comfort will pay back through improved production.



Calf ventilation

Today you obviously benefit financially from your cows, through their milk production. But what about calves? First, you must realize that they are the source of your future income! It is easily understood you benefit financially from improved ventilation on your cows. One of the keys to your farm's success is to offer an optimal environment for the growth of young animals. In this article, we will focus on ventilation and points to consider when aiming for efficient growth.



It is essential for calves to breathe fresh renewed air in all seasons, i.e. air that is not loaded with pathogens. Does this mean that there is no issue at all for those living outdoors? Not really, because the location of the hutches makes a big difference, as does ventilation in the summer (lifting the bottom of the hutch to allow for an air change indoors, for example) or bedding. Indeed, in summer and winter, dry bedding reduces microbial pressure and helps keep the calf closer to a comfortable temperature.

In the nursery, more technical issues arise. One must consider the volume of the building, the temperature, the number and age of the animals, the air inlets and outlets and their location in relation to the calves.

Here are some technical data you need to know to get good results:

► In winter, the target is 4 air changes per hour, i.e. every 15 minutes the entire volume of air in the building is replaced with fresh air.

Even if it is cold, air movement must be created, without exceeding 60 feet per minute (0.3 m/s).

Ventilation reduces heat (thermal neutrality of the calf between 10 and 25 °C), ammonia (less than 17 ppm), humidity (optimal around 65%) and keeps harmful organisms and flies away.

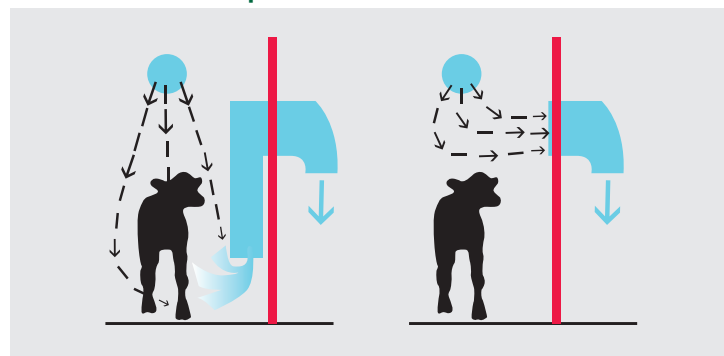
On the other hand, poor ventilation greatly compromises the immune system of the calves, increases the risk of pneumonia, reduces consumption, and finally does not allow for optimal growth of your future source of income.

Tubes of adequate dimensions according to the volume of the nursery, pierced with holes of various sizes, depending on the season, move fresh air over the calves. To allow the young calves to benefit from the air movement, the extraction is forced down through panels that direct the air to fans located in an exterior wall (left figure). This is the principle of low extraction.

► In the summer, adding air inlets multiplies air changes by 3.

Flies are a summer challenge. Ventilation greatly helps control this problem. From 176 feet per minute (0.9 m/s) at animal level, it has been shown that flies do not stay in place.

FIGURE 2 illustrates the importance of air movement on the calf prior to outdoor extraction.



Management in transition

The transition period is very important in the career of a dairy cow. It is a period during which the cow goes from almost total rest, from a non-productive status, to a productive status that requires a lot of adjustments. Over the years, there has been a lot of research on the transition in dairy production as it is commonly called «the heart of the matter». This research has led us to analyze management and transition feeding, according to four targets: immunity, calcemia, glycemia and rumen health. We are thinking about the renewal of ruminal papillae, the transition from a positive to a negative energy balance, the management of hypocalcemia, the avoidance of placental retention, etc. All metabolic changes around these 4 targets generate “normal” stress for the animal. There is not a lot of data on the impact of stress on cows, but we can suppose that some stress is still manageable. It is the accumulation of different stresses that eventually have an impact and lead to the metabolic disorders that we see largely in the period surrounding calving. We know that the cow is an animal that likes regularity both in its activities and diet. However, within a few months the cow undergoes several changes in diet and environment: drying out, preparation for calving, calving, fresh ration, and the beginning of lactation. All this during a period when we wish to minimize stress!

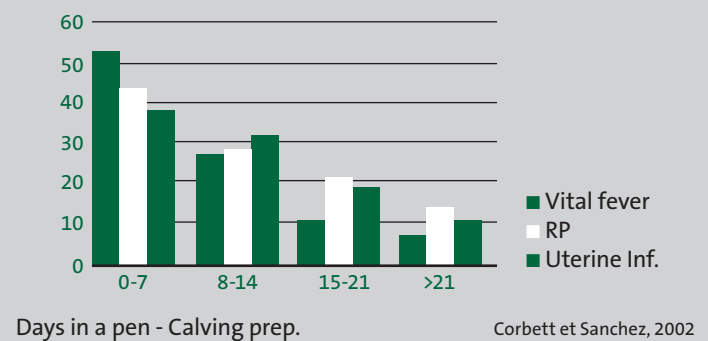
So, if there is an unavoidable level of stress during the transition period, we must try to make all changes as flexible as possible. How can we do this? Let us go back to the basics, see what cows like.



