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Navigating Market Challenges Together

In today's dynamic agricultural landscape, you face numerous challenges, from managing rising production costs to ensuring the health and productivity of your livestock. While other countries have seen egg prices skyrocket due to avian health concerns and chain disruptions, local producers play a crucial role in the stability of the Canadian food chain. At Jefe, we are committed to supporting you with practical, science-based solutions to help you navigate complexities not only in the layer industry but also in the broiler, swine, and ruminant markets.

In this edition, we offer insights on:

- **Optimizing Water Quality:** Ensuring clean and safe water is vital for animal health and performance.
- **Preventing Post-Weaning Diarrhea in Pigs:** Implementing effective strategies to maintain piglet health and growth.

- **Mitigating Heat Stress in Livestock:** Protecting your cows and poultry from the adverse effects of elevated temperatures.
- **Enhancing Poultry Nutrition:** Utilizing high doses of protease to improve digestion and feed efficiency.

Your dedication to your farm and community is unwavering, and Jefe is here to provide the tools and knowledge you need to thrive. Together, we can overcome the challenges of today and build a prosperous future for your farm.

Your Jefe Team



Benefits of High-Dose Protease in Poultry

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Raising healthy and productive birds is all about optimizing feed use. However, undigested protein in feed can cause health problems and lower bird performance. To counteract this, a high dose of protease can make a significant difference. Protease is an enzyme that helps break down protein in feed, making it easier for birds to absorb essential nutrients. At higher doses, it also supports intestinal health, setting birds up for improved productivity.

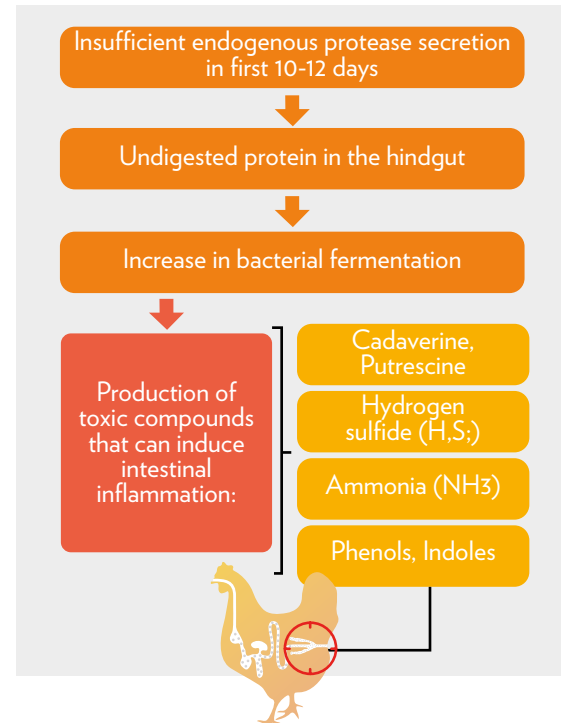
Why Is Protein Digestion a Problem?

The proteins in raw feed ingredients, like soybean meal, are not fully digestible for poultry. As a result, undigested protein reaches the hindgut, where it ferments and triggers several problems:

- Production of harmful compounds like ammonia and hydrogen sulfide (Figure 1).
- Growth of harmful bacteria, which can damage the intestines.
- Reduced feed efficiency and poor bird performance.

Young birds, especially in their first 10-12 days, have low natural protease activity, making digestion even more challenging. Additionally, heat stress during summer can further reduce the bird's ability to digest protein effectively.

Figure 1: Production of toxic compounds in the intestine due to fermentation of undigested proteins by harmful bacteria.



The Solution: High-Dose Jefo Protease



Jefo Protease is a unique multi-component enzyme that breaks down protein better than natural proteases in birds. It remains effective even when feed contains anti-nutritional factors like trypsin inhibitors (commonly found in soybean meal).

At a standard dose of 125 g/t, Jefo Protease improves protein digestion by breaking down large proteins into smaller peptides and amino acids, making nutrients easier to absorb.