First, to get the picture, we can divide the stress factors that management can generate into 5 categories:

1. The length of time spent with the same animals in a pen
2. Movement between pens
3. The Parity Difference
4. Overcrowding
5. Heat stress

FIGURE 1 : decrease in the number of cases of metabolic disorders in relation with the number of days spent in the same pen



Shirmann and his colleagues demonstrated, in 2011, that during the few days following group changes, trips to the feed bunk doubled, the feeding rate increased by 10% (slug feeding) and rumination also decreased by 9%. The social structure takes 3 to 7 days to return to normal. Obviously, submissive cows and primiparous cows are the most affected. Another study shows a decrease in the number of cases of metabolic disorders according to the number of days spent in the same pen. (fig. 1)

To minimize the impact of group changes, avoid moving only one cow at a time. It will be advantageous to make changes in pairs, as a minimum, or in small groups, during quiet period of the day (e.g., at the end of the day rather than during feeding) and also to make changes in contiguous pens, especially between dry-off and calving preparation. It is still best, as some producers do, to dry cows in small groups and keep them together until calving. However, this option requires more pens and space.

In the same way, the competition of primiparous with older cows will have an impact on resting time (20%), rumination (more than 20%), consumption (10%) and consequently on the production of the upcoming lactation. There is therefore an advantage in separating primiparous cows from others in transition. Moreover, regardless of the grouping strategy, overcrowding will have a real impact. Mainly if primiparous cows are not separated from the others, there is a decrease in production of primiparous and dominated cows, when the occupancy of stalls and feed bunk (manger space) exceeds 80%. It is therefore suggested not to exceed this occupancy rate in transition and at the beginning of calving (3 weeks) and not to exceed 100% (post-calving) if the parities are separated. A secluded area in a calving pen can also be created to allow cows to withdraw from others and calve in peace. (Fig. 2)



Hugues Ménard T.P.
Specialized advisor
Sollio agriculture



FIGURE 2: Calving pen (Miner Institute.)

Finally comes heat stress! It has been a hot topic for a few years, and rightly so. The discussion has mainly revolved around cows in milk, but we forget that it also has an impact on all members of the herd, such as dry cows and small calves. The impact on dry cows is greater as it stretches over a longer period. In fact, the results of studies, presented in February by the Hoard's Dairyman, show several effects of heat stress on on closeup cows and their calves. First, as can be expected, cows that suffer from heat before calving will produce less milk after calving following this stress. It has also been noted that cooling closeup cows in preparation promotes the proliferation of mammary glands (Tao et al.), which partly explains the difference in production. Heat-stressed cows will also consume less before calving. But more importantly, there is an impact on the unborn heifer. First, gestation will be shorter (which may explain why cows always seem to calve before their time in the summer) and the calf will be smaller and remain so until weaning (Tao et al). Immune transfer will also be poorer for these calves even with good quality colostrum. Finally, this heifer, whose dam was heat-stressed at the end of gestation, will produce less during her first lactation and sometimes even until her second lactation. These are several reasons to make sure to keep our transition cows cool!



From the dry off period to the first weeks of calving, the cow must go through several changes that will inevitably cause stress. Some stress is inevitable, some can be mitigated, and some can be avoided. Stress is inevitable but some can be mitigated or avoided. Unnecessary stress will increase the chances of a smooth transition period & your cows will thank you with improved production!

Have a good fall!



Harvesting Corn Silage



*Do not miss our video
“How to determine
the optimum harvesting
stage?” on Youtube
and our social medias.*

“How high should I cut my corn silage?”

For the past few years, the same question arises every fall when it is time to harvest corn silage. We are wondering how much corn silage we need to harvest to make sure we have enough. It is a big question, because it all depends on the quantity and quality of forage harvested in the summer. Let us assume that, for the past five years, the forage harvest season has been low, and in some areas poor, due to Mother Nature. This situation requires adjusting during the harvest period and making the best decisions possible. Nevertheless, every year, good old corn silage makes up for the lack of forage. It is planted every spring and is also subject to Mother Nature's thunderstorms, but it still manages to provide quality forage and gives a higher yield than any other forage plant. This year, in some areas, corn silage yields may be lower than the usual average in recent years. This combined with a poor summer forage crop makes the calculation of requirements even more critical. So, the question arises: “Do I cut the silage plant higher to improve digestibility or do I cut it lower to get the maximum yield?”

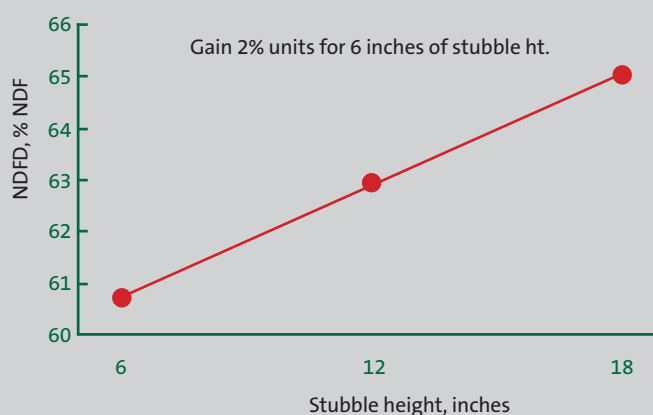
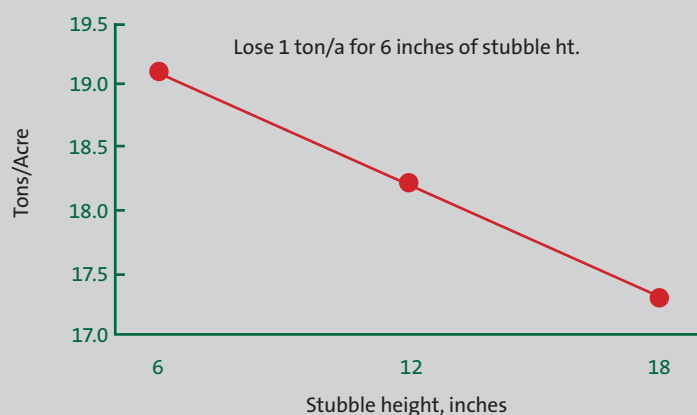
“What is the ideal cutting height?”

This is a good question that is difficult to answer without first knowing the average size of your field and the needs and constraints of your dairy business. Cutting height has a direct impact on silage storage, depending on your own storage structure, the moisture content of the entire plant, the quality of the forage harvested and the digestibility of the fibre.

Corn silage is a plant that should be harvested at a moisture content between 60% and 70%, depending on your storage structure. This ensures that you get a quality feed with maximum digestibility and fermentation, with the highest possible lactic acid level. Unfortunately, it is small time frame in terms of humidity, to obtain a corn silage of optimal quality. A 24-foot silo will present a much greater risk of seepage than a 20-foot diameter silo if both are filled with 65% moisture corn. On the other hand, the lower part of the plant certainly has an impact on run-off, since it acts like a sponge and compacts less than the thin part of the plant. The lower part of the plant is more concentrated in fibre and therefore, it is less digestible, which of course affects the quality of your silage. In addition, the nitrate concentration in the lower part of the plant requires decision-making, based on your observations. I would like to add that a corn hybrid strictly for silage and a dual purpose hybrid will not have the same level of digestibility. The former has more leaves on its stalk than a dual purpose corn and it generally has a thinner stalk at the base, which improves the feed quality even a 8 inches cutting height! Did you know that every 6 inches (15 cm) left in the field reduces the yield by 5 to 8%?

As shown in Table 1, higher cutting increases the digestibility of NDF fibre, resulting in higher production per tonne of silage. On the other hand, if you have an average potential yield of 17 tm per acre DM basis, you can leave a minimum of 1 tm per acre DM basis in the field! You might tell me that 1 tm/acre out of 17 tm/acre is not a lot, but you have to take into consideration that many alfalfa fields or other second cut forage did not offer this yield, on average, in 2020!

FIGURE 1 Relationship between corn silage cutting height and yield or digestibility



Reference: Jerry Cherney and Bill Cox, Soil and Crop Science Section, Cornell University.

“What are the factors to consider for the cutting height?”

The very first criteria to consider is, of course, your forage inventory. The lower part of the stalk is richer in lignin, and therefore in non-digestible fibre. On the other hand, in periods of drought, as we have been experiencing for the past few years, less forage is harvested per yard. In many cases, the fibre is therefore less present in the forages. The second criteria I consider is the fibre requirement of your ration. The third one is the level of mould at the base of the stem. Depending on what you find, raising the cutting height can be a very good decision to avoid contaminating your crop. The fourth criteria, and not the least, is the nitrates in the bottom of the stem. During dry periods, the corn plant absorbs the nitrates available in the soil, depending on the level of nitrogen that has been applied for fertilization, but it cannot use them, so it stores them in the bottom of its stalk. When it rains, the nitrate level increases in the plant and then decreases after a few days. It is recommended to wait 5 days following a heavy rainfall that occurs after a period of drought. Visually, the presence of nitrates is indicated by the orange colour in the silage.

WARNING! I would like to emphasize that the nitrates concentrate in the bottom of the stem during dry periods **ONLY**. Will we be in a drought when it is time to harvest the corn? It should also be noted that nitrates are reduced by up to 65% during fermentation, so it is recommended to wait three to five weeks before serving fresh corn silage.



“How high should I cut my corn silage?”

The recommended height is between 8 and 12 inches, depending on the average plant length (12 feet/8 feet), the moisture level of the entire plant at harvest (depending on your storage structure), the general health of your corn silage, the hybrid chosen (Leafy or dual purpose corn.) and the risk of possible nitrates, depending on the season.