At higher doses, Jefo Protease offers multiple benefits:

1. **Reduces Gut Inflammation:** Less undigested protein means less harmful bacterial fermentation in the gut.
2. **Supports Young Birds:** High-dose protease compensates for the low enzyme activity in chicks, helping them grow faster and stronger.
3. **Minimizes Heat Stress Effects:** Even under hot conditions, Jefo Protease maintains high feed efficiency and performance.
4. **Hinders Pathogenic Bacteria Communication:** Proteases interfere with the communication mechanisms of harmful bacteria, reducing their growth and impact on bird health.

Results Farmers Can See

Field studies and trials highlight the effectiveness of high-dose **Jefo Protease** in poultry feed:

1. **Improved Growth Under Heat Stress:** By day 28, birds fed Jefo Protease had a higher body weight gain and improved feed conversion ratio (FCR) compared to control.
2. **Better Performance in Low-Protein Diets:** Even when feed protein levels were reduced, birds treated with Jefo Protease maintained excellent growth and intestinal health.
3. **Stronger Intestinal Health:** Trials revealed that Jefo Protease reduced pathogenic bacteria in the ileum, the final part of the small intestine, leading to healthier birds.
4. **Resistance to Soybean Allergens:** Soybean contains allergenic proteins like glycinin and β -conglycinin, which cause inflammation and damage gut lining. Jefo Protease breaks these proteins down, ensuring smoother digestion and better gut integrity.



Take Your Poultry Operation to the Next Level

Want to see the benefits of high-dose **Jefo Protease** firsthand? Contact a Jefo expert to discuss how our enzymes can boost your flock's productivity and profitability!



for Farmers and Birds

Using high-dose **Jefo Protease** not only improves bird health and performance but also reduces feed costs by optimizing the use of raw materials. With healthier birds, farmers can expect fewer diseases, better growth, and higher profits. Whether you're dealing with heat stress, low protein diets, or young chicks with immature digestive systems, Jefo Protease is a reliable tool to enhance your poultry operation.

Managing Post-Weaning Stress and Gut Health in Nursery Pigs with Jefo Protease and Jefo Protected Organic Acids and Essential Oils

Turning Post-Weaning Challenges into Growth Opportunities

Post-weaning is a critical transition period for nursery pigs, often marked by stress, digestive issues, and increased disease susceptibility. The abrupt shift from milk to solid, plant-based feed introduces anti-nutritional factors that disrupt digestion. Additionally, environmental stressors such as high stocking density and relocation further impact feed intake, and immune function. The result? Slower growth, increased risk of diarrhea, and compromised gut health.

New regulations restricting the use of antibiotic growth promoters and high doses of zinc oxide have made preventing diarrhea and maintaining pig health more challenging. Therefore, producers need alternative solutions that support both growth and overall health, while enhancing nutrition to meet high growth demands of modern pig genetics. This can be achieved through precise diet formulation and cost-effective feed additives.

The Two-Part Solution:

Jefo Protease and Jefo Protected Organic Acids and Essential Oils Jefo – Jefo P(OA+EO) – offer a powerful, science-backed approach to enhancing gut health and optimizing performance in nursery pigs.

Jefo Protease: Unlocking Digestibility, Enhancing Efficiency

By leveraging the Jefo Protease nutrient matrix, producers can reduce feed costs while maintaining optimal growth and health outcomes. Additionally, this enzyme enables the use of lower-cost alternative feed ingredients, providing a cost-effective feeding strategy without sacrificing the birds' performance (Figure 1). Jefo Protease also breaks down anti-nutritional factors in feeds, improving protein digestibility and reducing undigested protein in the hindgut. This reduction lowers nitrogen excretion and supports more sustainable production practices (Figure 2).



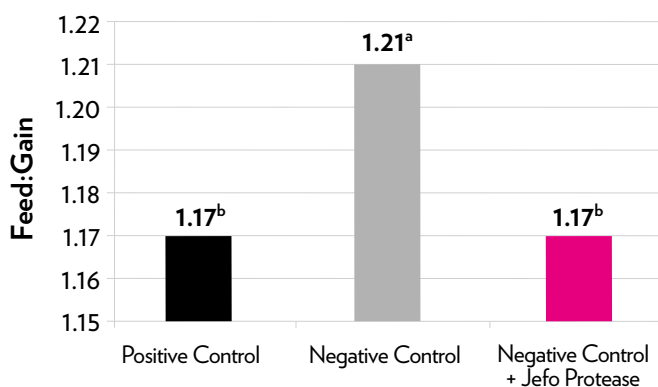


Figure 1. Feed per gain in nursery piglets fed a standard (Positive Control; 22% soy protein, 5% whey protein, and 3% fish meal) and a low digestible (Negative Control; 30.1% soy protein and without whey protein and fish meal) Phase 1 diet, with or without Jefo Protease.

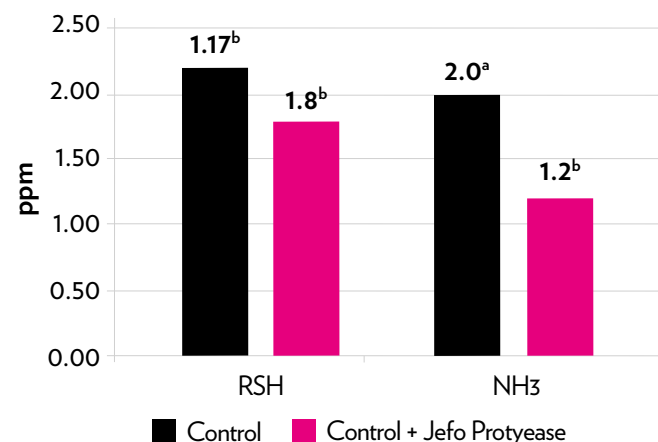


Figure 2. Concentration of noxious gases in the feces of nursery piglets fed diets with or without Jefo Protease.

Jefo P(OA+EO), a microencapsulated blend of organic acids and essential oils, is specifically designed for gradual release in the lower gastrointestinal tract (Figure 3). This helps create a healthier gut environment by reducing harmful bacteria such as *E. coli* and minimizing the risk of diarrhea. Furthermore, **Jefo P(OA+EO)** reduces intestinal inflammation and strengthens gut integrity, which improves nutrient digestion and absorption (Figure 4). These benefits translate to better growth and performance in nursery pigs. By promoting optimal digestion and nutrient utilization, **Jefo P(OA+EO)** fosters a balanced microbiome, thereby enhancing immune function and increasing disease resistance.

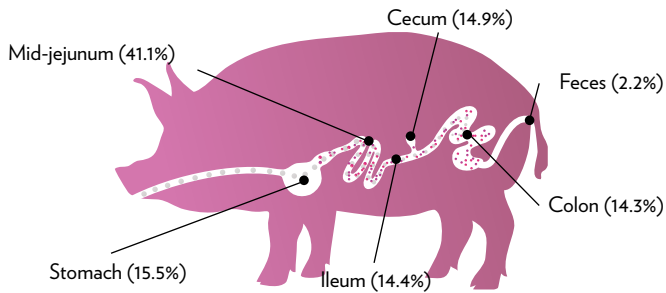


Figure 3. Release profile of active components in **Jefo P(OA+EO)** throughout the digestive tract of nursery piglets.