In conclusion, cutting height improves the digestibility of your silage, but if your ration lacks fibre or requires a higher fibre intake (from dry hay or straw, which is more expensive), you have gained nothing by leaving forage in the field. Remember that fermentation time improves the digestibility of corn silage, so a minimum of 60 days fermentation is recommended.



A successful transition is worth the cost!

One of the biggest challenges of a dairy business that aims for maximum profitability is to ensure that the cow goes through the calving period without difficulty. It is important to pay attention to it 2 to 3 weeks before the due date. The transition management points are extremely important in achieving the results (see article on transition management), but her ration is just as important.

Calving brings its share of challenges; a voluntary decrease in dry matter intake, a decrease in rumination and a decrease in immunity. In addition, the cow goes through several biochemical reactions that allow the physiological phenomenon to occur, leading, among other things, to an increase in calcium needs. The feeding program that we suggest during this period includes all the elements to avoid hypocalcaemia problems occurring during calving. Going back to normal after calving is the way to avoid problems such as placental retention and displacement of the abomasum. This way, we have an additional chance of reaching a higher peak of lactation.

At calving, a cow draws about 23 grams of calcium from her first milking of colostrum, which is 10 times the amount of her blood calcium. That said, about two-thirds of mature cows will have hypocalcaemia or subclinical hypocalcaemia at calving. This phenomenon is mainly regulated by parathormone. Why are mature cows more prone to hypocalcaemia? Mature cows have fewer receptors for vitamin D, which plays a role in the regulation of parathyroid hormone. They have fewer receptors than younger cows, since their cells reacting with this hormone regenerate less quickly. The anion-cation balance of the blood will therefore have a more significant impact on the response of this hormone, which triggers the mobilization of calcium.

The anionic salts contained in products such as Transimil play an important role in modifying the cation-anion balance of the blood, which has the effect of increasing the blood calcium reserve. What is interesting is that the use of anionic salts allows the nutritionist and the producer to monitor the response by measuring urine pH. When the urine pH drops below 7 (6.5 target) we can see that the ration is working properly, and we are on the way to a problem-free calving. In addition, recent research also shows that magnesium and its bioavailability play an important role in the regulation of blood calcium. Therefore, the ration must contain at least 0.4% magnesium before and after calving.

The addition of anionic salts in the ration implies the formulation of two different rations during the dry off period. These two preparations for dry cows and cows in preparation require an investment of time that will certainly be worth the effort. Indeed, the needs of the dry cow are much lower in terms of ration density

and starch, among other things. Offering a transition ration allows us to better prepare the rumen for post-calving rations and avoid metabolic problems such as acetonemia or acidosis, which will have the effect of increasing the voluntary consumption of dry matter faster.

The cost of these anionic rations is about 20-30 cents/cow/day. This option is very advantageous when you consider that it leads to a 3-7% increase in production and a decrease in metabolic disorders. In fact, it generates an economic return of 10:1 only with the increase in production.

This summer's drought also brought its share of challenges. The first cut, often for dry cows and transition cows, was made earlier than usual, bringing richer forages and sometimes higher potassium levels than normal. The drought has also greatly reduced forage yields, limiting the amount we can incorporate into rations. Straw, on the other hand, is scarce and not very abundant. The stars are aligning so that forages, hay and straw are becoming scarce, therefore driving prices up.

How can we make sure that anionic salts have the desired effect when we do not have the ideal forage? We can think about buying less expensive ingredients, such as oat hulls, to stretch our stocks and dilute our rations. Indeed, its analysis is very similar to straw (1.09 MCal, 5% PB, 40% ADF) and its low potassium level (0.49) makes it an interesting ingredient to include in the ration of dry and transition cows.

The cation-anion balance is calculated by the difference between two positive ions Na⁺ and K⁺ and two negative ions, Cl⁻ and S⁻. A feed containing little potassium, such as oat hulls, further reduces the cation-anion balance and promotes the impact of anionic salts. Its palatability is not to be questioned, since it comes from oatmeal intended for human consumption. Moreover, its handling is simple since it is pelleted. Finally, it proves to be economically advantageous, around 195\$/tonne (truck load), whereas straw is easily sold at between 240\$ and 250\$/tonne DM.

We observe beneficial and consistent responses when it is possible to add ingredients, such as hulls and anionic salts, in a total mixed ration. This is because the cow always consumes a balanced mouthful.

It is always better to be safe than sorry! There are several tools to help you optimize the stressful calving period. Good planning for consistency & having beneficial ingredients can only improve performance.