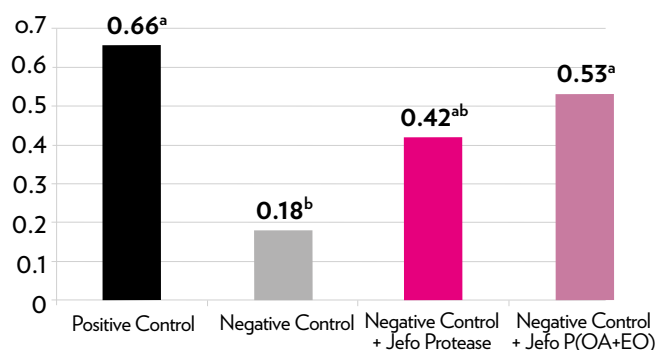


Figure 3. Expression of tight junction protein gene in nursery piglets with or without Enterotoxigenic *E. coli* (ETEC-K88) challenge and supplemented with either free acids (lactic, citric, and phosphoric acid at 5 kg/t) or **Jefo P(OA+EO)** (at 1kg/ton).

From Stress to Success

Together, the incorporation of Jefo Protease and **Jefo P(OA+EO)** into nursery pig nutritional programs provides an effective solution to post-weaning stress and gut health challenges. This integrated approach not only ensures superior growth performance but also supports the industry's transition to antibiotic-free production systems. To learn more about how our solutions can benefit your operation, contact your Jefo representative today and take the next step towards healthier, more efficient pig production.

Water Acidification & Waterline Cleaning: A Smart Investment for Your Livestock

Water is the most consumed nutrient by your animals—so why not ensure it's the cleanest and safest? Producers invest heavily in their barns, ventilation systems, genetics, and feed, yet one of the most crucial elements—water quality—is often overlooked. Today, more producers are paying attention to their water's pH levels and regularly cleaning and disinfecting their waterlines. Here's why you should do the same.



Why Acidify Your Water?

**Average
water pH
is 7.8.**

- Water pH is measured on a scale from 0 to 14, with 7 being neutral. Anything below 7 is acidic, while anything above 7 is basic. In most Canadian provinces, the average water pH is 7.8.
- So why lower the pH if it doesn't change the water's taste or smell? Because a pH above 7 creates the perfect breeding ground for bacteria, leading to biofilm buildup inside water lines.
- By lowering the water's pH below 7, bacterial growth slows significantly, helping ensure cleaner, safer drinking water.

Negative effects of biofilm

**Reduces water
availability**



**Shields bacteria
from disinfectants**



**Promotes bacterial
colonies that can
harm animal health**



Water Acidification Alone Is Not Enough

While acidifying water helps control bacteria, it doesn't eliminate them completely. That's why pairing acidification with chlorine (1–3 ppm) or hydrogen peroxide (25–50 ppm) is essential. At a pH of 6.5, chlorine eliminates nearly 90%

of bacteria, compared to just 35% at 7.8. However, dropping below a pH of 5 can be too aggressive, damaging equipment and affecting water palatability.

**The key is balance—
achieving the right pH level
for maximum effectiveness
without harming equipment
or water quality.**

**pH
6.5**

**eliminates
nearly
90% of
bacteria**

Waterline Cleaning: The Step You Can't Skip

Solution:

A 3% stabilized hydrogen peroxide solution for 48 hours will clear out biofilm and bacteria, ensuring your system is truly clean before treatment.

Even with acidification and disinfectants, your water system still needs regular cleaning to eliminate biofilm and bacteria completely. If your system (ponds, pumps, pressure regulators, filters, pipes, nipples, drinkers, etc.) isn't properly cleaned, your animals will still be exposed to contaminated water.

Take Action Today

Don't let hidden bacteria impact your livestock's health and performance. Talk to your representative today for expert guidance on the best water acidification and cleaning strategy for your operation..



Beating the Heat: Protecting Poultry from Heat Stress

Heat stress is a major challenge for poultry farmers, especially during hot and humid weather. It reduces feed intake, slows growth, weakens eggshells, and increases mortality rates. But with the right tools, you can help your birds stay healthy and productive. Jefo offers a range of solutions to fight heat stress and other production stressors, keeping birds strong, and improving their overall performance.