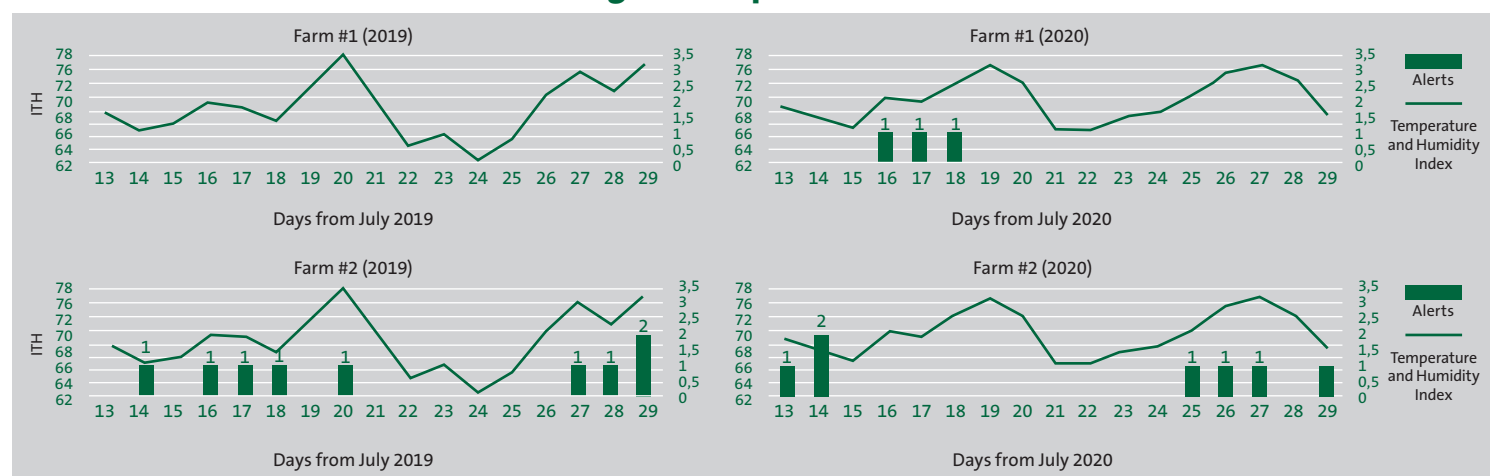
Measuring the efficiency of your ventilation system is easy with ruminal probes!

The deployment of ruminal probes, with the support of Desjardins, has been booming lately. In fact, eight new farms have joined the project and we are still recording the temperatures from last year's three participating farms. Cooling systems were put to the test this summer during the numerous heat waves, including the record-breaking one in early July, according to Weather Network.

Did you also experience these extreme heat waves? Your cows have undoubtedly suffered the consequences, both in terms of their production and health. They feel heat stress when the temperature and humidity index (THI) exceeds 68, which is characterized by 22 degrees Celsius and 45% relative humidity. The graphics below show the changes in THI versus the number of heat stress alerts for the

same period in 2019 and 2020. Obviously, stress increases with milk production. The more milk a cow produces, the more her internal heat level will increase. For example, the amount of daily heat released by a cow producing 38 kg at her peak lactation will be an additional 80,000 BTU at her second calving, with a peak lactation of 50 kg of milk. To give you a more concrete idea, this difference in production of 12 kg of milk represents the heat of 2 litres/day of diesel fuel that the cow must eliminate. This is a factor to be considered in the analysis of the results, because since the probes have a life span of 3 years, all the data collected during the first year comes from the first lactation cows that we want to keep following in the future. So, if your first lactation cows are suffering, imagine the stress of your best performing cow in the barn?

Hard data from farms that have been using ruminal probes for two summers:



Farm #1 benefits from natural ventilation and is equipped with fans and sprinklers over the feeding and bed area. There were no heat stress alerts last year. The alerts presented in 2020 are from a single cow. She was in early lactation and was already producing a lot of milk. Therefore, despite a perfect system, cows can still be affected, but to a lesser degree.

Farm #2 has made improvements to its system since last year. It was taking advantage of natural ventilation with Big Ass Fans overhanging the stalls, as well as misters. This was creating large gatherings under the fans and was causing production and component declines. This year, the addition of fans to the feeder proved to be very effective in reducing heat stress alerts, as can be seen by comparing the graphics. There was also a 0.1% increase in the fat test without the addition of fat in the ration.

The heat of the last few months has created a lot of discussions about the best ventilation systems. In addition to global warming, the increase in production has led to an increase in the need for cooling systems. Ruminal probes allow you to evaluate the efficiency of your system, measure changes over time and compare your results with other users.

We still have places available to access this technology with the help of the Desjardins fund for 2021. Contact your consultant for more details.

Express Animal production

Put an end to low forage productivity!

For several years now, the production costs of hay forages have been steadily increasing. This is due to yield declines (resulting from summer droughts) combined with difficult winter survival. This increase in costs may help create discussions about the need for hay fields in dairy farm crop rotations. We met with one of the owners of a business that has decided to eliminate hay fields from its rotation: Christian Brault from *Ferme Brault et Frères*.



What allowed this farm to start reflecting on this matter, was their way of evaluating the productivity of the crop sector of their dairy business. It is the evaluation of the productivity of a crop from year to year, combined with its impact on the profitability of the entire crop rotation that makes the difference. It is this overall concept that today dictates most decisions concerning crop production. The reflection began first with an analysis of the strengths and weaknesses of the farm's crop sector. The owners soon noticed that growing hay forages decreased the profitability of the entire rotation. "It was our weak link in cash crop operation," says Christian Brault. On the other hand, some crops, such as cereals,

corn, and soybeans, made a positive contribution to the overall rotation. To arrive to today's way of doing things, several steps had to be taken and several avenues tested.