The Problem with Heat Stress

When temperatures rise, poultry—including broiler chickens, turkeys, and laying hens—struggle to lose excess body heat. This can lead to:

- Reduced feed intake and slower growth.
- Poor feed conversion efficiency.
- Thinner eggshells and more broken eggs.
- Inflamed intestines, which reduce nutrient absorption.
- Increased risk of disease and higher mortality rates.

Birds cope with heat stress by reducing activity, eating less, and drinking more water, which further affect their productivity.

Jefo's Heat Stress Solutions

To combat these challenges, Jefo offers proven nutritional solutions:

1 - Jefo Protease:

- Improves protein digestion, even during heat stress.
- Reduces gut inflammation, keeping the intestines healthy.
- Supports faster growth and better feed efficiency.
- Helps laying hens maintain strong eggshells and better egg production.

2 - Jefo Protected Organic Acids + Essential Oils:

- Reduces harmful bacteria in the gut by targeting pH-sensitive pathogens.
- Supports intestinal health and improves nutrient absorption.
- Protects the gut lining and reduces the effects of heat stress on the digestive system.

3 - Jefo Xylanase:

- Breaks down fibers in feed, releasing more nutrients for birds to absorb.
- Promotes the growth of beneficial gut bacteria while reducing harmful pathogens like Salmonella and Clostridium perfringens.
- Improves eggshell quality and gut health, especially during heat stress.

4 - Jefo Liquid Solutions:

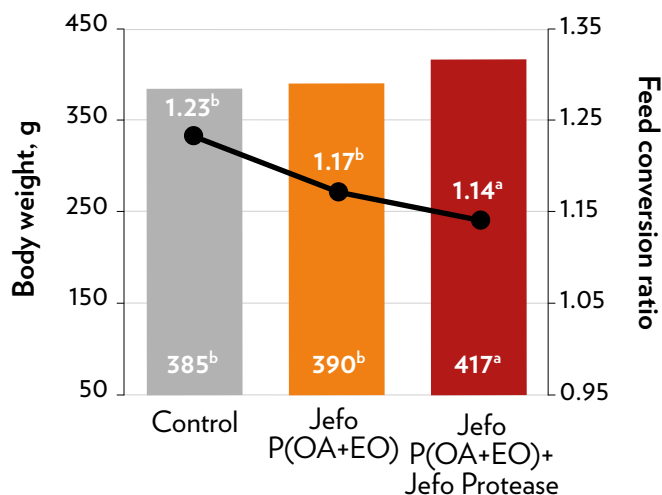
- Proxy-Clean: Cleans and disinfects water systems, ensuring clean drinking water for birds.
- Jefo liquid acidifier for drinking water: Controls bacterial growth and lowers water pH to ensure clean and safe drinking water.
- Liquid supplement of vitamins A, D3, E, K and B-complex: Supports immunity and maintains productivity during stress.
- Vitamin D3 supplement for drinking water: Reduces the harmful effects of heat stress and improves bird activity.

Proven Results

Jefo's solutions deliver measurable results, improving poultry health and performance during heat stress:

- **Better Growth in Broilers:** Birds supplemented with Jefo Feed and/or Liquid Solutions (Figures 1 and 2, respectively) gained more weight and had better feed conversion ratios leading to stronger growth performance.

Body weight and feed conversion ratio of broiler chickens at 14 days of age before undergoing heat stress



Body weight and feed conversion ratio of broiler chickens at 28 days of age after undergoing heat stress

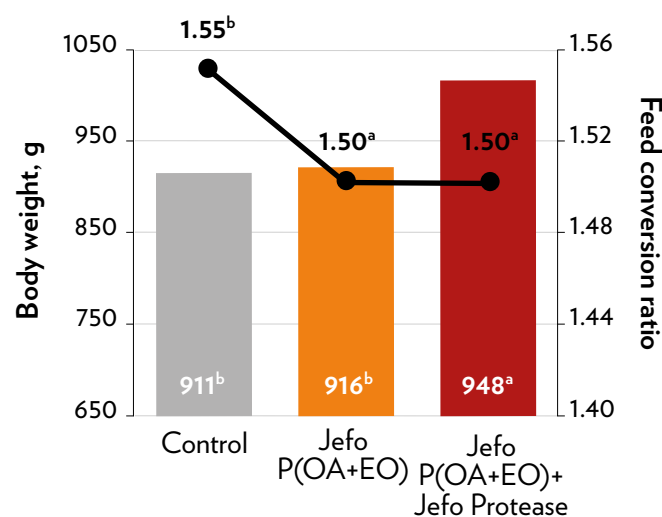
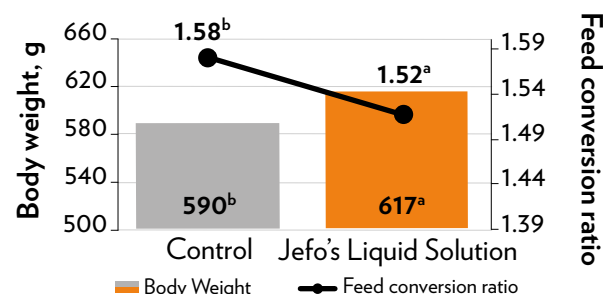


Figure 1: Growth performance of broiler chickens subjected to heat stress conditions and supplemented with Jefo Protease and Jefo P(OA+EO).

Growth performance of broiler chickens from 0 to 21 days of age



Birds were subjected to a heat stress challenge at days 14-17 with room temperatures set at 35.6°C and relative humidity at 61.5%. Birds were given VIT-AL (100 mL/1000 L) at days 0-10 and SALOX-100 (1 L/1000 L) at days 12-17. ^a $P < 0.05$, TRR: GL555

Figure 2: Growth performance broiler chickens subjected to heat stress conditions and supplemented with Jefo Liquid Solutions.

- **Improved Egg Quality:** Layers given Jefo Xylanase and Jefo P(OA+EO) produced better quality eggs with stronger eggshells and fewer cracks.
- **Lower Mortality Rates:** Flocks supplemented with Jefo products experienced fewer losses during heat stress periods.
- **Healthier Guts:** Jefo Protease, Jefo Xylanase, and Jefo P(OA+EO) promoted beneficial gut bacteria and reduced harmful ones, keeping birds' intestines healthy and reducing inflammation.

Easy to Use, Big Benefits

Jefo products are easy to use. Simply add them to feed or drinking water during stressful periods or as a preventive measure. By using these tools, farmers can:

- Protect their flocks from heat stress and other challenges
- Reduce losses and maintain consistent performance
- Boost productivity and maximize profitability

With Jefo's complete heat stress management program, you're not just keeping birds comfortable—you're setting them up for success, no matter the conditions..

For further information on products use, combination, and dosage, please contact your region sales representative.

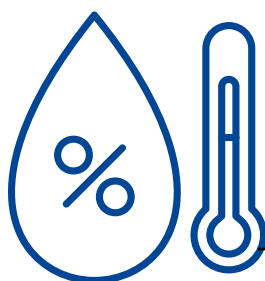
Protecting Your Dairy Herd from Heat Stress: Practical Solutions for Maximum Performance

The Challenge of Heat Stress

Summer heat doesn't just make humans uncomfortable—it seriously impacts cow well-being and performance. Modern dairy cows have large body masses and high metabolic rates to sustain milk production, making them prone to heat stress (Sammad et al., 2020). To cope, cows reduce dry matter intake, leading to lower milk yield, poor component production, and reduced conception rates.



When Do Cows Feel the Heat?



Temperature isn't the only problem—humidity makes heat stress worse. That's why the Temperature Humidity Index (THI) was developed to assess heat stress levels. It is a color-coded chart showing various levels of heat stress severities. Milk production drops when THI reaches 68, and severe stress occurs above 90 (Collier et al., 2012). A University of Arizona study showed cows producing 35 kg (77 lbs) of milk daily lost 2.2 kg (4.8 lbs) of milk when THI averaged 68.