As a result of these observations, the owners made the decision to eliminate the hay forages for lactating cows from their rotation. This eliminated portion was replaced by the complete purchase of the necessary forage inventory for lactating cows. However, not all forages other than corn silage were removed from the rotation. Many forages used for winter ground cover or straw from grain crops continue to be fed to certain groups in the herd, such as heifers and dry cows.

Kelley Allen, B.Sc. (Agr.)
Consultant
613 - 292-3656
kelley.allen@unifrontieres.coop



Alex Lapointe, Agr.
Consultant
819 271-6204
alex.lapointe@unifrontieres.coop



The crop rotation begins with grain corn or silage. The farm uses three hybrids that require different heat units in corn silage. This allows the corn silage harvesting site to be spread out and some necessary field work (leveling, liming, etc.) to be done. The hybrid with the highest heat unit requirement finalizes the filling of the 3 hermetic silos on the farm, Christian estimates that about 100 tons per additional silo can be added with this hybrid. The fields where corn silage is grown are then planted with fall rye, immediately after the corn silage is harvested. This rye is then harvested in the spring of the following year (usually end of May) as forage, mainly for heifers.

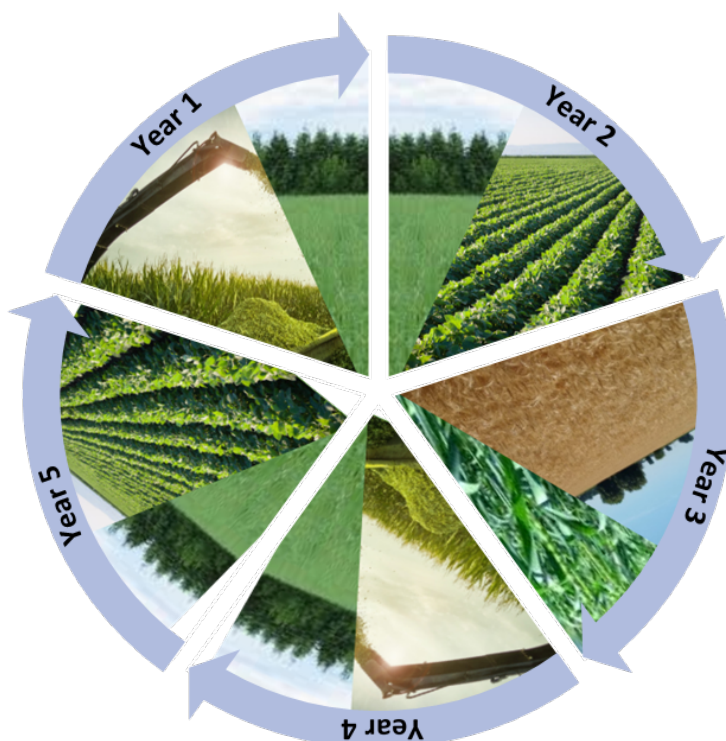
The soybeans are then planted for harvest the following fall. Rye also provides better weed control due to its allelopathic characteristic that inhibits weed germination and growth. The following year, the cereal crop is sown. However, it will not be the only crop harvested from this field during the year, since after the grain and straw are harvested, another crop will be planted with the objective of obtaining a forage crop in the fall. This crop can vary from year to year: oats and peas has already been used, so has forage oats, and this year the wheat harvested from the silo may be reseeded for a fall feed wheat crop. The purpose of this crop is again to increase the forage inventory for the heifers. Beyond the inventory, Christian Brault promotes soil health with these double crops. "The goal is to always have something living in the soil," he explains. Of the approximately 600 acres, 240 are devoted to corn (grain and silage) and soybeans. The remaining 120 acres are used for a grain crop, often wheat. That means that out of 600 acres annually, 300 of those (120 grain and 180 corn silage) bring in two crops each year.

Another aspect that sets the *Ferme Brault et Freres* apart is the fertilization of the crops. The majority is done by adding liquid manure from their dairy sector. What makes such a large amount of liquid manure possible is the use of a dragline application system on a contract basis. This system makes it possible to spread manure over a large area and at times of the year when tanker spreading would not be possible due to the high risk of compaction. This flexibility results in less compaction and more organic matter in the fields. It is this input that allows them to add only a nitrogen starter, sometimes combined with phosphorus, in their corn. "I only add a starter, no 32-0-0 afterwards. I put 50 units of nitrogen in the planter and I do not touch anything else."

For Brault, soil health pays off and that is why it is a priority. In addition, the farm owners pay necessary attention to the nitrogen volatilization and leaching from its fields. For this reason, they have been incorporating manure in the fall using injectors equipped on their spreading units for a few years now. The farm has not only seen an improvement in soil analysis since the implementation of this technique but has also noted an increase in yield in the fields where this technique has been used.