HUMIDITY

Long-Term Consequences of Heat Stress



The effects of heat stress don't stop when summer ends. If cows are heat-stressed during the dry period, when the development of the mammary gland occurs, their future milk production is negatively affected, leading to losses of 2.2–4 kg (4.8–8.8 lbs) per day in the next lactation, regardless of whether it occurred during the entire dry period or only in close-up (Tao et al., 2016).

Heat stress during pregnancy also affects the next generation. Calves born to heat-stressed cows are smaller, grow slower, and require more services per conception when they become heifers. Worse still, they produce 5 kg (11 lbs) less milk per day for the first 245 days of lactation (Dahl et al., 2016).



What Can Farmers Do to Combat Heat Stress?

Thankfully, heat stress can be managed with the right combination of environmental and nutritional strategies.

Environmental Strategies for Keeping Cows Cool:

- **Maximize airflow** – Ensure barn curtains open and close properly for good ventilation.
- **Reduce overcrowding** – Decrease stocking density when possible to give cows more space to dissipate heat.
- **Install fans strategically** – Place fans evenly throughout the barn to create a consistent cooling breeze.
- **Use sprinkler systems at feed bunks** – Ensure water droplets are fine and mist-like. Large droplets leave cows wet without providing real cooling, potentially making heat stress worse.



Nutritional Solutions: Powering Cows Through the Heat

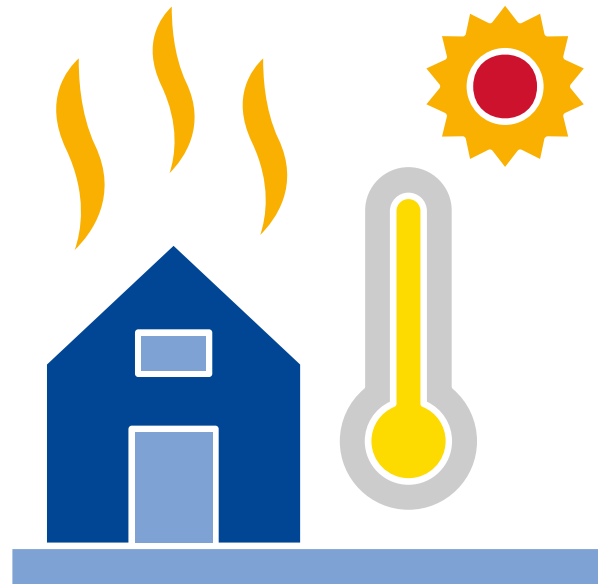
When cows suffer from heat stress, their energy is diverted to cooling rather than milk production and fertility. A targeted nutritional strategy can help optimize metabolism and maintain performance:

- **Protected B Vitamins** – These essential nutrients act as enzyme co-factors, increasing the efficiency of metabolism and glucose synthesis, which is the main energy source for cows. A well-formulated protected B vitamin blend during transition and lactation helps cows counteract heat stress and sustain performance.
- **Fresh, Clean Water** – Ensuring unlimited access to cool, fresh water is one of the simplest yet most critical steps to reduce heat stress.

The Bottom Line

Heat stress can severely impact milk yield, reproduction, and overall herd health of cows and their offspring—but proactive management can make a difference. By combining environmental cooling strategies with targeted nutritional support, dairy farmers can protect their herd's productivity and ensure stronger, healthier cows even in the hottest months.

Investing in heat stress prevention is an investment in higher milk yields, improved fertility, and a more profitable dairy operation.



Stay ahead of the heat—contact a Jefo expert to learn how precision nutrition solutions can help your herd perform at its best!

TO ORDER:

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1-800-465-2247

colonies.jefo.ca

YOUR JEFO EXPERTS



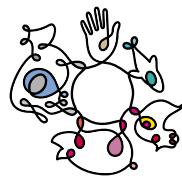
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