The evaluation of the farm's strengths and weaknesses, as well as its vision of the overall profitability of the rotation, allowed it to arrive at its current system. Although it seems to be working, the entire team involved in the decision making and providing advice is working tirelessly to find out what the next improvement will be. No avenue is permanently closed, and all proposals are evaluated. It is this constant desire for improvement that allows this farm to be successful, both in terms of plant and financial returns.



Express Our Team

Interview with Jenna Soesbergen



With the aim of promoting cooperative values within the community and especially among the next generation, we thought we would present you with an interview with the youngest member of your cooperative's board of directors. Jenna Soesbergen is a shareholder of Soesbergen Farm, located in Ste-Agnès de Dundee and she has been a member of the board of directors since March 2019.

Tell us about yourself: I graduated from McGill University in 2010 with a Bachelor's degree in Agricultural Science and became a member of the Ordre des Agronomes du Québec the same year. I worked from 2010 to 2018 as a crop sales representative for an Agrocentre. I have been working on the farm full time since 2018 and I have been a shareholder since 2019. My responsibilities on the farm include accounting, raising heifers (0-12 months) and field scouting. I am married to Kevin Scott, he works in the railway industry. We have a 5-year-old daughter named Annabelle.

Has the project of returning on the farm been planned for a long time? Growing up, I did not think a career in agriculture was for me, but I have always stayed close to it. My interest in applied sciences and my love of agriculture eventually led me to a career as an agronomist. My 8 years of experience as an agronomist and working closely with farmers made me realize that I missed the farm. I spent more and more time there. I would say that I really showed an interest in coming back to the farm five years ago, and I have never looked back. This lifestyle is very addictive!

What were the triggers that motivated your involvement on the board of directors of La Coop Unifrontières? Once I started working on the farm full time, I felt the desire to get involved in a project. Growing up, we were always taught the importance of giving back to the community and I always loved being a director. Back in university, I was president of Québec 4-H for 2 years and I really enjoyed the experience of being a member of a board of directors. When the position on the Unifrontières board became available, it seemed a natural fit for my experience and the role I play on the farm. I enjoy being involved and being an active director!



Jenna Soesbergen, Agr.
Director, MRC of the High-St-Laurent



Why get involved in a cooperative business? Agriculture is a difficult industry and it is important to stick together as much as possible. We are a unique industry because of our strong community ties. Being involved in a cooperative allows me to give back to the community.

What do you like about this position? I enjoy being involved in the decision-making process and helping Unifrontières continue to have a strong presence in our community.

Is this kind of involvement IN for someone of your generation? Honestly, I do not know, but it should be! Getting involved is very rewarding.

Do you feel that you represent a group of members, if so, which one? I do not like to think of myself as representing a group of members. I hope I represent the interests of all members in my sector. I believe that, in an open and inclusive board, equal representation comes naturally.

What are some of the things you have learned as a director that are useful in your family business? I am still very new as an administrator and feel I still have a lot to learn. I have already learned a lot about understanding and analyzing budgets, financial statements and key indicators. I am really looking forward to learning more as my term continues.

Do you believe that your career path is an asset as a director of an organization involved in the sale of products and services? The time I have spent as an employee gives me a new perspective. I like to believe that I can understand both the employees and the managers point of view. The agronomist role that I enjoyed the most was being able to meet a lot of different farmers and see the variety of ways to run a business. I have always found it to be a very valuable asset; it helps me think outside the box. Just because you have always done something the same way does not mean there is no room for change.

Is it difficult to balance work on the farm/family? It is a balancing act indeed. I have always found that having a clear list of the day's and weeks' priorities ensures that everything is done on time. When running a small business, such as a farm, you sometimes must choose to give up lower priority activities in order to spend time with your family. I have very good support from my family members, and I could not do it without them!

Do you have a role model who is both an inspiration and a mentor for you? My family has always been very involved in the community and I try to continue this tradition.

Thank you very much for your answers and your involvement in our coop. We hope that your testimonial will encourage other dynamic young entrepreneurs to get involved in their cooperative.

Express Lactascan



2.5kg Club

Considering the limitation of production caused by the pandemic, we used data collected before March 2020 for this publication. Your team of consultants publishes the production results for the 12 months, based on milk paid for by the federation. These farms produced more than 2.5 kg of fat and protein/cow/day on an annual average. We believe that this is the best way of doing things, in order to respect the efforts required to stay in this select club. Producers who have maintained such a high level of annual production have been able, among other things, to produce forages of consistent quality and in sufficient quantity, to maintain low lactation days and to effectively manage heat periods.

Name of the farm	Locality	Municipality	Litres/ Cow	Fat Kg/ Day	Prot. Kg/ Day	Fat Kg + Prot.	Milking type
Ferme Nieuwenhof & Associés inc.	Justin & Benjamin Nieuwenhof	Ste-Agnès-de-Dundee, Qc	45.0	1.80	1.39	3.2	3x
Ferme Bryhill	Lynn, Dave & Matthew Bryson	Ormstown, Qc	41.8	1.67	1.29	3.0	3x
Lukassen Farm	John, Nancy & Kevin Lukassen	Huntingdon, Qc	38.6	1.64	1.25	2.9	Robotic
Ferme Val-Bisson	Jean Bissonnette & Élyse Gendron	St-Polycarpe, Qc	38.6	1.59	1.26	2.8	Robot léo
Suntor Holsteins Farm	Kevin Sundborg & Amanda Lukassen	Ormstown, Qc	38.2	1.63	1.22	2.8	Robotic
Ferme Lavigne inc.	Alain & Jean-Pierre Lavigne	Ste-Anne de Prescott, Ont	40.0	1.57	1.25	2.8	Robotic
Ferme Guyette	Lorrette Dumoulin, Jean-Guy, Jocelyn, Jean-Yves Vanier	St-Clet, Qc	38.4	1.58	1.22	2.8	2x
Ferme Frederic	Luc Fredette	Plantagenet, Ont	35.1	1.42	1.33	2.7	Robot léo
Weeberlac Holsteins	Tim & Scott Groniger	Carlsbad Springs, Ont	37.2	1.47	1.27	2.7	3x
Ferme Ashley Cameron	Ashley Cameron	Ormstown, Qc	38.4	1.53	1.20	2.7	Robotic
Ferme Soesbergen inc.	John, William, Christopher, Jenna & Nic Soesbergen	Ste-Agnès-de-Dundee, Qc	36.7	1.52	1.17	2.7	2x
Ferme Ben-rey-mo	Reynald, Monique & Martin Benoit	St-Albert, Ont	37.1	1.53	1.16	2.7	Robotic
Sonibrand Farm	Arnold & Anna Kuratle, Rene & Sonja Buermans	St-Isidore, Ont	35.6	1.48	1.19	2.7	Robotic
Ferme Du Galet	Normand Chevrier & Hélène Therrien	Rigaud, Qc	33.9	1.45	1.17	2.6	2x
Ferme A&L Desnoyers	André, Lyne & Steve Desnoyers	St-Albert, Ont	37.6	1.44	1.16	2.6	Robotic
Ferme Simajé	Christian Riendeau & Martine Turcotte	Ste-Martine, Qc	35.6	1.42	1.16	2.6	2x
Ferme Archo	Réjean, Hugo Archambault, Diane Gagné	St-Louis-de-Gonzague, Qc	35.1	1.43	1.15	2.6	2x
Ferme Ricky	Patrick Séguin	St-Albert, Ont	34.5	1.45	1.13	2.6	2x
Ferme R. Séguin et fils	Robert, André & Gilbert Séguin	Ste-Marthe, Qc	33.6	1.43	1.11	2.5	2x
Maple Oak Farm	Glen, Dennis & Melissa Moore	Hinchinbrooke, Qc	35.9	1.40	1.14	2.5	2x
Ferme Iceberg inc.	David Cécyle	St-Stanislas-de-Kostka, Qc	35.2	1.40	1.15	2.5	Robotic
Morrisbel Farm	Denis, Jonathan, Jeffrey & Claudette Morris	Sarsfield, Ont	34.7	1.43	1.10	2.5	Robotic
Ferme Legermau	Maurice, Annie & Marc-André Léger, Dany Desrochers	Ste-Agnès-de-Dundee, Qc	34.6	1.40	1.12	2.5	2x
Ferme LCM Quesnel	Marc, Ginette, Pascal, Valérie, Joël Quesnel	Moose Creek, Ont	34.9	1.42	1.09	2.5	2x
Ferme G et J Sabourin	Gilles & Johanne Sabourin	Crysler, Ont	34.8	1.39	1.12	2.5	2x
Ferme Franduro senc	Jean-Francois & Robert Duteau, Francine Girard	St-Bernard-de-Lacolle, Qc	35.1	1.40	1.11	2.5	Robotic
Ferme Philos inc.	Philippe Etter	Sarsfield, Ont	32.3	1.38	1.11	2.5	2x
Templewood Farm	Jim Templeton	Ormstown, Qc	33.3	1.39	1.09	2.5	2x
Ferme Descayer et fils	Francois Cayer	St-Albert, Ont	32.8	1.38	1.10	2.5	2x
Ferme Rochevert	Francis Rochefort	Howick, Qc	33.9	1.37	1.09	2.5	Robotic
Ferme La Chateaugoise	Patrick & Maurice Gendron	Chateaugay, Qc	32.7	1.36	1.10	2.5	2x
Ferme Y.L.G. Pilon	Yoland & Guillaume Pilon	St-Polycarpe, Qc	33.2	1.36	1.09	2.5	2x
Ferme Montréal	Michel & Gisèle Proulx, André Ménard	Les Cèdres, QC	33.1	1.34	1.11	2.5	2x
Ferme Dlasépt	Jacques, Suzanne & Alderic Lafèche	St-Albert, Ont	32.8	1.39	1.07	2.5	2x

Congratulations on your good results!